

THE IMPACT OF THE URBANISATION TREND ON NATO  
MILITARY OPERATIONS BETWEEN NOW AND 2035

# UPDATE ON JOINT URBAN OPERATIONS AND THE NATO URBANISATION PROJECT PART II



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## Introduction

In November 2015, the Headquarters Allied Commander Transformation (HQ SACT) NATO Urbanisation Project Team provided an article for *The Three Swords Magazine*. Since this article was written, the Bi-Strategic Commands (Bi-SCs), with ACT in the lead, have delivered the NATO Urbanisation Conceptual Study to the Military Committee (MC) on 31 March 2016. This Conceptual Study has been acknowledged by the North Atlantic Committee (NAC) and approved by the MC. Further, the MC tasked the Bi-SCs to conduct an Urban Seminar Game in October 2016 and use the results of the seminar game to refine the Conceptual Study by 31 March 2017.

## Why Urbanisation?

A greater number of people are living in more, and larger, cities than ever before and the proportion of the global population living in cities as opposed to the countryside exceeded the 50 per cent threshold in 2008. These new cities are concentrated on the world's coastlines so that and 80 per cent of the global population currently live within 100km of the coast. Additionally, 1.4 million people move to cities worldwide every week and the world population is projected to increase to 8.7 billion inhabitants by 2035. By the 2030s, it is estimated that five of the world's eight to nine billion people will live in cities. As a consequence, most academic and defence research concludes that it is a matter of when, *not if*, the military will be required to operate in an urban or urban littoral environment. If the Alliance wants to be success-





ful in a future urban conflict, adaptation is not an option; *it is a must*. Taking the large-scale trends of urbanisation, demography, climate, environment, energy and technology together, a clear pattern emerges. Rapid urban growth in coastal, underdeveloped areas is overloading economic, social and governance systems, straining city infrastructure, and overburdening the carrying capacity of cities designed for much smaller populations. This is likely to make the most vulnerable cities less able to meet the challenges of population growth, coastal urbanisation, and connectedness. The implications for future conflict and natural disaster are profound, with more people competing for scarcer resources in crowded, under-serviced

**Photo:** The Czech Republic-led exercise AMPLE STRIKE 2016. Photograph shows the cockpit of MI-17/MI-171 helicopter providing Search and Rescue capability during the exercise. Photo by NATO.

and under-governed urban areas. These problems will not go away and must be faced.

### **NATO Urbanisation Conceptual Study Key Messages**

The following are some of the key messages from the Conceptual Study, which are currently being used as a basis for the Urbanisation Seminar Game Experiment:

- NATO needs to commission a detailed scientific study on the human dimension associated with urban operations in a 2035 urban environment;
- There is no NATO Joint Urban Operations doctrine for operations within urban, urban littoral or megacity areas;
- NATO should acquire a specialist "Urban Training Area" or a network of training centres federated to achieve the same train-

- ing effect with appropriate live, virtual and simulated training facilities and replicate the intellectual, physical, psychological and emotional challenges posed by urban operations;
- The approach to a future urban operation needs to be comprehensively planned to ensure success within the planning process;
- New technologies such as Unmanned Aircraft System (UAS) sustainment over long distance direct to front line troops are currently being developed to remove the necessity of large forward storage areas;
- The development of additive technologies will reduce the forward logistics footprint and enable the manufacturing of bullets, food and other key supplies as required;
- NATO must consider *cities* as units of analysis for intelligence purposes as opposed to the current practice of using *states*;
- Cities are dynamic systems and NATO needs to work on establishing a complete





The NATO Urbanisation Conceptual Study examines the impact of potential crises situations in urban systems and consequences of Urbanisation in 2035. The NATO Urbanisation Seminar Game Experiment was organized by ACT Concept Engineering and Innovation Directorate (CEI) and executed at the NATO Defence College, Rome, from 28 September to 7 October 2016. Photo by NATO Defence College.

view of the urban environment through flow mapping, 3D modelling, geospatial support and possibly cooperation with non-traditional forces on the ground;

