Executive Summary

Achieving Convergence during Humanitarian Assistance and Disaster Relief Operations in the World's Largest Urban Areas:

Proceedings of the

"Current and Future Operations in Megacities" Conference, Tokyo, Japan

July 16-18, 2019

Dr. Russell W. Glenn Colin Christopher Major Caleb Dexter

Major David Norton Major Robert Nussbaumer

United States Army Training and Doctrine Command (TRADOC)

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The views and opinions expressed in this document are those of the authors and do not necessarily reflect the official policy or position of the United States Army, Japan Self-Defense Force, Australian Army, U.S. government, or any other organization.

Overview

> The peace and prosperity of all of Japan depends on the proper functioning of Tokyo as it is the country's capital city. Relief to Tokyo after a disaster and maintaining continuity of its civic operations…are therefore a matter of national security.[1]
>
> General (Japan Ground Self-Defense Force, retired) Ryoichi Oriki

Note: The (1) complete proceedings that expand on this executive summary, (2) conference presenter slides, (3) audiovisual recordings of most speaker remarks and panel question and answer periods, and (4) this document are available online at https://community.apan.org/wg/tradoc-g2/mad-scientist/p/mc2019.

Five partners joined to convene the "Current and Future Operations in Megacities" conference, this in Tokyo held from July 16-18, 2019.[2] U.S. Army Pacific and its subordinate command – U.S. Army Japan – joined the Japan Ground Self-Defense Force (JGSDF), Australian Army, and U.S. Army Training and Doctrine Command for the second megacities-oriented event in two years (the first being "Multi-Domain Battle in Megacities" conducted in New York City, April 3-4, 2018). As in New York, the focus was the operational and strategic levels of operations. Three primary objectives drove speaker presentations and audience participation:

[1] General (Japan Ground Self-Defense Force, retired) Ryoichi Oriki keynote presentation during "Current and Future Operations in Megacities" conference, Tokyo, July 17, 2019.
[2] For the full proceedings of this conference, see Russell W. Glenn, et al., *Achieving Convergence during Humanitarian Assistance and Disaster Relief Operations in the World's Largest Urban Areas: Proceedings of the "Current and Future Operations in Megacities" Conference, Tokyo, Japan, July 16-18, 2019*, Fort Eustis, Virginia: U.S. Army Training and Doctrine Command, September 25, 2019, https://community.apan.org/wg/tradoc-g2/mad-scientist/p/mc2019 (accessed September 26, 2019).

- Identify best practices for humanitarian assistance and disaster relief (HADR) undertakings in megacities during and in the aftermath of both natural and manmade disasters.
- Determine how historical urban HADR and security events more generally can inform JGSDF support of the 2019 Rugby World Cup and 2020 Olympics in Tokyo.
- Consider how artificial intelligence capabilities can be accelerated to augment U.S. and partner forces' operations in the world's largest urban areas.

Two supporting objectives complemented the above:

- Increase overall awareness and understanding among conference partners and other key stakeholders regarding the application of Multi-Domain Operations and similar partner concepts to HADR during contingencies in megacities.
- Increase partner understanding of existing bilateral and multi-lateral training opportunities, in particular those needed to enhance understanding of multi-domain and similar operations.

The conference's first day provided a virtual terrain walk of Japan's capital city, a more practical way of familiarizing attendees with the megacity given Tokyo's high temperatures and humidity in mid-summer, traffic, and the in excess of one hundred audience members attending day 1. This original session had two components. The first provided a general overview via five flow types (power, water, people, goods and services, and waste) from the perspective of flows into the city, within Tokyo, and out of the urban area. The afternoon session then analyzed the impact of a notional 7.3 scale earthquake on Tokyo during the 2020 Summer Olympics in terms of the same flows. Days' 2 and 3 format was more typical of traditional conferences. Senior military

and civilian experts presented individually for thirty minutes, thereafter participating in a panel question and answer session. Each day consisted of two sessions after the keynote presentation provided by former head of the Japan Self-Defense Force, General Ryoichi Oriki, at the beginning of day 2. These sessions were:

1. "Megacities and Humanitarian Assistance/Disaster Relief (HADR) Operations: Context and History's Lessons" during which a general overview of megacities as a phenomenon – to include the definition of "megacity" carried over from the New York City conference – was provided in addition to discussions of the 1995 sarin nerve agent attack on Tokyo's subway and the implications of the March 11, 2011 earthquake, tsunami, and Fukushima Daiichi nuclear reactor failures (referred to in Japan as "3/11").
2. "The Complexity of Megacity Operations" saw three speakers address (1) major urban areas' implications for the U.S. armed forces' Multi-Domain Operations concept, (2) the Japan Ground Self-Defense Force (JGSDF) perspective on megacity HADR, and (3) future urban operations opportunities via the maturation of artificial intelligence.
3. "Orchestrating Megacity Security Operations during World Class Events" was a theme specifically requested by JGSDF leaders given the pending autumn 2019 Rugby World Cup and 2020 Summer Olympics, both of which Tokyo hosts. Presenters reviewed historical experiences and insights gained from the 2000 Sydney, 2008 Beijing, and 2016 Rio de Janeiro Olympics and other key world events in the world's largest urban areas, the final briefing being a consideration of the JGSDF's role in securing Tokyo.
4. "Building Governmental-Nongovernmental Teams during Megacity Operations" concluded the two-days of traditional conference format. Three individuals with considerable experience in synchronizing the efforts of disparate parties during HADR

offered their insights. Analysis included prioritization of recovery objectives, specific efforts in that regard during and after 3/11, and noncombatant evacuation during 2016-2017 fighting in Mosul, Iraq.

A fourth day was not part of the conference proper but rather a limited gathering of partner representatives with three goals: (1) validate key conference takeaways, (2) discuss the desirability and viability of a third conference and prospective objectives should such prove worthy of further consideration, and (3) identify possible locations should a third conference be undertaken. A summary of results in this regard can be found in the complete proceedings document's concluding chapter 4.

The conference agenda appears at Appendix 1 below.

