THE BROOKINGS INSTITUTION

SAUL/ZILKHA ROOM

FRAGILITY, RESILIENCE, AND SECURITY OF 21st CENTURY CITIES

Washington, D.C.

Thursday, April 27, 2017

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P R O C E E D I N G S

MR. GOOTMAN: Good afternoon, everyone. Thank you very much for coming to Brookings. Today we are going to talk about the impacts of urbanization as a global megatrend; and its focus on cities and how they respond.

I think that if you are here, you probably already know that more than 50 percent of the world's population lives in urbanized areas. In about 30 years, we are going to be up to 66 percent, about 80 percent of all global GDP comes out of the these urban areas. And the transformation of urbanization around the world increased in developed countries as well as developing countries; has driven a lot of challenges; economic reforms and the transition of how the economies behalf and where the economic centers are.

Infrastructure strains, the challenges of security with enormous numbers of people moving into areas that were not built for that population, and even the differences in how diplomacy happens. So, all of these issues layered on top of our urban areas creating challenges for them to respond, and one of the buzz words over the past several years is resiliency.

Are these places resilient? Has become a buzz word in many ways because the public sector uses it quite often for a whole range of themes whether it's natural disasters or economic shocks; the private sector is using to sell some of their products to respond to this. We are going to try and cut through that, meaning all things to all people with some analysis that has been done by our first speaker. And then we are going to have a conversation on these economic social security issues, where we are going to undoubtedly solve all of these urbanization problems.

Except we can't, because I should mention, one of our speakers today has been called off to the Hill for some testimony. I just wanted to mention Vanda Felbab-Brown who actually was instrumental on pooling this together, so it's very unfortunate that she's not here.

But she will be here tomorrow talking about security issues with our lead presenter, Dr. John de Boer. He is currently the managing director of the SecDev Group, it's a new enterprise for him, but when he undertook this work, it was actually with the United Nations think tank, the Center for Policy Research under the United Nations University.

And then after John speaks we'll be joined by my colleagues, Alan Berube, he's a senior

fellow and deputy director of the Metropolitan Policy Program, which focuses on cities.

And then brings it together with our host today actually, Mike O'Hanlon, who is senior fellow, and leads the 21st Century Security Intelligence program, within our Foreign Policy portion of Brookings; so, great to be collaborating between Foreign Policy and our urban policy program.

I'm Marek Gootman. I'm just your moderator for today. And I'm now going to turn this over to John for some introductory remarks, and a new tool on assessing and defining this issue of resiliency. So, John? (Applause)

MR. DE BOER: Thanks very much, everybody. It's a pleasure to be here, especially to escape the cold in Ottawa, believe it or not. But also to share some of the work that I've been involved in over the past several years. It's actually work that is a culmination of a lot of partnerships across the globe with a number of institutions and individuals, so it's particularly exciting.

What I want to talk to you to today is about, not just resilience but also fragility. You know, up until now a lot of the work that's been discussed about fragility has been at the state level. But we know, as was mentioned earlier, we live in an urban environment; the majority of the world's globe, live now in cities. Cities are in fact, redefining global governance as we speak. And yet, we have very little understanding of what's taking place in these cities.

Very little understanding how various risks are dispersed or, you know, protective factors exists; so I'm very pleased to be able to share this work with you. The fact that the majority of the world's power people and wealth is concentrated in cities that's actually a very good thing, particularly for tackling some of the world's most pressing issues.

But I think we also have to recognize that cities are oftentimes at the frontlines, facing some of the most dire constraints that were mentioned earlier including climate change, urban violence, multi-layered levels of violence, as well as migration flows, and extreme poverty. Now, a lot is known about, perhaps, a-half-a-dozen, or maybe maximum 100 cities are global cities; the ones that dominate global GDP.

But the reality is that we know very little about the majority of the world cities. In fact, our knowledge base is probably almost nonexistent. And most likely considering projections in terms of population growth, considering projections in terms of economic growth, is those cities that we know very

little about that are going to shape our future.