- NATO will need to develop the ability to conduct all aspects of Electronic Warfare (EW) in an extremely cluttered electronic environment and possess radio relay and non-grid communications technologies;
- NATO will need to invest in a number of new technologies to deal with the threat posed within the urban environment, such as wide-area urban surveillance, counter-sniper, counter-IED, counter-UAV technologies, unmanned/autonomous systems and non-lethal and variable lethality systems;
- The following principal categories of technology development will have the greatest impact on future urban environments: food and water technologies, travel and transportation, mass surveillance, energy production, storage and distribution, communications, unmanned (autonomous) systems, human performance enhancements, data management and processing and advances in architecture, open source design and advanced manufacturing technologies including additive manufacturing. These will all

require trained personnel capable of understanding and using these developments for military effect;

- Military troops deploying within a city are likely to face a wide range of challenges dealing with the consequences of natural or man-made disaster, including mass migration and city turmoil;
- Winning the "battle of the narrative" will be critical to mission success in operations within an urban environment;
- Strategic Communications, or StratCom, will become much more difficult due to the underlying complexity of the future communications environment;
- To succeed in an urban environment, NATO may need to interact with traditional and/or non-traditional groups using "hybrid-diplomacy"—diplomacy at all levels of interaction;
- The military should aim to have as small a footprint as possible inside a city;
- Given the size of most cities, NATO can never expect to be able to build up overwhelming force in terms of mass due to the large number of civilians and other actors;
- Force protection will be a major concern in a future urban environment due to the

multi-dimensional nature of threats and the ever present risk of escalation;

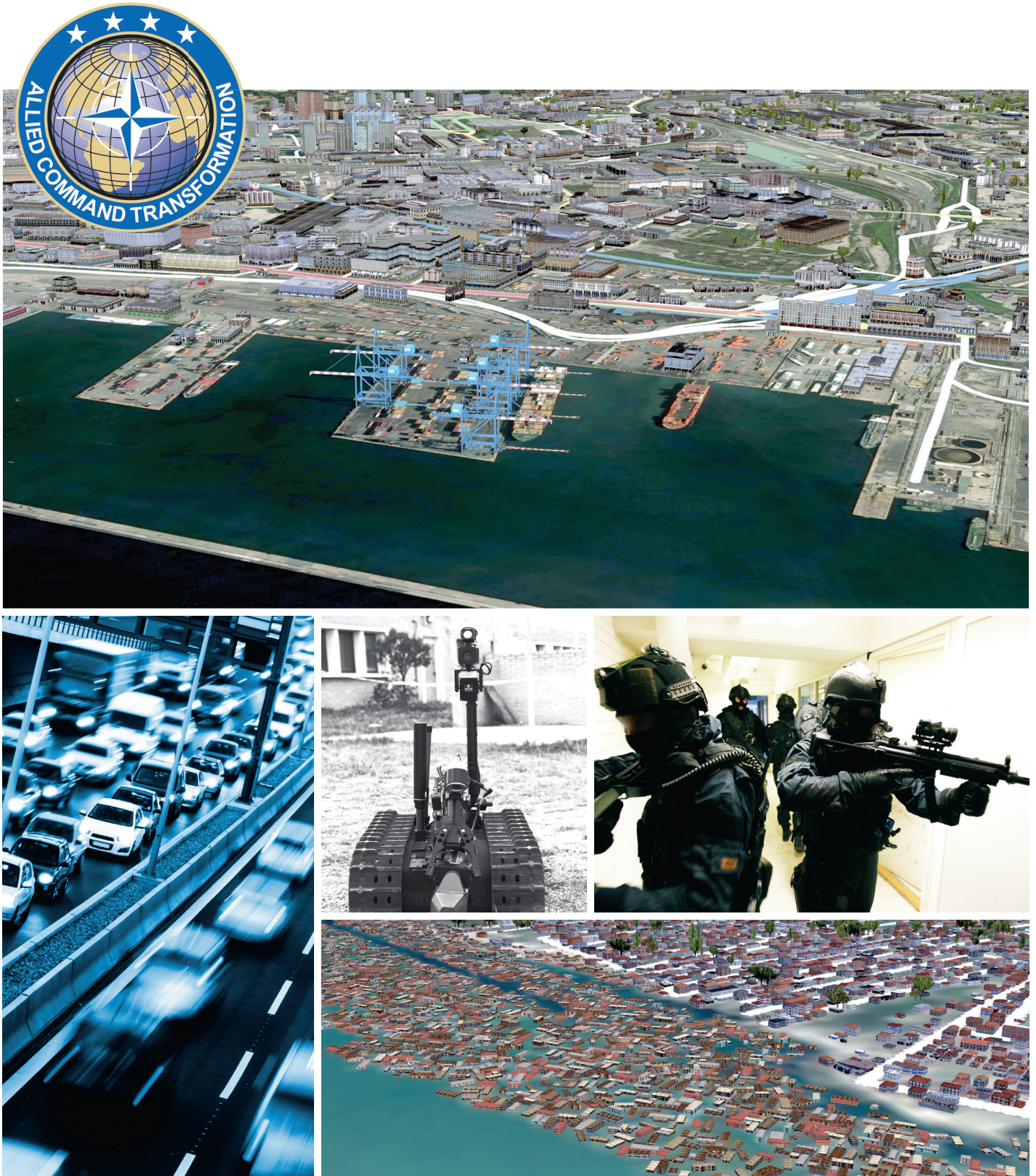
- The need for strong policing capabilities and skills e.g. crowd control, curfew enforcement, and border control are essential.