The remainder of this executive summary presents a limited number of the observations and recommendations taken from days 1-3 as forwarded by speakers, audience members, or extrapolated from those remarks and written materials pertinent to the considerations at hand. Complete presentation of observations [in the PMESII-PT (Political, Military, Economic, Social, Information, Infrastructure-Physical Environment, and Time) format] and recommendations [in a DOTMLPF-P (Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities, and Policy) structure] with discussions of each element appear in chapters 2 and 3 of the full proceedings document. A listing of all observations and recommendations in these formats is available in Appendices B and C at the end of this document.

Key definitions

> Urban areas around the world [are] becoming not just the dominant form of habitat for humankind, but also the engine-rooms of human development as a whole.[3]
>
> United Nations-Habitat

Using the standard definition of a megacity (an urban area with ten million or more in population), there were 38 such entities worldwide at the time of the Tokyo conference. Twenty-two of those are in the Indo-Pacific region as shown in Figure 1. If one chooses to look east along the Pacific Ocean's rim, we can add another two: Los Angeles with its 15.4 million residents and Lima, Peru (population 11.5 million).

[3] United Nations Habitat, *State of the World's Cities 2012/2013: Prosperity of Cities*, World Urban Forum edition, Nairobi, Kenya, 2012, https://sustainabledevelopment.un.org/content/documents/745habitat.pdf (accessed September 3, 2019), v.

Figure 1: Indo-Pacific megacities as of 2019[4]

But how valuable is ten million as a basis for definition when it comes to those planning and preparing for operations in an urban area?[5] Differences between a city of nine million and another of ten, eleven, or fifteen million will be significant, but it is very likely that those differences have less to do with the size of the population than other factors such as geographic spread, density of inhabitants, connections and interdependencies with other parts of the country or world, and the influence the urban area has in arenas such as economics or transportation. For example, there are some urban areas of over ten million in China that have limited impact on countries outside of the nation of which they are a part. On the other hand, some cities of well under the ten million mark dramatically influence countries thousands of miles distant.

[4] Image from Dr. Russell W. Glenn, "Megacities in the Indo-Pacific Region" briefing during "Current and Future Operations in Megacities" conference, Tokyo, July 17, 2019.

[5] This issue was also touched on during the first of the two megacity conferences. See Russell W. Glenn, et al., *Where none have gone before: Operational and Strategic Perspectives on Multi-Domain Operations in Megacities - Proceedings of the "Multi-Domain Battle in Megacities" Conference, April 3-4, 2018*, Fort Hamilton, New York, Fort Eustis, VA: U.S. Army Training and Doctrine Command, 2018, 9-10, https://community.apan.org/wg/tradoc-g2/mad-scientist/m/multi-domain-battle-mdb-in-megacities/244661 (accessed September 26, 2019).

Singapore, with its population of approximately 5.6 million – that including nearby urban areas in Malaysia and Indonesia – falls well under the standard ten million mark. Yet this urban area is the world's top oil bunkering (ship fueling) port by volume, its second largest shipping container port, and monitor of the Singapore and Malacca Straits (via the country's Maritime and Port Authority's Port Operations Control Centre), that in addition to its significant economic status.[6] Its global interconnectedness and influence means that minimizing the "down time" of key transportation and economic functions would be a priority for both Singapore and many of the parties that would offer to assist should the city suffer catastrophe.

An alternative to the standard "ten million or more" definition is therefore in order. The following is offered:

Megacity: "An urban area of extraordinary population size, geographic spread, physical and social complexity, interconnectedness, and similarly exceptional characteristics, to include influence with at least broader regional scope."[7]

A common understanding of "urban area" is similarly necessary to further assist understanding of our megacity definition. Looking for consistency among individual countries is unhelpful as various authorities use anything from 200 to 50,000 in a built-up area's population as the

[6] Material regarding Singapore from "Demographia World Urban Areas,15th Annual Edition," *Demographia*, April 2019, http://www.demographia.com/db-worldua.pdf (accessed August 6, 2019); "Facts and Data," Maritime and Port Authority of Singapore, undated, https://www.mpa.gov.sg/web/portal/home/maritime-singapore/introduction-to-maritime-singapore/facts-and-trivia (accessed January18, 2018); "6 Countries are Responsible for Almost 60% of All Bunker Sales," *Ship & Bunker*, January 5, 2016, https://shipandbunker.com/news/world/608701-6-countries-are-responsible-for-almost-60-of-all-bunker-sales (accessed January 18, 2018); World Shipping Council, "About the Industry," 2018, http://www.worldshipping.org/about-the-industry/global-trade/top-50-world-container-ports (accessed January 18, 2018); and "Malacca and S'pore Straits traffic hits new high in 2016, VLCCs fastest growing segment," *Seatrade Maritime News*, undated (but data as of 2016), http://www.seatrade-maritime.com/news/asia/malacca-and-s-pore-strait-traffic-hits-new-high-in-2016-vlccs-fastest-growing-segment.html (accessed January 18, 2018).

[7] Definition from: Russell W. Glenn, "Ten Million is Not Enough: Coming to Grips with Megacities' Challenges and Opportunities," *Small Wars Journal* (January 25, 2017), http://smallwarsjournal.com/jrnl/art/ten-million-is-not-enough-coming-to-grips-with-megacities%E2%80%99-challenges-and-opportunities (accessed January 18, 2018).

discriminator for their definitions. The United Nations (UN) is equally of limited value in this regard as it simply adopts the definition used by the country under consideration.[8] Just as our definition of "megacity" seeks to serve the planner, pragmatist, and practitioner, so too should our description of urban area:

Urban area: "A continuously built up land mass of urban development [that] contains no rural land. [It] is best thought of as the 'urban footprint' – the lighted area that can be observed from an airplane (or satellite) on a clear night."[9]

A (potential) giant leap for HADR operations: Improving collaboration

> We can't turn a blind eye to operations in megacities. We've got to get after this or shame on us. The more we talk, the more we share, then the more we learn…. If we continue to ignore the complexities of operating in megacities we are only putting our soldiers and citizens in extreme danger.[10]
>
> General Robert B. Brown

The unqualified need for more than mere coordination or cooperation came through loud and clear during the "Current and Future Operations in Megacities" conference. The below makes clear the differences between coordination (weakest relationship of the three presented with the definitions below), cooperation, and orchestration (the strongest and most difficult to accomplish) in the absence of current U.S. joint doctrinal definitions for any of the three:

[8] Chandan Deuskar, "What does 'urban' mean?" The World Bank, Sustainable Cities blog, February 6, 2015, http://blogs.worldbank.org/sustainablecities/what-does-urban-mean (accessed August 2, 2019).
[9] Adapted from "Demographia World Urban Areas," 12th annual edition, April 2016, accessed February 21, 2017, http://www.demographia.com/db-worldua.pdf (accessed August 29, 2019).
[10] General (U.S. Army) Robert B. Brown, "Multi-Domain Operations during Megacity HADR" presentation during "Current and Future Operations in Megacities" conference, Tokyo, July 17, 2019.