And so what we did in collaboration with the Igarapé Institute, the United Nations University, which I was formerly a part of, as well with the support of the 100 Resilient Cities Initiative and the World Economic Forum, was to put together a framework that enabled us to (a) understand the types of risks that are facing the majority of our world cities, as well as some of the opportunities that they can harness to deal with some of the challenges that they face.

Why is this important? Well, think for now, if you look and trust that what McKinsey says, 40 percent of global growth over the next 10 years will come from cities in the emerging context. 70 percent of growth in Sub-Saharan Africa will come from its cities; 80 percent in Latin America will come from cities, and about 66 percent over the next 10 years will come from cities.

Cities are fundamental to growth, not just in the United States and elsewhere, but around the globe. And unless we understand their realities on the ground it's going to be difficult to navigate the complications.

And so what we try to do in collaboration with Igarapé and others, is to find a way to systematically compare, contrast and understand the risks facing cities. What you have here is a data visualization that we've put together, where we examined over 2,100 cities with populations of 250,000 or more. And what we did was to create a framework that highlighted, isolated 11 variables, and these variables were based on academic literature, and they had to have empirical correlation with indicators of fragility in cities.

Some of the indicators included the rate of urban population growth, unemployment, particularly youth unemployment, income and social inequality, access to basic services. Levels of pollution, homicide rates, terrorism-related deaths, as well as conflict events, and of course natural hazards, such as exposure to cyclones, floods, droughts.

So what we did here, what you have is a composite index, that doesn't just look at conflict-related or security-related threats, but also tries to bring together a wide variety of risks that a city may face, and try to understand how they link together, how they aggregate.

As I mentioned, there were a couple of criteria for defining these 11 variables, more information is available online at CPR.edu; but the two key defining characteristics of why we chose these

11 variables was one, there had to be empirical evidence and a correlation with fragility at the second level. Secondly, and this is more of a constraining variable, that there had to be actual data that we had to collect at the city level, across these 2,100 cities, right.

And I'll get to this later, perhaps in more of a question-and-answer period. That there are certain limitations, as you are all aware, that relate to the quality and availability of data at the city level. And what we did was to scour both structured and unstructured data sources coming from national statistics offices, international organizations, both private as well as public sources, to categorize these and gather them over a 15-year period.

So our dataset goes back to the year 2000, and if you go on the website, which is publicly available, you can actually click on a button, and it will actually simulate how fragility has progressed and changed over the past 15 years. And we rated them in a scale of 1 to 4; 1 being low friability, 4 being high fragility.

Now, there were a number of interesting conclusions and findings, I suppose. When we went about collecting these data and compiling it into this data visualization, I'll speak to four. There are many others. But the first one is that city fragility, fragility at the city level, was more widespread than we originally thought, and probably worse, if you look back 10, 15 years, it's actually growing.

So, of the sample of 2,100 cities that we looked at, roughly 14 percent, just over 300 actually can be considered very fragile. And 16 percent, only 16 percent are actually considered to have low fragility. The vast majority of the world's 2,100 cities over 250,000 people are actually in the middle range of mid-level degrees of fragility.

The second interesting lesson that we learned, was that, and perhaps it's not new to all of you, nor surprising, so, yes, most fragile cities are clustered in Africa and Asia. In fact 93 percent of all high-risk cities are located on those continents, 44 percent of all cities in Africa are classified as high fragility.

Approximately 51 percent are of medium levels. By comparison when you look at Asia, and that includes the Middle East, roughly 70 percent of their cities experience medium levels of fragility in some 15 percent exhibit, very high levels of fragility. Now, some of the factors driving fragility in Africa, for example, include very high unemployment, particularly amongst young men, low access to services,

as well as, of course, exposure to conflict and violence.

In Asia the key influencing factors tend to be related to exposure through hazards, particularly natural hazards, terrorism-related killings, as well as high levels of exposure to air pollution. And in the Americas homicidal violence and organized crime tend to be some of the most important variables.

Now, the third key finding that we found was that high areas or cities that are experiencing either high or moderate levels of fragility are not confined to low- or middle-income settings. In fact, you see approximately 40 cities in upper middle-income settings that show signs of high levels of fragility, and increasing levels of fragility. A lot of them are concentrated in Colombia, others obviously increasingly in Venezuela.