## Urbanisation Seminar Game Experiment Development

The scenario for the 2016 Urban Seminar Game Experiment was based on a fictitious city of 2035 called "Archaria". The scenario was developed by a private contractor with the support of the Joint Warfare Centre (JWC) and a number of military and civilian Subject Matter Experts (SMEs). The road-to-war between two nations and all the associated documentation was created over the preceding year. Additionally, the Modelling and Simulation Centre of Excellence developed a 2D and a 3D Model to support the experiment planning process.

Initially, seven nations participated in the development process, which expanded to 16 NATO Nations by the Main Planning Conference held at the Stability Policing Centre of Excellence in Vicenza, Italy. The Final Planning Conference at the Development, Concepts and Doctrine Centre (DCDC) Shriven-





**From the seminar game, exercises and the real world, clockwise from top:** Example of the 3D model city developed by the Modelling and Simulation Centre of Excellence to support the experiment planning process. Soldiers from the Norwegian Army Special Operations Command train on counter-terrorism in a building, photo by Torbjørn Kjosvold, Forsvaret. 3D model of flooding in urban areas. Traffic congestion—The urban population in 2014 accounted for 54% of the total global population, up from 34% in 1960, and continues to grow. (Source: WHO website). Focus on technology: QinetQ lightweight tracked vehicles are widely deployed for Improvised Explosive Device (IED) and Explosive Ordnance Disposal (EOD), reconnaissance, communications, Chemical, Biological, Radiological, Nuclear, Explosive(CBRNE)/hazmat, security, heavy lift, defence and rescue missions (as displayed at TRJE15).

ham in the United Kingdom was used as a full dress rehearsal for the Urban Experiment with key participants from the Red, Blue, Green, White and HICON teams.

To support the project development work, Lieutenant General Michel Yakovleff, Vice Chief of Staff (VCOS) HQ SHAPE, requested further research papers in order to address and collate all Human Dimensions' considerations in an urban environment, which will contribute to the delivery of the revised and condensed NATO Urbanisation Conceptual Study. Dr Rob Johnson, University of Oxford, and Dr David Kilcullen will be the authors of these papers. The project team brought in Dr Kilcullen and a team of SMEs to develop a credible "Red Threat" based on existing hybrid, ambiguous, insurgency and cyber warfare. This threat also built on existing and future technologies, which could be used urban adversaries. The red threat was fixed throughout the seminar game to assist with the analysis.

As part of the experiment development, the United States Marine Corps (USMC) wrote an Urban Doctrine Note with inputs from the Army Techniques Publications (ATP)-99, the Netherlands, United Kingdom and the United States. In addition to the Doctrine Note, the project team, with the assistance of Defence Research and Development Canada (DRDC Canada) and the NATO Collaboration Support Office (CSO), developed 39 new capability cards. These capabilities identified in the Con-



NATO Secretary General Jens Stoltenberg viewing the Global Hawk, Allied Ground Surveillance display during the Warsaw Summit. Photo by NATO.