Coordination (Australian Army doctrinal definition): "An arrangement where parties operating in the theater communicate their intended actions to one another and will self-synchronise their activities but will not negotiate the manner of their actions."[11]

Coordination (U.S. Army doctrinal definition in 2004): "The action necessary to ensure adequately integrated relationships between separate organizations located in the same area."[12]

Cooperation (Australian Army doctrinal definition): "An arrangement where parties operating in the theatre are under no agreement to undertake military actions together but through mutual interest will not only coordinate their actions but negotiate the manner of these actions."[13]

Synchronization (U.S. joint doctrinal definition): The arrangement of military actions in time, space, and purpose to produce maximum relative combat power at a decisive place and time.[14]

Orchestration (proposed): The arrangement of alliance, coalition, partner member, or other organizations' actions in time, space, and purpose to produce maximum effects in the service of mission or objective accomplishment.

The definitions of "coordination," "cooperation," and that proposed for "orchestration" benefit in their being applicable to the full range of military and broader organization operations (though

[11] "ADF Concept for Command and Control of the Future Force," version 1.0, Australian Defence Force, May 13, 2019, 46
[12] *Terms and Military Symbols*, ADP 1-02, Washington, D.C.: Headquarters, Department of the Army, August 2018, 1-94. Current army and joint doctrine have no definition for coordination.
[13] "ADF Concept for Command and Control of the Future Force," version 1.0, Australian Defence Force, May 13, 2019, 46
[14] *DOD Dictionary of Military and Associated Terms*, Joint Publication 1-02, Washington, D.C.: Joint Chiefs of Staff, July 2019, 210.

the no longer doctrinal U.S. Army definition for coordination unfortunately limits its application by restricting it to a shared location). They thus have application to operational challenges as recognized by 21st-century leaders, i.e., they are not limited to military actions alone but rather encompass others critical to ultimate operational and strategic success. The definition for "synchronization" fails in this regard.

Attainment of any of the three (coordination, cooperation, or orchestration) is beneficial to achieving desired ends. Coordination is the least demanding and therefore the easiest to accomplish (recognizing that "easiest" need not imply "easy"). It implies not only informing other alliance, coalition, or partnership members but also taking steps to insure one organization's actions do not impede those of another. Cooperation takes coordination one step further but still falls far short of planning, preparing, and executing in such a manner as to achieve maximum effectiveness and efficiency via the combined output of all participants. Coordination and cooperation are generally achievable to a considerable extent though each will tend to fall short of ideal due to conflicting organizational objectives and other factors insufficiently addressed to moderate the worst of their effects. Orchestration is rarely attempted and seldom achieved even at the lowest tactical echelons. When this end is attained it tends to involve only a very limited number of parties and be based on personal rather than institutional relationships. Orchestration is best viewed as a mark on the wall, one for which leaders and their organizations should strive with the understanding that full realization will be elusive.

Figure 2 below helps us to envision what each of these three states can bring to an operation. Each rope represents the interrelationship between lines of effort (LOE) or lines of operation (LOO) represented by the four braids. The number of braids and what each represents will depend on the undertaking represented. The size of a braid corresponds to the priority given the

respective LOE or LOO at a given point in time. Time on the horizontal axis denotes progression of the activity, operation, or campaign. Time on the vertical axis represents the duration of the activity, operation, or campaign. Priorities and even the LOE/LOO may change as actions progress (horizontal time).

The weight at the bottom of each rope symbolizes the shared ends, mission, or objectives that promote participant collaboration. The "tightness" of a rope's braids shows the extent to which participants work together toward those ends. It therefore represents the degree of synergy the alliance, coalition, or partnership attains: the extent to which the rope's strength is greater than the sum of four unbound braids. The horizontal lines represent the relative value of coordination, cooperation, and orchestration in reaching the desired maximum strength (shown at a random time early in an operation). Each of these lines can be moved downward to some extent if participants plan, train, and rehearse prior to actual disaster response. Such preliminary activities promote early identification of roles, authorities, and responsibilities, further strengthening inter-organizational bonds.

