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## It's in There: Rethinking(?) Intelligence Preparation of the Battlefield in Megacities/Dense Urban Areas

By [Richard Wolfel](#), [Amy Krakowka Richmond](#), [Mark Read](#) and [Colin Tansey](#)

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### It's in There: Rethinking(?) Intelligence Preparation of the Battlefield in Megacities/Dense Urban Areas

Richard L. Wolfel, Amy Krakowka Richmond, Mark Read and Colin Tansey

The complexity of the modern city has been a key conclusion in most Army research surrounding military operations in megacities/dense urban areas. This complexity is based on three fundamental concepts of the modern city. First, modern cities are multidimensional (subterranean, surface and vertical). Second, cities are interconnected through globalization, social media and modern methods of communication/information dissemination. Third, cities are uncontrollable due to increased connectivity, rise of black market/informal economy, ineffective government control of slums and the rise of vulnerability in significant portions of the city. As the US Army considers the challenges of operating in dense urban areas, leadership requires a basic understanding of the operating environment. In such a complex environment, understanding the multidimensional, interconnected and uncontrollable elements in complex environments using traditional approaches of situational awareness, which emphasize discrete problem sets and well-defined regions, is problematic at best.

Intelligence sections provide a basic understanding of the operating environment. Military intelligence (MI) Concepts, such as Intelligence Preparation of the Battlefield (IPB), Areas, Structures, Capabilities, Organizations, People and Events (ASCOPE), Sewage, Water, Electricity, Academics, Trash, Medical, Safety, and Other Considerations (SWEAT-MSO), and Political, Military, Economic, Social, Information, Infrastructure, Physical Environment, and Time (PMESII-PT), have been used extensively within the MI community for decades in order to provide a snapshot of the operating environment. Before we go off and try to develop, or find the next new "it" concept, or gadget, we need to step back and critically evaluate what currently exists. How do traditional intelligence methods help inform situational awareness in dense urban environments? Where do these methods fall short? These gaps then become areas where new ideas and Science and Technology (S&T) developments can fill the void to fill in the picture. We need to avoid the urge to throw out what we have. As researchers have contemplated the next new idea, the aforementioned intelligence tools have stood the test of time and with a little modification, offer a solid approach to understanding and explaining the complexities of Megacities/Dense Urban Areas. Military intelligence doctrine provides a solid foundation on which to launch an expedition into identifying and explaining the complexity of the megacity that will increase situational awareness.

### What is IPB and How is it Evolving in the Dense Urban Environment?

Intelligence Preparation of the Battlefield (IPB) is the systematic process of analyzing the four mission variables (enemy, terrain, weather and civil considerations) in an area of interest to determine their effect on operations (HQDA, 2014, ix). This is the foundation of all intelligence gathering exercises, to identify and explain these key variables that work to help the commander gain a clear situational awareness of the area of operations (AO).

One of the largest issues with this basic definition of IPB is that it often does not take into account how the variables explaining dense urban areas are increasingly interconnected. Change in urban areas is not a unidirectional process in which the individual agent influences change in the area of interest. As a result of interacting with the area of interest (AI), the agent is also influenced as a result of social and environmental change. Anthony Giddens refers to this process as the *Duality of Structure* (Giddens, 1979: 5). This duality is important in understanding dense urban areas. Often we look very directly at the influence of the mission variables, take them as given variables, well defined and unchanging, and do not address the recursive nature of society in which the enemy, the terrain and civil considerations often change rapidly based on the actions of agents in the area. For example, the enemy can shift dimensions and move from the surface to subterranean, introduce barriers to the terrain and develop a disinformation campaign that will fundamentally shift the societal characteristics of the area of operations.

Along with the recursive nature of mission variables, the interaction of variables has become almost more important than the variables themselves. For example, we are no longer able to extract terrain from the societal milieu and analyze it separate of civil considerations. Kilcullen (2013: 54), emphasizes the interaction of mission variables in his analysis of the attacks on Mumbai in 2008. The terrorists used the interaction of terrain (littoral situation of Mumbai) and civil considerations (the unregulated nature of the fishing fleet) to explain how the terrorists were able to gain access to the region virtually undetected. Neither the terrain, nor the civil considerations alone are adequate to explain the situation in Mumbai. The complex connection between the two gives one a clearer situational awareness of the battlefield.

