



NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

Office of Corporate Communications

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**Remarks as prepared for
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Thank you, Keith [Masback, Chief Executive Officer, U.S. Geospatial Intelligence Foundation], for that kind introduction. And my thanks to the American Geographical Society, for their invitation for me to be here today. And also I want to thank all of you, for being here this morning.

As you're probably aware, Sir Stuart Peach was scheduled to speak this morning. He's a legend in this field, and has some very definite and well-thought-out ideas on why geography matters in a world where cities will occupy an increasingly important role in the geostrategic landscape.

But he's not here ... you've got me instead.

Let me explain. It's really not Sir Stu's fault. As it turns out, the Vice Chairman of the Joint Chiefs of Staff, General Paul Selva, made a last-minute decision to visit Sir Stu in the UK. And – you guessed it – now's the time for that visit.

So, Dr. Chris Tucker asked me to pinch-hit today, knowing that my organization has been focusing an increasing amount of our time, attention, and investment in understanding the geospatial intelligence aspects of our increasingly urbanized world. And, I accepted Chris's invitation, for two reasons.

First, because this is a topic that I'm excited about. I have some ideas I'd like to share, and get your thoughts on during the Q&A session. And second, because I could never say "No" to Chris.

I realize that, in Sir Stu's absence, I've got some impossibly large shoes to fill. He's influenced and inspired top people in this field all around the world, and I'm just as disappointed as you are that I don't get to hear him in person. But here goes an attempt to live up to his high standards. And a special thanks in advance to Dr. Alex Murphy from the University of Oregon, and Dr. Lee Schwartz, Geographer of the U.S., for their help in bringing the level of today's conversation up to the level you deserve.

For any of you not familiar with what my agency does: NGA's mission is to deliver world-class geospatial intelligence that provides a decisive advantage to policymakers, warfighters and intelligence professionals. Yes, I'm talking about spy satellites, but actually, more than that.

Our motto is "Know the Earth ... Show the Way ... Understand the World." So at NGA, we deal in more than just secrets derived from spy satellites and classified insights derived from all manner of classified and unclassified sources of geospatial data. We're part of the U.S. Intelligence Community, so we work



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with organizations like the National Intelligence Council, which is known for issuing its Global Trends every 4 years. The last one was Global Trends 2030, and there's an entire section on "The World as Urban." There are some powerful statements in there, such as: "Rapid urbanization could ... give a boost to Asia's and Africa's long-term competitiveness and social and political stability, or, if not mastered, could become their Achilles' heels." Global Trends 2035 will be out next year, and you can be sure that NGA will be submitting and reviewing all kinds of information about MegaCities.

There are many other aspects to being an intelligence agency – not the least of which is integrating with fellow members of the Intelligence Community. That includes sharing information with our allies – like the French. Which could be an entire topic of discussion after the events of last Friday – and our thoughts and prayers go out to the victims and their families.

But besides being an intelligence agency, we're also a combat support agency – which means that we provide foundation geospatial data and insight to support combat operations, as we did in Operation Iraqi Freedom and Operation Enduring Freedom in Afghanistan. Warfare in places like these have been increasingly urban in nature, whether in Baghdad, Fallujah, Kabul or Kandahar. But our mission is quite a bit larger than that.

The Defense Department asks us to provide geospatial data and insights that support all sorts of operations, other than war, that fall under its purview. These include humanitarian assistance programs, in response to disasters like the Ebola outbreak, the recent earthquake in Nepal, or the recent storm and flood damage from Hurricane Joaquin. Because an ever-increasing proportion of humans reside in urban areas, humanitarian operations by the U.S. armed forces and our coalition partners will increasingly demand detailed, precise and nuanced understandings of rapidly changing dense urban environments – their physical, natural, built and human geographies. And, it will require that we "succeed in the open," developing open geospatial data and insights that can be shared with all manner of US government, partner nation, and intergovernmental partners.