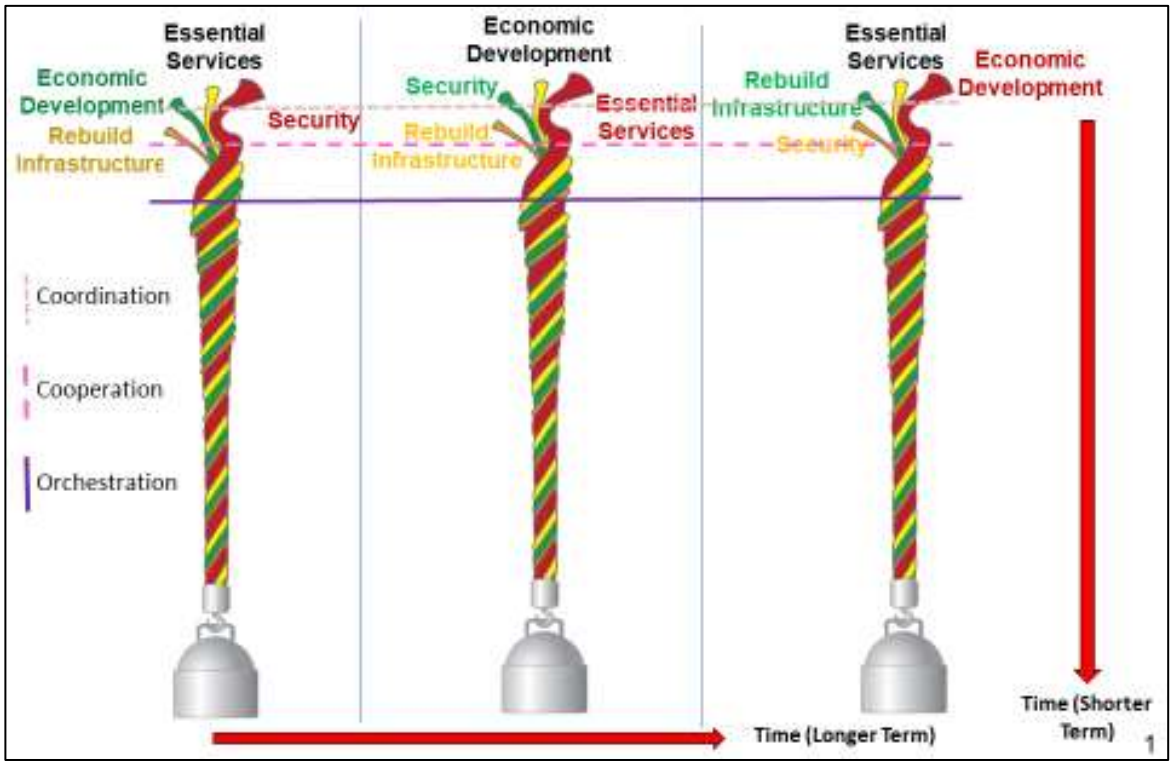

Figure 2: Strength of an alliance, coalition, partner, or other organizational relationship given the degree of collaboration shown

Those conducting their activities in a stovepipe can cooperate with others without addressing such issues as inefficiencies in redundant logistics, overtasking of limited-capacity transportation nodes, and drawbacks when multiple organizations individually rather than collectively deal with local officials. Coordination may help, but it too will fall short of maximum effectiveness for many of these same reasons. To provide but one notional example, officials coordinating separate delivery flights abets safety and reduces frictions, but it cannot match improvements in effectiveness gained when those organizations arrange to avoid redundant goods delivered or have deliveries consolidated at a more remote air node to reduce flight numbers at other airfields already overburdened.

Orchestration, not mere cooperation or coordination, is far better. Orchestration spawns the additional benefits of promoting inter-organizational communication and understanding of cultures that inherently enhance operational effectiveness. Working to maximize the positive impact of 270 NGOs and other organizations Lise Grande and the UN had to deal with in Iraq when overseeing the noncombatant evacuation of Mosul was undoubtedly challenging. That even orchestration will leave some instruments out of tune is apparent in her remarks regarding NGOs that refused to fully cooperate due to internal policies. It little stresses the imagination to envision how much greater those challenges would be given the literally thousands of parties – federal, city, community, NGO, IGO, faith-based, domestic, international, military, police, fire, medical, and more – that a major megacity disaster will involve. Such disasters are not too distant in time; experts estimate a 70% probability of a major earthquake striking Tokyo within the next thirty years.

Select summary of observations and recommendations

> You can't thermobaric your way into a megacity.[15]
>
> Brigadier Ian Langford

All speakers emphasized the need to **promote better collaboration between the parties supporting megacity HADR efforts**. The emphasis was less on getting more in the way of assets needed than better preparing prospective participants by including them in pre-event education, planning, training, and exercises and orchestrating those assets once catastrophe strikes. This preparation and participation should incorporate members of the public as is notably

[15] Brigadier (Australian Army) Ian Langford "Mission Command during Megacity HADR Operations" presentation during "Current and Future Operations in Megacities" conference, Tokyo, July 18, 2019.

well done in Tokyo. Victims recovered by community members after an earthquake survive 80% of the time versus 50% survival for others needing assistance by first responders. Neighbors therefore constituted "first first responders." Additionally, **megacity residents should not be overlooked as sources of information. The same is true of nongovernmental, inter-governmental, and other organizations' representatives.** For example, local cellular companies might be helpful in identifying key terrain as external parties seek to establish temporary communications until inoperable systems can be brought back online. **As the above discussion makes clear, the goal should be more than cooperation or coordination of partner capabilities, seeking instead orchestration of these resources.**

Preparing individual partner organizations and promoting collective capacity additionally requires improvements in virtual and constructive training capabilities given the impractical costs inherent in relying exclusively, or even primarily, on live training.

Replicating Tokyo preparations for disaster (e.g., disaster preparedness map requirements and design features such as standby emergency toilets and cooking stoves in public parks) **is worthy of consideration, particularly (but not exclusively) for megacities exposed to high risk of natural catastrophe.**

Military forces – those of the nation suffering disaster or others partnering during HADR operations – will be particularly challenged. First, **there can be no lessening of armed forces' primary mission to guarantee the security of its citizens**, a duty tested in the aftermath of March 11, 2011 when aircraft of two regional countries deliberately tested Japanese airspace at a time when Japan's largest deployment of armed forces since World War II was providing HADR support to the country. Further, parties providing HADR should **expect resistance, theft, or other interference even in the most permissive of environments.**

Well-intentioned assistance will require verification; "the first report is always wrong" is no less true during HADR. In the immediate aftermath of the 1995 nerve agent attack on Tokyo's subway, the agent causing the disaster was repeatedly misidentified before correctly being determined. Additionally, there will be **demands not only for capabilities traditionally expected of soldiers, but others as well**. The Japan Self-Defense Force found itself assuming tasks normally handled by police, fire, or other civilian authorities when those assets were overwhelmed or rendered inoperable due to the devastation of 3/11.

Similar to the demand for unflagging military diligence during times of disaster, civil authorities' public security responsibilities cannot take a rest. **The same social problems found in an urban area on a daily basis will be found in displaced persons facilities.** Criminals will capitalize on the close proximity in these facilities, further burdening security with 24/7 policing requirements. **Including women's perspectives in planning and design of displaced persons policies and facilities is essential.** Positive consequences will include reinforcing public trust; this is a key to successful HADR especially when competitors are conducting a misinformation or disinformation campaign.

