



Urban planning and urban areas by 2035: main characteristics

military-Earth thinking notebook

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Published on 03/07/2020

Histoire & stratégie

It seems undeniable that the Army will increasingly intervene in urban areas. Captain (R) Ronan Hill presents the characteristics of urban areas by 2035 and their "useful" characteristics for the exercise of the soldier's profession.

It seems undeniable that the Army will increasingly intervene in urban areas. From now on, and in the future, war in urban areas will be the rule, and war in the countryside the exception[1]. 1) In order to enable the army to better understand this environment, it is necessary to study the characteristics of urban areas up to 2035. First, the heterogeneity of this growth in the world will be discussed. Secondly, it will be necessary to address the specificities inherent in the future urban dynamics, which raise as many hopes as they impose challenges. Finally, we will evoke some of the particularities of this environment that are useful to the exercise of the soldier's profession.

Urbanization: a spatially heterogeneous phenomenon

According to the FAO[2], 54% of the population will be urban in 2015. In 2050, two thirds of the world's population will be urban, i.e. 2.4 billion additional people, which is greater than the 2.2 billion increase in the global population. This urbanization dynamic is now being driven by low-income countries.

- The United Nations, in a prospective study, does not fail to point out that the urban fact materializes differently in space.[3].

The share of the urban population in 2014 is thus 82% in North America, 80% in Latin America and the Caribbean, 73% in Europe, 40% in Africa and 48% in Asia. Although urbanization will continue on all continents in the coming decades, Africa and Asia are now urbanizing faster than other regions. They are expected to reach urbanization rates of 56% and 64% respectively by 2050. Burundi, Ethiopia, Malawi, Niger, southern Sudan,

Uganda, Nepal and Sri Lanka currently have the smallest urban populations in Africa and Asia, but these are expected to almost double between 2014 and 2050.

According to the UN, population growth and urbanization are expected to lead to an increase in the urban population of 2.5 billion people between 2014 and 2050, 90% of which will be in Asia and Africa, confirming a shift in urbanization at the global level. India, China and Nigeria alone are expected to account for 37% of world urban population growth between 2014 and 2050. Over this period, India is expected to gain 404 million urban dwellers, China 292 million and Nigeria 212 million. Focusing on the very large cities, Tokyo is currently the most populous city with a population of 38 million, followed by Delhi with 25 million, Shanghai with 23 million, and Mexico City, Mumbai and Sao Paulo, each with about 21 million inhabitants. Looking ahead to 2030, it is estimated that there will be 41 mega-cities with more than 10 million inhabitants in the world, compared to 28 in 2014. Tokyo would remain the most populated with 37 million inhabitants. Delhi is expected to grow dramatically to 36 million inhabitants. If, previously, the largest urban agglomerations were located in so-called developed countries, they are now concentrated in the so-called Southern countries.

Although we are witnessing the constitution of very large cities, the United Nations rightly points out that the greatest growth comes from small and medium-sized cities. Half of the world's urban dwellers live in cities with fewer than 500,000 inhabitants, whereas the 28 megacities with more than 10 million inhabitants currently account for only 1/8 of the world's urban population.

It should be noted, however, that some cities have recently experienced a decline in their population. They are mainly located in the low-fertility countries of Asia and Europe, where overall population is stagnating or declining. Similarly, economic downturns and natural disasters have contributed to the decline in the population of some cities.

The Urban Fact: Between Hopes and Challenges

The urban fact is currently reflected in certain dynamics, which in all probability will continue in the medium term [4] [5] [6] [7] [8] [9] [10] [11] :

- Cities have a centralizing role at the social, political and economic levels.

They are privileged places for production, innovation and trade activities. As such, they enable an effective fight against poverty by increasing productivity, providing jobs, improving the quality of life and investing in infrastructure and services. The rapid deployment of information and communication technologies has facilitated this dynamic. 80% of the world's GDP is generated in cities. Their contribution to national income is far greater than their share of the urban population: Kinshasa has 13% of the national population but accounts for 85% of the country's wealth[12].

12] In the coming decades, therefore, an increased concentration of resources in urban areas is to be expected, if it is not already the case.