And you also see countries such as the Philippines experiencing very high rates of fragility. Now, the good news is that fragility is not permanent. It's something that you can change, it's a dynamic property. And you have examples of cities able to turn things around. I mean we were talking before we came in here about (Inaudible), an often cited example.

But you also can go back into history where, for instance, I was working for the past three years, Tokyo. Tokyo was not always a thriving city as it is now, I mean you just need to go back to right after the post-war period, rampant with organized crime, obvious exposure to natural hazards, serious political instability, and look at where Tokyo is today. It's not an inevitable outcome.

But in order to get or escape fragility, manage fragility and these risks, there's a couple of things that are required, they often require obviously enlightened leadership, they require mayors who stick to a plan, successive mayors, but as part of this research we also mapped out what we call protective factors, a series of what we thought to be some of the most important attributes that a city could have in order to deal with the risks that I highlighted earlier.

And there are seven here. The first deals with greater income and social inequality. There's an empirical, considerable empirical evidence that greater income and social equality, are not only correlated with the ability to deal with disaster, but also to deal with violence and crime.

Effective policing and judicial systems, now it's not just the number of police that’s important, in fact, there's absolutely no correlation between the number of police and security on the

ground, it's public confidence and trust in the police at the city level, that seems to be most important factor. When there is higher degree of public trust in the institutions of law enforcement, there seems to be greater compliance with the law, and obviously greater cooperation with the law.

Third, microeconomic security and social protection schemes; here we are talking about savings, insurance schemes, access to credit, these are fundamental, not just in terms of dealing with disaster, but also in preventing violence and recidivism. Access to basic services not only as a measure of the degree of development at a city level, but also to help them read out and recover.

Greater social cohesion, not just within groups, but also between groups; the existence of social support networks, right, and here we are talking about not just in terms of community associations and churches, but also direct interventions that social reintegration of violent offenders, for example. That help them deal with, you know, CBT, which is the cognitive behavior therapy. Develop nonviolent networks, et cetera. These prove to be very important initiatives, high value for investment.

And finally, and perhaps not least significant is that there has to be very important and strong forms of cooperation between communities and their government, collective community sport. To work with municipal government, and multiple layers of government, and of course intergovernmental cooperation seems to be fundamental in terms dealing with some of the fragility risks that I mentioned.

Now, in conclusion, what's obviously from this is that a number of entities across the public and private sector have a role to play. We are talking about not just government police, but we are talking about insurance providers, we are talking about banks, we are talking about community groups, leaders, all of them having a role to play in terms of developing the attributes and the protective factors to deal with fragility.

And I'll close by saying that we should not also think about fragility and resilience as being on opposite sides of the spectrum. In fact, oftentimes they coexist. You'll find some of the most resilient communities and resilient peoples in context of high fragility. The challenge for policymakers, and the challenge for the private sectors, how do you harness that, to scale it up, to build capabilities to help manage risks better, and to help diminish and mitigate against the impact of some of the risks that are managed.

Thanks. I look forward to engaging on this more as we talk through the question-and-

answering period. (Applause)

MR. GOOTMAN: So, I'll actually start. We are going to take a lot of questions from you all, so start thinking about responses. And so a quick question of John; and then maybe get some early feedback from Alan and Mike; and again in conversation with you all, as well.

So, John, one of the things, and it was interesting, because when I led with resilience you led with fragility, you kind of addressed the distinction between the two of them. Could you just get a little bit more detailed on that definition of fragility versus resilience? Because I think that's something that is not well recognized among a lot of practitioners.

MR. DE BOER: So, what we've been doing in terms of trying to think through these two concepts, which as you mentioned earlier on are extremely vague, was to focus on core capacities of the cities. So when we look at fragility, what determines and defines a fragile city versus a non-fragile city, is actually looking at its capacity to deliver on its social contract with the people, to deliver on its core capacities, right, so some of the fact that can include either delivering on basic services, but it also includes, you know, protecting property, individuals and, you know, moving forward on social norms; right, so core capacities.