Concept development and future doctrine need to better incorporate recognition of what benefits a comprehensive approach offers to operational effectiveness (a comprehensive approach being one incorporating not only state military and other government actors but also nongovernmental, inter-governmental, and faith-based organizations, and industry representatives as appropriate to the objectives sought).

The criticality of maintaining public trust necessities "war gaming" HADR operations no less than is done during preparation for combat operations. This suggests use of "red teams" to represent the perspectives of relevant civilian groups, individuals, and potential adversaries

(state, criminal, corrupt authorities, and others). **Reviewing and adapting "red team" approaches to account for national and organizational cultures will improve chances of partners buying into the comprehensive approach concept**. Appendix F to the full proceedings offers insights regarding red teaming.

Humanitarian assistance/disaster relief is too often considered merely as the sum of separate parts rather than a synergistic whole. **Preparation and funding of HADR would better serve if undertaken from a systems rather than piecemeal perspective**. This more coherent approach would have multiple payoffs, to include **establishment of standards for communications hardware and procedures promoting better military-civilian and civilian-civilian exchanges**. **Procedures for sharing intelligence should be developed prior to a disaster to allow for exchanges with partners lacking clearances. These procedures must satisfy both operational security and need-to-share demands.** It would be wise to **back up communications plans with steps for partners to take when power, cellular, and other infrastructures are down**, thus providing means to act in the absence of routinely available forms of information exchange. These could include pre-disaster designation of "information rally points" where collaboration could be carried out via word of mouth until reestablishment of other forms of communication. There is also a need to **develop ways to communicate coordinates in three-dimensions** to all prospective partners given megacities' extensive above ground, ground level, and subterranean infrastructure.

Disasters make extraordinary demands on security. **Laws, regulations, and policies require review and, as necessary, updating to keep pace with changing conditions and improvements in response capabilities.** Restrictions on what procedures emergency medical technicians (EMTs) are allowed to perform provide a case in point. While permitted medical

methods should not exceed an individual's level of training, **reconsidering what skills EMTs, paramedics, police, fire, and other personnel should have as part of their core training requires review in many jurisdictions.** In addition, **consideration should be given to temporarily expanding the palette of procedures allowed by select personnel in times of extreme adversity.**

All three conference partner militaries have maturing operational concepts. **Multi-Domain Operations (U.S.), Cross-Domain Operations (Japan), and Accelerated Warfare (Australia) have much to offer HADR,** a potential as of yet underappreciated**. In turn, these concepts would benefit from in-depth consideration of how operations in megacities would challenge each, this throughout the competition-armed conflict-return to competition range of missions and strategic objectives. The same is true of mission command.**

Conducting thorough expert reviews of megacities' readiness to withstand natural or man-caused disaster would assist in reducing post-disaster suffering and recovery costs. Common sense actions such as moving backup generators, control panels, and fuel sources to less exposed locations is an example, one that should bring to mind the need to reconsider current standards given rising sea levels. These efforts would benefit from development of something akin to Tokyo's disaster preparedness maps that show the extent to which the megacity's communities are vulnerable to earthquake damage, flooding, landslides, and other risks. (See Figure 3 for one community's disaster preparedness map regarding exposure to ground liquefaction.)

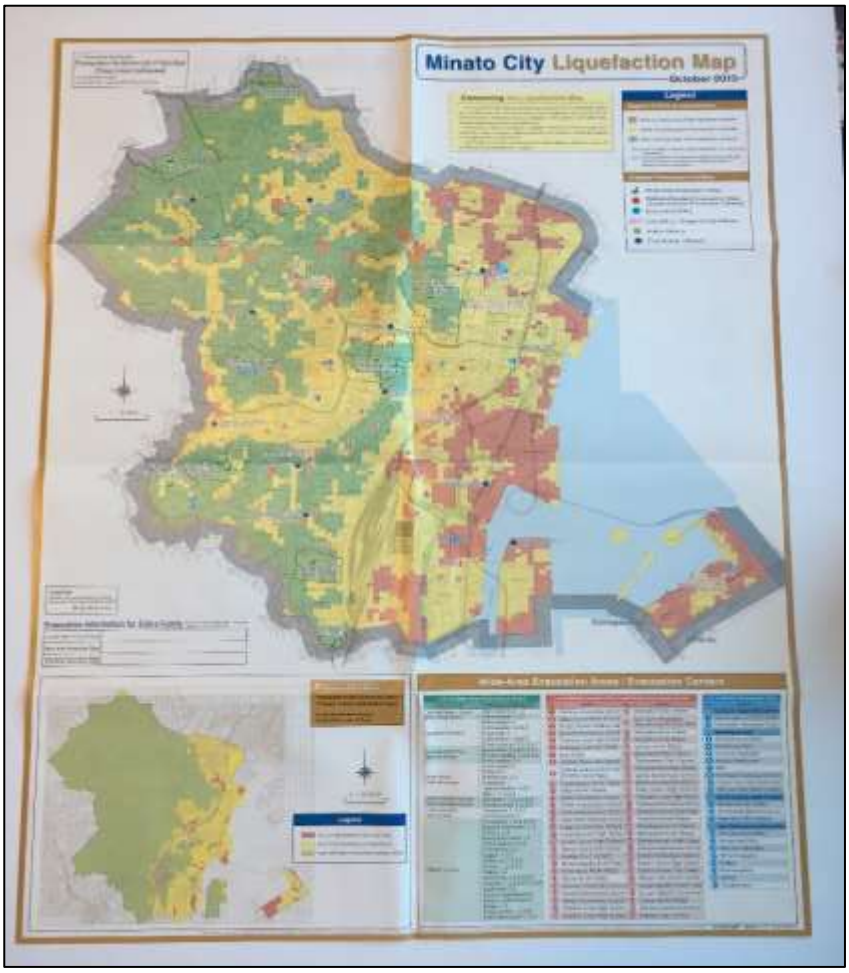

Figure 3: Minato City liquefaction disaster preparedness map[16]