In parallel with urbanization, the phenomenon of metropolization (i.e. the "concentration of value in and around the most important cities" [13]) is continuing, and there is nothing to suggest that this will not be the case in the coming decades. Within the world-space, these metropolises have an organizational and leadership role. They centralise strategic economic functions: command, innovation, research and development, advanced

production, strategic support, specialised services, etc. This phenomenon is accompanied by a strengthening of transport and communication facilities around these centres. These metropolises structure the world system through their role as strategic nodes involving several networks of cities. Connected to each other, they thus form structuring networks for the world-space, sometimes challenging the authority of States.

- The probable emergence of smart cities or Smart Cities

Some cities are currently relying on a massive use of information and communication technologies to improve the daily lives of their inhabitants, reduce their energy footprint, make savings... This use is based on the exploitation of data collected by various connected sensors. By 2035, the number of this type of city could increase, although it will not be the norm due to the necessary investments.

- The capacity to manage urban growth will be a major challenge, especially for countries with sudden and massive urbanization.

The capacity to provide cities with basic services and infrastructure is thus a real challenge, particularly in the high-growth sectors of Asia and Africa. South Asia and sub-Saharan Africa have significant gaps in this regard.

Many cities around the world are ill-equipped to deal with the problems associated with urbanization. In many cases, fast-growing cities are spreading out, leaving slums, growing poverty and high levels of crime to settle and consolidate. According to the United Nations[14], it is indeed likely that the housing shortage in urban areas will increase: in 2010, 980 million urban households worldwide lacked decent housing, and this figure is expected to rise by 600 million between 2010 and 2030. The same study also estimates that one billion new housing units will be needed worldwide by 2025. While the share of the urban population living in slums in developing countries has decreased overall (39.4% in 2000 compared to 29.7% in 2014), this population has increased in absolute numbers (791 million in 2000 compared to 881 million in 2014).

- Urbanization has a negative impact on the environment

Climate change is intimately associated with the urban fact: urbanisation leads to changes in production and consumption patterns that can contribute to the emission of greenhouse gases. Cities account for 60% of the generation of greenhouse gases emitted by human activities.

Urbanisation is also a major space consumer because of population growth, but also because of the tendency to decentralise economic activities and housing in the periphery. The development of individual or collective means of transport encourages this dynamic.

Urbanization also induces additional pressure on the demand for food products and thus on agricultural production and the environment. Indeed, urban incomes, which are generally higher, often result in an increase in demand for processed food, meat, fruit and vegetables, ready meals, fast food... Due to the unbridled pace of urbanization, particularly in Africa and Asia, we can thus fear increased pressure on the environment in the future.

- **In terms of health, urban environments concentrate certain health risks and**

introduce new ones. Urban pollution kills 1.2 million people worldwide every year. In addition, certain diseases such as tuberculosis are more frequent in large cities. The urban environment also tends to discourage physical activity and encourage unhealthy food consumption. The significant but unplanned growth of some urban areas in Asia and Africa raises concerns about the development of environments that will be conducive to health risks in the coming decades.

The city: a special territory that will remain so

The current and future urban environment constitutes a very particular terrain in many aspects that we will discuss [15] [16] [17] [17] [18] [19] [20]:

- First of all, it is fundamental to integrate the three-dimensional and partitioned character of the urban environment...The presence of different strata: underground networks, soils, floors of buildings, etc. Everything leads us to believe that this characteristic will continue to be present in the coming decades. On the ground, the presence of constructions leads to a compartmentalization and partitioning of space making it difficult to circulate mechanized elements and to evaluate distances. These difficulties are reinforced in the event of destruction because the debris and ruins caused are then numerous obstacles.

The stratum occupied by buildings, particularly multi-storey buildings, remains an important feature of the urban environment. These buildings limit the range of certain weapons, impact the field of vision from the ground and complicate the location of the origin of enemy weapon fire. Conversely, raised points offer opportunities by allowing increased vision and optimal use of communications.

The underground level (sewers, tunnels...) also brings its share of constraints especially when it is skillfully exploited by the defenders: shelters, storage of weapons or other, movements, saps...

- It is fundamental to integrate the fact that Each urban environment is unique and needs to be studied specifically.

Within a city, each neighbourhood can also be a special case. Different parameters combine to form a systematically unique environment:

- The urban planning itself: the types of construction, the materials, the underground networks present, the proportion of vertical constructions, the nature of the neighbourhoods (residential, industrial, commercial of various densities...), etc.
- The location and site of the city.
- The location and characteristics of the centres of gravity or neuralgic nuclei in the military, political, transport, communications and communications fields...
- The characteristics of the urban population: clans, ethnic groups, distribution by district, rivalries...