As we look to the future, particularly at a 2050 time horizon, urbanization is a set of processes that will manifest differently in different places, and often in unknown ways. But these fundamentally geographical processes need to be understood, if our defense, diplomacy and development communities are to be able to preemptively invest in the stability and prosperity of urban centers. And if we can do that, we can avoid deploying forces to stave off emergent instability or conflict.

Cities are often thought of as living, breathing organisms that can only be understood in terms of their continuously evolving processes that make and remake urban landscapes over time. They're a key part of the stories of humanity – real and fictional alike. Without Calcutta being deluged by extreme poverty, Mother Teresa is still heroic, but not as heroic as she is there. And you might think this sounds trite, but I think it's actually an excellent example: Without Gotham City being overrun by crime, Batman is pretty darned dull.

Any intervention requires an understanding of the fundamental processes driving this continuous evolution of cities, and the historical and geographical processes that got the cities where they are. They're not just a landscape to be traversed, or a topography to be mastered militarily. They pose unique challenges that we, in the national security community, spent much of the second half of the 20th century avoiding.



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A great deal of the mapping that NGA – and our predecessor organizations, especially the Defense Mapping Agency – engaged in during this period was at the strategic and operational scales. Not the tactical and urban, or even human scales. We primarily took on mapping requirements for large course grained topographies where we might someday engage in “open and rolling” warfare. But the emerging centrality of vast dense urban environments to the geostrategic landscape will make this impossible in the future.

Over the past decade, NGA and our partners have been challenged to figure out how to map the world’s urban environments at much finer scales than we could get away with during this earlier era of strategic and operational scale mapping. In effect, the urban has become strategic.

For strategic success, and the future of human security, we need to figure out how to map the world’s dense urban environments with an accuracy, precision, nuance and regularity that poses many challenges. But mapping with accuracy, precision, nuance and regularity requires plentiful reliable data. And that’s often lacking in the urban centers of greatest interest. There are so many critical perspectives on our cities that we at NGA must contend with, and figure out how to support. And in many ways, today’s speakers will do a great job of shining a light on these perspectives.

As Col. Mahaney, from the Chief of Staff of the Army’s Strategic Studies Group, will likely point out later today – we have to learn how to grapple with MegaCities, in support of the full spectrum of military operations – whether major combat operations, or counterinsurgency, or stability operations, or humanitarian relief. The same is true for whole of government investments, and those of our intergovernmental partners.

Baghdad was a big city to deal with, but it was less than 4 million inhabitants, and under 80 square kilometers. Lagos, Nigeria on the other hand, is currently 18 million people, and it’s estimated that by 2050, it will double in size – to 36 million. That’s a huge difference. It’s larger than the entire countries of Iraq or Afghanistan.

And, if you extrapolate that spatially, that could mean Lagos will become a city of some 2000 square kilometers – or 800 square miles. Yesterday, I’m told our NGA analyst Patrick Ellis presented research about how Lagos’ rapid growth of has exceeded Nigeria’s ability to provide basic socio-economic needs and services for its residents. And this lack of governance in major urban areas is of great concern to the Intelligence Community. Because Lagos is by no means the only urban environment of this scale. As a matter of fact, NGA has partnered with academic institutions such as Washington College to collect and geospatially depict data for other mega-cities, such as Mumbai. These areas of rapid urban expansion are obviously of great interest to my agency.

As Professor Laituri, the recent Jefferson Science Fellow at the Department of State’s Humanitarian Information Unit, will likely point out this afternoon – there are an enormous number of so-called “Secondary Cities.” These are cities from 250 thousand to 5 million people that are poised to grow rapidly between now and 2050 – many becoming megacities, and others simply remaining ... REALLY BIG CITIES. The challenges associated with building capacity in these cities to support disaster response, emergency preparedness and urban resilience are huge – and can only be overcome if mapping these cities is taken seriously. And, frankly, we know so little about many of them that most of us couldn’t even tell you their names. So, we have a long way to go.



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I'm also proud to say that NGA has partnered with our colleagues at the U.S. State Department, on a Secondary Cities project that's aimed at long term engagement with international local partners. The goal is to build capacity for continued creation of geospatial data that's focused on emergency preparedness, security, and resiliency.