### **What is the Operational Environment?**

Joint Publication (JP) 3-0 (2011) identifies the area of operations as an area defined by the commander that is large enough to accomplish the mission and protect the force. There is a tendency to treat it as a discrete region that can be circled on a map and discussed in a vacuum. It also identifies the operational environment as a composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander. The problem in the modern dense urban environment is that the OE, including the area of operations, often extends much further than in the past. The impact of connections and linkages, facilitated by globalization, advances in communication technology, and media access challenge the traditional idea of a unique OE that can be isolated for analysis by an intelligence team. These connections must be addressed as part of the analysis. At an even more fundamental level, is the AO the appropriate scale of analysis in a dense urban area/megacity? Should intelligence analyses be conducted at the Area of Influence or Area of Interest level? How do we define these spheres? How do we isolate regions that cannot be isolated from outside influences? These are the challenging questions that face intelligence analysts as they conduct IPB and commanders trying to gain an awareness of an urban region.

One of the major challenges in defining a discrete Area of Operations, is the connectivity and complexity that defines the modern age of globalization. Wielhouwer (2005) addresses this complexity through the *urban triad*. The triad includes: “complex manmade terrain superimposed on natural terrain, a large and densely distributed population, and physical and service infrastructures. These characteristics interact to make each urban area a complex and dynamic system of systems, with a unique physical, political, economic, social, and cultural identity.” (Weilhouwer, 2005: 2). Taken a step further, these systems are

not static and, based on the recursive nature of societal change, always in flux as agents are influenced by the system and the system is influenced by the agents. The dynamic nature of the modern urban environment demands an expansion of traditional IPB thinking where terrain is fixed and generally unchanging. The *urban triad* helps portray a more complex terrain, both in terms of the amount of components that make up the terrain and also the continual nature of change on the terrain.

The IPB Manual, ATP 2-01.3 emphasizes the multidimensional nature of the operating environment, but offers little instruction on how to address the complex, multidimensional environment.

Multidimensionality is defined by the IPB Manual (HQDA, 2014: 9-1) as “a blend of horizontal, vertical, interior, exterior, and subterranean forms superimposed on the natural relief, drainage, and vegetation.” *Blend* is the key word here. Groups utilize various dimensions in an effort to increase mobility through the urban region. Historically, our thinking about battlespace has been two dimensional. While the IPB Manual does mention and define multidimensionality, it provides little in operational advice or examples. Technologically, this is a huge gap to fill. Technology developments, including, but not limited to, the ability to track people in three-dimensional space and systems to promote greater situational awareness, are needed to increase situational awareness in three dimensional space, from the subterranean through the vertical high rise tower. The need for greater situational awareness is magnified as individuals will not stay on one level for an extended period, but rather will change dimensions to avoid detection, gain a tactical advantage, increase security or facilitate movement.

The traditional concept of the AO and the AI are also challenged by the connectivity of the modern urban center. The city is connected globally by many different means, including: economics, culture and social media. While the IPB Manual does address cross border threats (HQDA, 2014: 7-9), the role of information is different than military or paramilitary forces coming across a boarder and influencing an AO. The Arab Spring and the Occupy movements have demonstrated that the ability to control information in the modern age is limited, at best and how virtual communities and shared ideology are created using social media and modern communication/information dissemination techniques. These movements also demonstrated that as governments attempted to control access to social media, that attempt to seize control acted as a unifying force to bring together various, disparate, social movements under a common goal. (Castells, 2015: 62).

The other major area of concern highlighted by the IPB manual is the discussion of approach and mobility corridors. Table 4-2 (HQDA, 2014: 4-6) identifies the minimum distance between terrain features required for avenues of approach. In urban settings, the two kilometer requirement for the battalion is not possible. This requires a rethinking of our mobility plans and how to control and maneuver through significantly narrower avenues of approach and to consider the possibility of nonstandard mobility corridors, those subsurface and overhead.