[16] "Minato City Liquefaction Map (Earthquake in the Northern part of Tokyo Bay – Tokyo Inland Earthquake)," Minato City Development Support Department Construction Guidance Section, October 2013. Legend:

- Red: High liquefaction potential
- Amber: Medium liquefaction potential
- Green: Low liquefaction potential
- White circle, red border: City office
- Blue circle with "Y": Fire station/branch
- Red circle: Welfare resident evacuation site
- Blue circle: Evacuation site
- Green running figure: Wide-area evacuation area
- Yellow circle with "X": Police station

Concluding thoughts

> We cannot do this after the fact. It must begin now.
>
> Colonel (U.S. Army) David Filer conference summary remarks

This second of two megacity-focused conferences is part of a broader initiative by the partner organizations to recognize, understand, and prepare for operations in the world's largest and most influential urban areas. The world continues to urbanize. Its megacities continue to grow, thereby exposing more people and expanding the consequences when disaster strikes. The Tokyo conference offers rich ore for thought. Yet the discussion, observations, and recommendations above should be viewed as simply another step toward additional study, analysis, and preparation. Like the site of the 2018 conference, Tokyo is a developed world megacity. That study, analysis, and preparation must contemplate what these two events' discussion, observations, and recommendations tell us about megacity contingencies in a developing world urban area. Its culture will be far different than that of New York or Japan's capital. Its population might well be more heterogeneous than that for Tokyo. (While some 34% of New York's population is foreign born, less than 3% of that in Tokyo is. The percentage is less yet in Seoul and Jakarta.) The character of both nature's and man's threats to an urban area's security will differ. Those and many other differences merit attention before disaster's arrival just as do the many points identified in the context of Tokyo above.

Multi-Domain Operations and its multinational brethren concepts provide a framework for comprehensive orchestration to develop agile and innovative leaders and build experience for those leaders and their organizations. Through events like the "Current and Future Operations in

Megacities" conference, we continue to evolve our understanding of these phenomenon and the challenges they hold for soldiers and their many partners in the future.

Appendix A: Agenda





JAPAN GROUND SELF-DEFENSE FORCE-USARPAC-TRADOC-AUSTRALIAN ARMY-USARJ

"CURRENT AND FUTURE OPERATIONS IN MEGACITIES" CONFERENCE AGENDA

National Institute for Defense Studies, 5-1 Ichigayahonmuracho, Shinjuku-ku, Tokyo, 162-8808 Japan.

July 16-19, 2019

DAY 1

Tuesday, July 16, 2019

1030-1100 **Assembly and Registration for those not registering at hotel**

1100-1115 **Administration and Welcome** *Dr. Russell W. Glenn*

1115-1230 **Tokyo Virtual Terrain Walk, Part 1** *Dr. Russell W. Glenn/MAJ Caleb Dexter/CPT Jesse Geyer/CPT Jheaniell Moncrieffe*

1230-1330 **Lunch (purchase on site)**

1330-1600 **Tokyo Virtual Terrain Walk, Part 2** *Dr. Russell W. Glenn/MAJ Caleb Dexter/CPT Jesse Geyer/CPT Jheaniell Moncrieffe*

DAY 2

Wednesday, July 17, 2019

0815-0900 **Registration at conference venue (NIDS) for those not yet registered**

0900-0915 **Day 2 Welcome:** *Dr. Russell W. Glenn*

0915-0925 **Introduction of keynote speaker** *MG Gary M. Brito, CG, Maneuver Center of Excellence, U.S. Army*

0925-0955 **Keynote speaker:** *General (JGSDF, ret.) Ryoichi Oriki*

JAPAN GROUND SELF-DEFENSE FORCE-USARPAC-TRADOC-AUSTRALIAN ARMY-USARJ

"CURRENT AND FUTURE OPERATIONS IN MEGACITIES" CONFERENCE AGENDA

National Institute for Defense Studies, 5-1 Ichigayahonmuracho, Shinjuku-ku, Tokyo, 162-8808 Japan.

July 16-19, 2019

Megacities and Humanitarian Assistance/Disaster Relief (HADR) Operations: Context and History's Lessons

0955-1015 **Megacities in the Indo-Pacific Region** *Dr. Russell W. Glenn, G2 U.S. Army TRADOC*

1015-1045 **The Tokyo Subway Sarin Attack at a Frontline Hospital: Lessons Learnt** *Dr. Tetsu Okumura, Medical Director, Japan Poison Development Centre*

1045-1115 **Planning Humanitarian Assistance/Disaster Relief Operations: Insights from 2011** *Lieutenant General (JGSDF, ret) Shigeru Kobayashi, Director General for Crisis Management Tokyo Metropolitan Government*

1115-1145 **The Multinational Partner during Post-Disaster HADR – Insights from Operation Tomodachi** *Colonel Stephen C. Browne, U.S. Army War College Fellow, Texas A&M University*

1145-1245 **Lunch (purchase on site)**

1245-1320 **Panel 1: Megacities and HADR Operations: Context and History's Lessons**

Dr. Russell W. Glenn, U.S. Army Training and Doctrine Command

Dr. Tetsu Okumura, Japan Poison Development Centre

LTG Shigeru Kobayashi, JGSDF (ret.)

COL Stephen Browne, U.S. Army War College

The Complexity of Megacity Operations

1320-1350 **Multi-Domain Operations during Megacity HADR** *General Robert B. Brown, Commanding General, US Army Pacific*

1350-1420 **Megacity HADR Operations: The Japan Ground Self-Defense Force Perspective** *Lieutenant General Kazuaki Sumida, Commanding General, Ground Component Command, JGSDF*

JAPAN GROUND SELF-DEFENSE FORCE-USARPAC-TRADOC-AUSTRALIAN ARMY-USARJ

"CURRENT AND FUTURE OPERATIONS IN MEGACITIES" CONFERENCE AGENDA

National Institute for Defense Studies, 5-1 Ichigayahonmuracho, Shinjuku-ku, Tokyo, 162-8808 Japan.