The current urban population explosion may point to a greater variety of urban environments in the future.

- The city itself is an environment at risk.

These include risks related to the technological environment (pollution and industrial risks), to the overall disorganization of the city (health problems due to failures in water and waste treatment), and to specific risks (earthquakes, floods, etc.)[21].

- **The modern city is a physically and psychologically demanding environment.**

It is indeed made of "hard" and abrasive materials: metal, concrete... This hostile environment is even more so in case of destruction. The urban environment can also have microclimates that affect the organism (e.g. urban heat islands). The urban environment puts people in direct contact with the reality of war (destruction, human losses, traumatised populations...). War is not a distant reality here: its effects are permanently visible. These difficulties are likely to continue and will continue to be a reality in the coming decades.

- The **presence of the population** is an essential characteristic of the urban environment. It can become a humanitarian burden, take sides with the defender or the attacker, act as a shield, collect information, provide caches for food or ammunition... The increase in urban populations should logically increase the stakes relating to this characteristic.
- The urban environment is and will be marked by the concentration of many areas of non-military activities: culture, politics, religion, humanitarian, media...
- This environment is characterized by a strong media pressure.

This is due in particular to demographic concentration, the large number of journalists and the proliferation of cheap video devices (smartphones).

- The speed at which information circulates in the city is an undeniable fact.. This will be reinforced by the increased democratization of mobile phones, social networks, etc. .
- The urban environment often makes it difficult to use modern technology to its full potential.

Satellite and aerial images, whatever their origin (satellites, planes, drones...) are hampered in their exploitation due to the presence of civilians and buildings.

Moreover, the various constructions complicate radio links. Despite the technical progress that we can expect in the coming decades, the urban environment will always be a challenge for the full exploitation of technical means.

While we are undeniably witnessing urban growth on all continents, the phenomenon is and will henceforth be fuelled by the developing countries of Asia and Africa. The foreseeable appearance of new megacities should not hide the fact that the strongest growth is coming from small and medium-sized cities.

The urbanization and metropolization of new regions offer new economic, social, political and technological prospects... They are accompanied by major challenges, particularly for countries that do not have sufficient resources to channel and organize this transition.

A three-dimensional environment (soil, above ground and underground), partitioned and therefore not very conducive to mobility, the urban environment is a difficult, dangerous

environment where populations and varied human activities are concentrated. These characteristics make it particularly difficult for the military to grasp, especially as each city is unique and requires a specific approach.

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[4] United Nations Human Settlements Programme (UN-Habitat), World Cities

"Report 2016 - Key Findings and Messages - Urbanization and Development: Emerging Futures", Abridged Edition, 2016, pp. 1, 3, 4, 5, 6 and 11.

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[6] Claude Manzagol, "Lamondialisation - Données, mécanismes et enjeux", Armand Colin, 2003, pp. 84-91.

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[9] World Health Organization (WHO), "Urbanization and Health", Bulletin of the World Health Organization, No. 88, 2010, pp. 245-246.

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[12] United Nations Human Settlements Programme (UN-Habitat), op.cit., p. 7.

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[14] United Nations Human Settlements Programme (UN-Habitat), "World Cities Report 2016 - Key Findings and Messages - Urbanization and Development: Emerging Futures" - Abridged Edition, 2016, pp. 3 and 11.

[15] Philippe Boulanger, op. cit., p. 253-263.

[16] Battalion Chief Frédéric Chamaud and Colonel Pierre Santoni, "The Ultimate Battlefield - Fighting and Winning in the City", Paris, Pierre de Tillac, 2016, pp. 17-19, 23, 201-202.

[17] Colonel Pierre Santoni, 2017, expert in urban areas within the doctrine division of the Army's Centre de doctrine et d'enseignement du commandement (CDEC), interview of 2 June 2017.

[18] General Vincent Desportes, op. cit., p. 65-68.

[19] Stéphane Gaudin, "War in an Urban Environment: Interview with Pierre Santoni, co-author of 'The Ultimate Battlefield,'" Canal THEATRUM BELLII, December 23, 2017, <https://www.youtube.com/watch?v=QUhc5drglAs&t=101s>, video consulted on January 23, 2018.

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21] Colonel Defretin, "L'apport de la fonction agencement de l'espace terrestre dans les opérations en zone urbanisée", Objectif Doctrine, n° 29, 2002, p. 28, quoted in Philippe Boulanger, op. cit. , p. 262.

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Release date	12/04/2018