In addition, line of sight analysis will be substantially limited and visibility will be influenced by obstructions. For example, Begin Morning Nautical Twilight (HQDA, 2014: 4-18) will most likely not occur at 12 degrees below twilight as suggested by the IPB Field Manual. Buildings will obstruct view, shortening daylight hours in an urban environment as opposed to an open field. These small considerations could substantially impact operations in dense urban areas. Both mobility corridors and line of sight concerns show how the unique environment of dense urban areas challenge many standard conventions of intelligence preparation and situational awareness.

### **How do the Analytical Tools of Intelligence Inform IPB in Urban Settings?**

ASCOPE, PMESII-PT, and SWEAT-MSO are used extensively as the foundational analytical tools for intelligence operators to provide information to promote situational awareness. While the foundational

concepts are very useful in urban environments, it is essential to view these as not discrete elements, but as interconnected elements that interact with each other, change the environment and are changed as a result of interactions with each other and the social environment. For example, how do medical conditions interact with political and capabilities? No longer are these elements in a vacuum. It is necessary to view the connectivity in a complex and changing matrix.

### **Dense Urban Areas and Insurgency Theory**

Along with interconnectivity, another key question is what happens when civil capabilities decline, or were never developed in a region? Who steps in to fill the void? This is the foundation of the 2006 version of the Army's counterinsurgency doctrine (HQDA, 2006: 1-3). As mentioned in the Counterinsurgency Field Manual (HQDA, 2006: 1-2), irregular threats strongly influence insurgencies. Also, due to the rise of asymmetrical warfare and increasing number of insurgencies, the nature of combat effectiveness has changed in the modern era. External support is critical in modern AOs. Often this is requested/provided through social media interactions, video uploads, onsite media, elements that are difficult to control. The IPB Manual (HQDA, 2014: 5-15) emphasizes that the "effectiveness of unconventional warfare depended heavily on support and relationships." The question is how do we measure support and how do we determine the strength of relationships? Social media analysis provides a starting point to see how people form social media networks, social media clout scores provide examples of an individual's influence on a specific movement/idea.

What causes the decline in civil capabilities? That becomes another key question in understanding the uncontrollable nature of dense urban settings. Vulnerability, declining environmental security and declining (or non-existent) political capabilities are key drivers in the decline of civil control in regions. One example of the decline of civil capabilities and the rise of vulnerability is in Kampala, Uganda. Kampala is Uganda's capital city with a population of 1.5 million in 2014. Uganda as a whole has one of the world's highest population growth rates and, like many African countries, half of its population under 15. During the last two decades, the city has expanded in all directions. Growth is primarily concentrated along main roads. Between 1989 and 2010 the total built-up area increased exponentially. Sprawling, unplanned urban growth often results in slum development. Slums are the primary destination for migrants, and are generally informal settlements. Much of this migration is rural-urban, however there is also considerable movement between cities. Slums make up at least a quarter of the total city area in Kampala, housing roughly 40% of the total city population. The demand for municipal infrastructure is far out pacing supply. This creates countless human security challenges in the realms of sanitation, clean water availability, and environmental degradation.

Davis (2006: 87) also points to an example of loss of civil control in terms of land ownership. Often, public land is illegally controlled by various agents who extract significant rent from local poor who are forced to live on the periphery of the city. Often this land is marginal, vulnerable and is one of the breeding grounds for insurgent actions within the city. Thus making them areas of prime interest for potential military operations in dense urban environments. The major problem here from the perspective of situational awareness is to understand who controls/ "owns" the land?

### **How to Model Overlapping Threats?**

Weilhouwer (2005: 6), using the Army's primary lessons learned document about the war in Iraq, *On Point*, identified two deficiencies from joint urban operations in Iraq. First, the primary training facilities for U.S. forces are small towns or villages, rather than major metropolitan areas. Second, legacy computer simulations are insufficiently realistic to prepare joint force commanders and warfighters for urban operations. The first deficiency endures—urban training facilities will always be limited in size, and

military units are limited in what kinds of training can be conducted in real built up areas. The second deficiency may be easier to overcome than the first, but simulations that are able to replicate the complexity of dense urban areas have yet to be created, and will be very resource intensive. So what might be done to better understand and plan for the complexities of operations in dense urban areas? Scenario planning offers some solutions.