I'm very interested in hearing the perspectives from the next session on Cities at Risk of Disaster. Because of our humanitarian responsibilities, NGA gets a call every time there's a disaster that impacts human security around the world. Because, as everyone in this room understands, maps and geographic data and insights are essential to rapid response. We'd love to invest our time and resources in mitigating and even preventing disaster, in the face of the inevitable natural hazards that will occur.

And, as the Executive Director of U.N. Habitat, Dr. Joan Clos, is likely to point out later today – we can't understand cities and the security of the humans that reside there, without first understanding the factors that lead to their sustainability. The notion of “unsustainable cities” should frighten all of us, and lead us to invest heavily in understanding the fundamental geographical processes that will drive urbanization over the coming decades.

For all these reasons, the US Defense Department, and our larger national security community – including our development, diplomacy and economic instruments of national power – very much need to develop an integrated, and spatio-temporally enabled strategy for understanding these fast changing urban environments. We really need a “whole of government” strategy on how geographic data, technology, and understanding can help us understand the processes that will drive this worldwide trend toward urbanization. And this strategy will only be successful if it leads us to have detailed knowledge of each of these specific dense urban environments.

Additionally, as newly elected AGS Councilor Dr. Parag Khanna says: “Geography is not destiny; connectivity is. We are moving from a world organized according to nations and borders to a global society shaped by infrastructure and supply chains.”

And cities – this vast variety of rapidly changing, dense urban environments – will be connected in new and interesting ways by 2050 that offer both new opportunities for resilience, and new threats to human security. This will fundamentally remaking the geostrategic landscape. A globally networked inter-city division of labor promises a new era of global prosperity. The global explosion in the Internet of Things, cyber-capabilities, civilian and commercial drones, space-time robotics and Smart Cities has enormous opportunities for humanity.

However, fast changing criminal, cyber threat, and terrorist networks will no doubt draw upon this global network of cities for their own nefarious purposes. We must understand this dimension of urban human geography, if human security is truly a priority of ours. And yes, I included cyber, which some of you may find odd in a discussion of the emerging geography of cities. But, remember that all of this technological interconnectedness resolves to the physical – the geographic. Our future urban



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landscapes will have rich “cyber-topographical layers” that we need to understand, if we’re to going to be able to really feel the pulse of these cities, and what makes them tick.

So let me leave you with few thoughts. Hopefully, just in case we have some Twitter fans out there, they’re short and pithy enough that they’re 140 characters or less. That’s hard to do with most words that start with “Geo” though.

Geography, geographical thinking, geospatial data, and geospatial technologies are fundamental to understanding the security of our future cities, and their changing role in the geostrategic landscape. Therefore, it’s essential that thought leaders from academia, industry, government and the social sector come together and collaborate through groups like the American Geographical Society, to help us understand the vital trends – and new thinking – that will reshape the geography of our cities and our planet by 2050. And, combining traditional geographic knowledge with new, technology-driven insights will be huge in understanding cities of the future.

If we’re going to properly anticipate and shape the future of the world’s cities as sustainable and secure habitats for the world’s population, we need to be both diligent and vigilant, in the quest to understand: The proper balance of new geospatial technologies, the new data sources they provide, and old school geographic knowledge and thinking that’s necessary. This has huge implications for how we educate our future generations, as and for us at NGA, on how we evolve our own GEOINT tradecraft.

The future of humanity in an urbanized world is actually bright, but we have to enter this new era with our eyes wide open to the new and evolving threats, risks, and dilemmas that these new urban realities will pose. Geographic data, geospatial technologies, and geographic understanding will be essential to navigating this future. So we invite you all to join NGA as we “Know the Earth ... Show the Way ... Understand the World.”

With that, I’d like to thank the American Geographical Society for the invitation to speak, thank you all for your willingness to participate in this important multi-year strategic dialogue, and take my seat on the panel to await your questions.

Thank you very much.

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