Resilience, we interpret it more as protective capacity, the factors, the ability to actually help insulate those core capacities, so that when a city actually faces a certain type of crises, whether it be a sudden onset, or chronic, is able to actually deliver on the minimum capacity; to harness also collaborative mechanisms, whether it be at the community level, or within the private sector, or externally, to help deal with those issues and those challenges.

The other important thing that I think that I mentioned at the conclusion is that we should not think that resilience is always good. Right? I mean there have been people, Diane Davis, for example, at Harvard, who has talked about negative resiliency. And you see this happening all the time, in many context in which we work. Conflict-effect context, crime-rating context, the service providers sometimes are illicit groups, organized crime.

And communities are forced to trust them or to rely on them for security provision, sometimes for even basic things as latrines. That is a resilience mechanism, but it actually enhances fragility of the community, right. So, how can you think through alternative modes of building up resilience

that don't actually enhance fragility? So here we need to understand kind of the linkages between these two acts.

MR. GOOTMAN: I'm interpreting this as fragility are the kind of risk factors, and how at risk you are based upon a lot of external and some internal structures, or environment, and then resilience is your capacity to either mitigate or respond to those risks?

MR. DE BOER: That's right. That's right. It's capacity, mitigate a response to those risks, and what's interesting is that they are not always the inverse. So for instance what I showed there, you know, there's nothing in the fragility factors that talk about, for instance, social cohesion. That talk about microeconomic security schemes, insurance, et cetera, they are not always the reverse of the other, and so we need to think through those. This is obviously somewhat of a first take, we need to take a much more -- deeper dive, in terms of how these various factors interrelate and react on the ground in some of the most complex environments.

MR. GOOTMAN: Just one more question then about the application of this platform?

MR. DE BOER: Yes.

MR. GOOTMAN: What were you trying to do, or what do you hope comes out? This is data, and it gives people a sense of where they are. It's a lot more places, and we just did our redefining of global cities analysis, and there's an annual global -- or regular global metro monitor that looks at again, like, the top 300, the 120-some places in each of those instances. You cover a lot more. So, what are you hoping is the practical result from making this available?

MR. DE BOER: So, the first practical result is (a) it's never been done before, right. This does represent the single largest public repository of data on cities across multiple risks. The second thing that we want is for cities to react, and say: What? This is inaccurate, or what are we doing here? Update this data, because as I mentioned earlier some of the limitations with this is that data, particularly when you are dealing with cities such as Mogadishu, or even Karachi, it's scarce, unreliable, needs to be scrubbed significantly, and so we want an interaction and communication with cities to help improve the database.

A lot is riding on the data in terms of good public policy. The other thing that we want is a much more in-depth interrogation of what we mean by resilience earlier, what we mean by fragility. We

also want people to get beyond looking at the nation's state-based approach to approaching investment, whether it be businesses or others.

You know, some of the most viable cities in the world are actually in very unstable environments. Some of the most unviable cities are in very stable environments, so technically country-based environment. So, here we need to state understanding at a much more micro level what's happening.

The other final thing I'll say is that this is not meant to be stand-alone product. So, it's meant to complement a lot of the work that you are doing, that Mike, you know, will introduce here, in terms of ingrained, on-the-ground focused studies, of what's actually required to improve things, you know, at a micro level.

And this is an entry point to say, okay, how are we doing, what's the baseline? Can we track progress over the next 10, 15 years based on some of these indicators? And then can we see if: hey, if things are getting better or not.

MR. GOOTMAN: So, Alan, you do a lot of work on the economic side, social economic viability of city regions, most of it in the United States, some international, let me ask you a very open-ended question about how you think -- or you could respond however you like -- how you think that this framework relates to the kinds of analyses that you've been doing around economic growth and poverty issues, and so on, either in the U.S., or then transferrable to international experience?

MR. BERUBE: Thanks. Fragility for me is a sort of new concept, not something I'm especially steeped in, in the U.S. context when thinking about the economies of cities. I want to credit John and his colleagues for what I think are three key values I sort of immediately saw in the Fragility Framework.