July 16-19, 2019

1420-1450 **Accelerating the Application of Artificial Intelligence during Megacity and US Army Multi-Domain Operations** *Major General Gary M. Brito, Commanding General, Maneuver Center of Excellence, U.S. Army*

1450-1515 **Break**

1515-1555 **Panel 2: The Complexity of Megacity Operations**

GEN Robert B. Brown, US Army Pacific

LTG Kazuaki Sumida, JGSDF

MG Gary M. Brito, US Army TRADOC

1555-1610 **Day 2 Wrap-up:** *COL David P. Filer*

1830-2030 **No-host Ice Breaker (New Sanno hotel Fair Winds Lounge)**

DAY 3

Thursday, July 18, 2019

0830-0900 **Registration at conference venue (NIDS) for those not yet registered**

0900-0910 **Day 3 Welcome:** *LTC Kent Justice*

Orchestrating Megacity Security Operations during World Class Events

0910-0940 **Mission Command during Megacity HADR Operations** *Brigadier Ian Langford, Australian Army*

0940-1010 **Best Practices for Securing a Megacity during a Major World Event 1:** *Charles Heal, former commander, Los Angeles County Sheriff's Department*

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1010-1040 **Best Practices for Securing a Megacity during a Major World Event 2: The 2016 Rio de Janeiro Summer Olympics** *Mr. Peter Ford, former Diplomatic Security Service Special Agent*

1040-1110 **The JGSDF Role in Megacity Security Operations** *Lieutenant General Ryuji Takemoto, Commanding General, 1st Division, Japan Ground Self-Defense Force*

1110-1140 **Break**

1140-1220 **Panel 3: Orchestrating Megacity Operations**

BRIG Ian Langford, Australian Army

Commander Charles Heal, LA County Sheriff's Department

Mr. Peter Ford, G4S

LTG Ryuji Takemoto, Japan Ground Self-Defense Force

1220-1320 **Lunch (purchase on site)**

Building Governmental-Nongovernmental Teams during Megacity Operations

1320-1350 **Orchestrating HADR Megacity *Operations*** *Lieutenant General (ROK Army, ret.) Chun In-Bum*

1350-1420 **Command; Control; and Joint, Interagency, Intergovernmental, and Multinational Coordination: Lessons from 2011** *Lieutenant General (JGSDF, ret.) Noboru Yamaguchi, Dean of International Relations at the International University of Japan*

1420-1450 **Humanitarian Assistance and Disaster Relief: Lessons from a Combat Zone** *Ms. Lise Grande, United Nations Resident and Humanitarian Coordinator, Yemen*

1450-1520 **Break**





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July 16-19, 2019

1520-1600 **Panel 4: Building Governmental-Nongovernmental Teams during Megacity Operations**

LTG (ROKA, ret.) Chun In-Bum

LTG (JGSDF, ret.) Noboru Yamaguchi, University of Japan

Ms. Lise Grande, UN

1600-1615 **Day 3 Wrap-up:** *COL David P. Filer*

DAY 4

Friday, July 19, 2019

Location TBD

(Working group representatives only)

0900-1200 **Consolidation of Insights and Discussion of Way Ahead (to include discussion regarding desirability of 2020 conference in a developing world megacity**

Appendix B: Summary of Observations in PMESII-PT Format

Political observation 1: Actual disaster responses provide excellent training opportunities. However, exercise caution if members of the public will be included.

Military observation 1: There will always be a threat seeking to take advantage of disaster.

Military observation 2: HADR is the realm of nontraditional military missions. Organizational adaptability and flexibility in exercising command and control will be essential.

Economic observation 1: HADR preparation is a system funded without recognition of that fact.

Social observation 1: "The first report is always wrong" is as true during HADR contingencies as wartime operations.

Social observation 2: Mechanisms for sharing information and coordination must be established, published, and practiced before a disaster.

Social observation 3: The same social problems found in an urban area on a daily basis will be found in displaced persons facilities.

Social observation 4: HADR responders must recognize that megacity populations – even those in the most ethnically homogeneous of countries – will include both permanent residents and visitors who are ethnically diverse and speak a broad range of languages. This will complicate relief operation collaboration.

Social observation 5: Always keep in mind the need to maintain the public trust both in the immediate and more distant futures

Social observation 6: As world populations age, knowing the locations of the infirm and the nature of elderly and others' medical and other support needs will become increasingly important.

Social observation 7: Urban residents and visitors should be advised of how to prepare for and react to a disaster prior to an event.

Social observation 8: Community members will be key to disaster recovery. Pre-event education and policies for coordinating their emergency response efforts will enhance the effectiveness of participation.

Social observation 9: Understanding coalition member organizational cultures and those of the population receiving HADR is fundamental to success.

Social observation 10: Megacity residents should not be overlooked as sources of information.

Information observation 1: Data analysis conducted prior to a disaster will pay dividends during HADR.

Information observation 2: Communications during HADR are arguably responders' most important capability. They will also be among the most fragile.

Information observation 3: The information and perspectives representatives from various organizations can offer are undervalued benefits of a comprehensive approach to operations (one that brings all relevant parties together during HADR).

Information observation 4: Communications technologies are part of a system.

Information observation 5: Information's primary purpose is sometimes…to inform.

Information observation 6: Ninety-nine percent of a population in a city of 25 million willing to support a coalition means 250,000 are not willing to do so.

Information observation 7: Seek to stay "left of bang" (ahead of a problem) by establishing a reputation for providing the population correct information and doing so regularly both before an adversary sends misinformation and thereafter.

Information observation 8: Previous and future HADR operations in megacities are (and will be) sources of lessons learned. As artificial intelligence matures, government authorities should employ it to capture and analyze evacuation patterns, record damage to utilities, and otherwise support improved planning and response during future events.

Information observation 9: Creating a multinational security infrastructure will be key during major world events in megacities.

Information observation 10: Pre-event data collection and analysis programs underpin effective local response in the aftermath of a catastrophe.

Infrastructure observation 1: Infrastructure is more than physical subsystems alone.

Infrastructure observation 2: Command and control infrastructure is exceedingly complex during megacity HADR.

Infrastructure observation 3: There is a need to review laws, policies, and regulations to ensure they support rather than hinder effective HADR response.