Scenario planning was developed by military strategists following World War II, and has been refined and adopted by others in the intelligence community, business, and academia. Most scenario planning exercises seek to satisfy one or more of the following objectives: to make sense of a confusing situation, to develop a strategy, to anticipate future events, or to facilitate organizational learning. Scenarios are especially appropriate for very complex problems that exhibit high uncertainty and involve numerous, uncontrollable variables (van der Heijden 2005). Unlike forecasts or models, which usually attempt to predict specific outcomes, scenarios seek to identify a limited number of *plausible* outcomes.

In the context of IPB and planning for operations in dense urban areas, scenario planning offers several constructive alternatives to more traditional methods. First, scenario planning can be done with limited resources. A scenario planning exercise can be conducted with a small group of people (as few as three or four, but scalable for much larger groups or staffs), and can last from a few hours to several days, depending on time available. Unlike modeling or forecasting, a simple scenario exercise requires minimal information-technology support. Second, scenario planning facilitates ‘out of the box’ thinking about complex problems. Instead of trying to understand and map the interaction of dozens or more variables, scenario planning constrains the number of variables considered, and forces participants to think about unique ways a few variables may interact over space and time. During the scenario planning process, groups develop plausible storylines that describe alternative futures. Often, during the development of such storylines, participants identify gaps in their understanding of the problem, or find new ways of thinking about a situation. Third, scenario planning can be done with groups who have no previous scenario planning experience—all that is required is a trained facilitator to explain the process, guide dialog, and capture the scenarios as they are developed. Finally, scenario planning exercises provide excellent forums for networking, team building, and learning among participants.

Scenario planning provides a method to come to terms with the complexity of dense urban areas. Scenario planning offers a tool to enhance IPB. Since scenarios are not predictive in nature, they allow for a number of plausible solutions and provide an opportunity to look at the process of working through the scenario to determine gaps in our knowledge. The basic concepts used by intelligence sections provide a point of departure as we begin to tackle the wicked complex problems of dense urban areas. The complexity does not lie in the basic concepts, but in the interconnectivity between discrete defining variables in the AO. Understanding the interconnectivity of ideas and spaces will be a major step forward in starting to grasp the complexity of dense urban environments.

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## About the Authors



### **Richard Wolfel**

Richard Wolfel is an associate professor of Geography and the Chair of Cross Cultural Competence in the Center for Languages, Cultures and Regional Studies at the US Military Academy, West Point. Rick is a social and political geography with strong research interests in urban geography, nationalism, social movements and migration with a regional interest in Post-Soviet Landscapes. He holds a BSED in American History and Geography from West Chester University, a MA in Urban Geography from the University of Cincinnati and a PhD in Geography from Indiana University.



### **Amy Krakowka Richmond**

Amy Krakowka Richmond is an associate professor of Geography in the Department of Geography and Environmental Engineering at the United States Military Academy at West Point NY. She applies her skills to understanding the interactions between environmental resources and human populations. Her current research on Sub-Saharan Africa develops an interdisciplinary framework to investigate the relationship between environmental processes and human wellbeing that can be adapted to any geographic location.



### **Mark Read**

Mark Read is a Colonel in the U.S. Army, and serves as the Deputy Head of the Department of Geography and Environmental Engineering at the U.S. Military Academy, West Point. A career infantry officer, Mark has served in a wide variety of assignments in the U.S, Europe, and the Middle East. He holds a BS in Environmental Engineering from West Point, and a MS and PhD in Geography from The Pennsylvania State University.



### **Colin Tansey**

Colin Tansey is a Major in the U.S. Army, and serves as the assistant course director for Physical Geography (EV203) in the Department of Geography and Environmental Engineering at the U.S. Military Academy, West Point. A career military intelligence officer, Colin has served in a wide variety of assignments in the U.S, Europe, and the Middle East. He holds a BA in Anthropology from California State University, San Bernardino, and a MA in Security Studies (Europe and Eurasia) from the Naval Postgraduate School.

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