The first is actually sort of bringing the (inaudible) conditions in the cities of the Global South, and when, as you said, these big global cities in the north, tend to hog the limelight, right, and so the talk that your coauthor, Rob Muggah gave, where he said that the narrative about cities in the global context right now is Ed Glaeser's Triumph of the City; and it's Richard Florida's Creative Class, and it's Ben Barber's: if Mayors Should Rule The World. And it's our colleague, Bruce Katz's Metropolitan Revolution: cities as the sites of power and innovation, and economic leadership, but there are a lot of

cities for whom that's not uniformly the case. I think shining additional attention on the conditions in those cities, the kinds of challenges they are facing is a key value.

The second, as you articulated really well, John, is just extending what I understand to be this concept of fragility as a nation state concept, to the city level, and I think that's really analogous to the efforts that we've been putting towards the -- you know, taking the notion of a national economy to the city level over 70 years, because that is where the conditions that create economic value and growth emanate from. And I think as you are showing, it's one the conditions they create fragility at the nation state level, of a level up from the cities themselves.

And then the third, I think, as you look at the factors that you defined as sort of adding up or contributing to fragility, I think this marriage between, not only the deficits in governance, right, and insecurity, but also the underlying economic and social conditions of a that these sort of knit together in complicated ways, and you have to take both things into account as you think about the sort of squishy concept of fragility. I think that's a signature contribution, and allowed me to think differently about the U.S. cities, sort of who is fragile and who is not, and most of them tend to be in your low to low moderate categories, but there is a continuum there, but I think less familiarity in our domestic context with what it means to be a more or less fragile place that I think we could get some value from.

So, let me just add, so that's the framework, I think, you know, the empirical exercises in some ways is a more difficult thing, and it's hard to operationalize the stuff in an index, America alluded to this global Metro Monitor that we do, which is for 300 global -- the largest, like many of these globally significant metropolitan areas.

And just getting data about the size of their economy, the number of jobs that they have, like really basic economic indicators, defined consistently, in terms of the concept and the geography across; places like that make you tear your hair out. You do that for 2,100 cities across 11 very disparate kinds of indicators, so you should just -- you should just give your round of applause, and let you go home after doing that. That's a pretty amazing exercise.

One question or comment I had in sort of looking into it, so the factors that you chose, and I think this relates probably to the fragility literature, with which I'm less familiar, based on -- the factors are based on, they are sort of linked to violence and crime in the first instance, right. Key

outcomes are manifestations of fragility as you call them in the report.

When you actually operationalize those concepts and those factors in the index itself across these 11 indicators, you end up with this sort of combination of indicators that are themselves directly measuring violence and crime in cities. So it was homicide rate, armed conflicts, terrorist killings, et cetera. And sort of alongside what are fundamentally, economic and social measures that perhaps are thought to contribute to those outcomes of violence and crime, the rapid growth, income inequality, unemployment, air quality, for instance.

So, I kind of wondered, and it might be good to just talk a little bit about, is this mixing cause and effect, or is fragility really a big enough umbrella to envelop both of those kinds of measures?

And then I'd just finally observe about the fragility stuff, that I do think it's a really important contribution, a couple of other things that you link here. The rapid population growth, and income inequality as contributors to fragility, contributors to violence and crime, where, I'd say the growth, you know, is mainly a destabilizing factor in the Global South.

Our cities in the Global North are growing at a pace where it actually -- They want growth, right? Many of them are in a sort of demographic stasis or decline, so to the extent they can get population growth, is generally thought to be a good thing, adding to the economy and adding to vitality. Not always the case in the Global South, because they are growing much faster, and they are growing for different reasons than cities of the Global North will.

And then I think income inequality, sort of putting that into the mix, is something that can contribute to fragility. We actually find this link, as you read in the report, between income and equality, and increased violence and increased violence and instability, and cities in the United States. And I do research on income inequality in the United States, and what does it mean.