Infrastructure observation 4: The rate of megacity infrastructure expansion makes it difficult to maintain awareness of changes, particularly regarding subterranean features.

Physical environment observation 1: Conceiving of the urban environment in terms of density, flow, and tempo helps understanding of megacity environments.

Physical environment observation 2: Plans should include designation of less exposed locations as alternate headquarters, supply distribution points, and other key nodes.

Time observation 1: Community members are first first responders.

Time observation 2: External assistance will likely provide little value-added to search and rescue efforts.

Time observation 3: Policies dictating emergency medical technician (EMT) and other first responder permissions require reevaluation.

Appendix C: Summary of Recommendations in DOTMLPF-P Format

Doctrine recommendation 1: Clarify roles and responsibilities for organizations managing and supporting HADR. Include community members in this clarification.

Doctrine recommendation 2: Multi-Domain Operations (or its conceptual kin such as Cross-Domain Operations and Accelerated Warfare) and mission command both have much to offer during HADR. Capture lessons and train to capitalize on these benefits.

Doctrine recommendation 3: Develop guidance and procedures to promote effective unity of effort, unity of message, and intelligence sharing.

Doctrine recommendation 4: Create megacity HADR response plans – both generic and specific to high-risk urban areas – from which actions can be adapted during operations.

Doctrine recommendation 5: Use plans and exercises to identify initial HADR missions and commanders' intents, thus accounting for communications failures in the immediate aftermath of a disaster.

Doctrine recommendation 6: Create doctrine to support comprehensive approach operations involving joint, multinational, whole-of-government, and other-than-government civilian organizations.

Doctrine recommendation 8: Seize on exercises and planning sessions to identify mutually acceptable ways of dealing with military and other organizations' various coordination styles, decision-making processes, and additional cultural characteristics that could impede effective HADR response.

Doctrine recommendation 9: Maintain a systems perspective throughout all components of megacity functions.

Organization recommendation 1: Make future Bilateral Coordination Action Teams (BCAT) joint.

Organization recommendation 2: When possible, put one organization in overall charge of megacity operations.

Organization recommendation 3: Train and rehearse for HADR headquarters and other movements just as is done during combat exercises.

Organization recommendation 3: Determine information and intelligence sharing procedures prior to actual HADR operations.

Organization recommendation 4: Form a partnership of megacities to exchange existing policies and lessons learned from disasters.

Organization recommendation 5: Consider assigning liaison teams to select urban areas of notable security importance or those likely to require HADR assistance due to their vulnerability.

Organization recommendation 6: Develop doctrine and relationships to achieve more than mere0 cooperation or coordination.

Organization recommendation 7: Compile and maintain lists of HADR-relevant experts with contact information.

Training recommendation 1: Develop adaptable, less confrontational ways of achieving "red teaming" objectives that are culturally acceptable yet effective when dealing with representatives of other nationalities or organization types (to include those from NGOs, IGOs, faith-based organizations, and industry).

Training recommendation 2: Integrate multiple non-traditional partners when both planning for and conducting exercises.

Training recommendation 3: Improve virtual and constructive megacity training capabilities at all three levels of operations.

Training recommendation 4: Train for competition and return to competition missions – to include megacity HADR – just as is done for armed conflict operations.

Materiel recommendation 1: Ensure key technologies will function in urban areas. Given the exceptional environmental conditions these environments pose, be prepared to revert to low-tech/no-tech alternatives.

Materiel recommendation 2: Do not rely on single technologies during urban operations.

Materiel recommendation 3: Develop laws, regulations, and policies for leveraging current and emerging technologies for use during urban operations now.

Materiel recommendation 4: Develop means of communicating three-dimensional coordinates to all HADR partners.

Materiel recommendation 5: Identify and address solutions to potential difficulties with prospective HADR partners before emergency situations.

Materiel recommendation 6: Develop communications systems, databases, software, and other capabilities able to address both operational security and need-to-share requirements.

Leadership and education recommendation 1: Find the experts to lead or support megacity HADR operations rather than defaulting to the individual on duty or the leader of the unit prioritized for immediate deployment.

Leadership and education recommendation 2: Analyze the HADR megacity implications for mission command of MDO, Cross-Domain Operations (Japan Self-Defense Force), Accelerated Warfare (Australian Army), and other partner emerging operational concepts and the concepts themselves.

Leadership and education recommendation 3: Design coalition exercises to address both the specific topic at hand and team building more generally.

Leadership and education recommendation 4: Recognize that megacity HADR leadership can demand talents different from those that got a military officer or other authority promoted.

Leadership and education recommendation 5: Encourage coalition membership to all relevant parties, even those habitually unwilling to associate themselves with the military.

Leadership and education recommendation 6: Consider assigning experienced leaders from non-traditional sources to critical security positions.

Personnel recommendation 1: Designate alternate locations where emergency responders should report if their primary place of work is unreachable.

Facilities recommendation 1: Incorporate women's perspectives in the design and running of shelters, displaced person or refugee camps, and similar facilities.

Facilities recommendation 2: Plan and provide for transportation to disaster facilities. Include the capability to transport those with mobility issues and pets.

Facilities recommendation 3: Maintain 24-hour law enforcement presence at disaster facilities.

Facilities recommendation 4: Keep disaster facility residents informed.

Policy recommendation 1: Review past HADR operations in urban areas and monitor similar future operations to identify regulations, policies, and laws in need of adaptation.

Policy recommendation 2: Consider creating the equivalent of Tokyo's disaster preparedness maps and seek consistency in portraying information on maps and during public and private reporting.

Policy recommendation 3: Recognize that misuse of disaster relief resources can outweigh the benefits of their provision, requiring suspension of some aspects of HADR.

Policy recommendation 4: Incorporate community representatives in pre-disaster planning and preparations.

Policy recommendation 5: Identify key megacity terrain prior to a disaster.

Policy recommendation 6: Consider insights from other-than-military operations when developing urban operations guidance.

Policy recommendation 7: Prioritize and assign post-disaster support of specific infirm and mobility-impaired residents to emergency providers or community volunteers.

Policy recommendation 8: Locate key physical infrastructure where it is not likely to fail during a disaster.