▼ The seminar participants and Lt Gen Michel Yakovleff, HQ SHAPE Vice Chief of Staff, the senior military representative. Photos are authors' own.

ceptual Study were used by the planning teams during the experiment to determine which capabilities should be forwarded to the next round of the NATO Defence Planning Process.

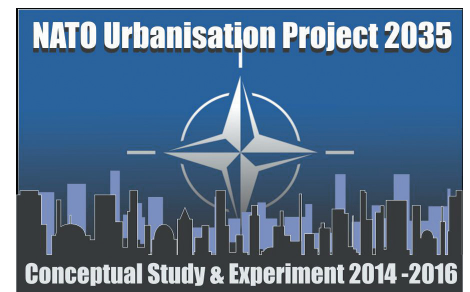
## NATO Urbanisation Seminar Game Experiment Execution

The NATO Urbanisation Seminar Game Experiment was organized by ACT Concept Engineering and Innovation Directorate (CEI) and executed at the NATO Defence College, Rome from 28 September to 7 October 2016. There were 112 participants from 15 NATO Nations and 14 Centres of Excellence (COEs) along with a number of academic and civilian urban SMEs. The senior military representative was Lieutenant General Yakovleff, who attended the experiment on two days; and Commodore Phillip Titterton, Combined Joint Operations from the Sea Centre of Excellence





findings, along with the Human Dimensions and Red Threat research papers, will contribute to the update of the NATO Urbanisation Conceptual Study. This update is due to be delivered to the NATO Military Committee by 31 March 2017. To conclude, there is clearly a strong appetite from the NATO Nations and the COEs to continue the Urbanisation Project with the aim of developing and experimenting a Concept of Operations, Doctrine and Force Structure for use by the NATO Nations. ✦



## DID YOU KNOW?

**URBANISATION** has been identified as one of the key trends in ACT's Strategic Foresight Analysis (SFA), a continual process to identify drivers of change, monitor weak signals and anticipate emerging trends that will shape the future security environment.

SFA is one of the Supreme Allied Commander Transformation's priorities to prepare the Alliance for future challenges. The Framework for Future Alliance Operations (FFAO), the description of broad strategic requirements necessary to maintain a ready Alliance capable of executing its core tasks at the agreed level of ambition, identified three instability situations that are being used as vignettes as part of the Urbanisation Experiment: megacity turmoil; large scale disaster and disruptive impacts of migration.

As such, the NATO Urbanisation project will benefit from SFA and FFAO and its findings will further inform and support the development of ACT's Future Work including the NATO Defence Planning Process, requiring a cross-functional team from ACT along with the ACO Planning division as operational sponsor.

(CJOS COE), who attended the experiment throughout as the Commander Joint Force Command. The senior civilian representative was Mr Mike Goldsmith, Chief of Police, Norfolk, Virginia.

The experiment was designed by Operation Experimentation (OPEX) and Operation Analysis (OA) Branches to support the project led by the Concept Development Branch, based on the methodology of Disruptive Technological Assessment Game (DTAG). It ran over a 10-day period with the first two and a half days being used for training to ensure attendees were familiar with the scenario, threat and model, and the rest of the time being used for vignette execution.

The scenario for this second experiment was a Non-Article 5 mission for a high intensity and full spectrum operation. It was built around four Blue Planning Teams, led respectively by an USMC Colonel, a French Army

Colonel, a Royal Marine Colonel and a NATO Civilian from HQ SACT. Each team contained 14 planning staff supported by two analysts and administration support. A HICON, Red, White and Green Teams were present to support the Blue Team planning and the Course of Action (COA) development. The well prepared scenario, red threat and a draft urban Doctrine Note were all used to assist the planning and vignette process. Three vignettes—Joint Forcible Entry into an Urban Environment, Urban Operations and Stability Operations—were scripted for the planning process and the COA development. Each vignette was run twice, first using current capabilities and then future capabilities.

### Next Steps

A post experiment and analysis report will be prepared by the project team and will be ready towards the end of January 2017. The