And I always thing about, what are the economic impacts of this, but I think it's a real contribution to flag the fact that income inequality for many reasons can actually lead to greater social distance in society, and lead to real negative outcomes for a population, and strains on fiscal resources. So, there's a lot -- I think there's a lot to admire and like in what John and his colleagues have done. And there are questions too. I really appreciate this.

MR. GOOTMAN: So before I actually segue to Mike, why don't you get at that question

about cause and effects?

MR. DE BOER: Yes. Sure. I mean this is a difficult issued to, you know, disentangle. And it's the subject of much discussion, both at the national level, and at the city level, right. How we treated it within the context of this, and I should premise my response with the fact that a lot of the people that worked on this are -- come from the security domain.

That's our point of departure, but we did also involve a physician, an emergency physician from Stanford, urban planners, others into the discussion, to try and go beyond just our own common (crosstalk).

MR. BERUBE: So that was your problem, going multidisciplinary with such (crosstalk).

MR. DE BOER: There you go. It's a challenge, and it's a (inaudible). But, we understood this, look, violence is actually a manifestation of fragility, and fragility as I defined it earlier, is the capacity of -- I mean, it's for government in this case, to actually deliver on its core services. Right?

So, if violence is an outcome, then we are looking at indicators, right, that correlate with that outcome. And that's why we have the 11 variables there. Now in the case of homicide, obviously there is a very close inter-linkage between them. But there are other indicators that are very interesting, and actually are not new to people who have studied criminology, et cetera, and deal with issues of the collective, you know, efficacy, social cohesion, et cetera.

It's just that those kinds of studies have not translated into, you know, consciousness when it comes to urban planners, et cetera. And so these are the kinds of bridges that we are making.

MR. GOOTMAN: So, actually one of the benefits of this look is to get across that problem, that you've got this siloed group of urban planners dealing with the infrastructure side, and you've got the economic development professionals worrying about the economy, or sometimes poverty, and then you've got people dealing with security, and this brings it together saying that, it's the aggregation of those things that makes it fragile.

MR. DE BOER: That's right.

MR. GOOTMAN: So, actually the most interesting thing you just said, from your presentation to me, was the consistency of, you know, the drivers of fragility across some of these geographies and, you know, you had unemployment in Africa, but you had conflict. And then you would

say -- you would had environmental issues in Asia, and you had terrorism and conflict. And then in the sort of the Americas you had crime and violence, so that's the one thing that -- at least expressed in this overview about security being the central -- a central driver in all of these places for questions of fragility, which is perfect because Mike O'Hanlon recently completed and analysis called Securing Global Cities where you visited a lot of the places on the map that were in red.

And looked at these kinds of issues about the relation between security and economic growth, and some of these other factors about how you respond to that. So, can you just give a really quick overview of the kinds of work that you did, and how it relates to some of these fragility and resiliency findings?

MR. O'HANLON: Yes. Thank you, Marek. And hats off as well to John, and what you folks have done, really impressive. So, I had the pleasure of doing this year-long project with General Ray Odierno, a Former Army Chief, and Iraq War Commander, and when he was Army Chief of Staff, in the United States, from 2011 to 2015, he commissioned a study called Mega Cities, which tried to get at some of the same kinds of question we are talking about, but more from a security point of view.

He came into this project really thinking that we needed to, you know, take off our military planner caps and learn some things about police do, and first responders, and others who are involved in the more day-to-day real stuff for most cities. Because as much as in war zones, the military commanders may be preeminent in most cities, they are at most, you know, support role, and that's ideally the way it will stay.

So, we tried to look at a number of best practices. We didn't claim that we could, as one former war hero, Ray Odierno, and one long-time -- really had a think tank analyst, me, who does national defense myself, we didn't really think we could solve too many cities' security challenges. We thought we could collect best practices, and listen to people as they told us what worked in a number of cities, including some cities that are doing pretty well, or made progress.

And so just a few things that stood from that year-long effort in my mind. First of all, I'm just going to reiterate, you know, it's always just so dramatic, and you folks do it extremely well in Metropolitan Studies, John did today, to remind us all of the numbers, of how things are changing. And you mentioned how more than half the world's population is now in cities, and it will be two-thirds by mid-

century.

And another way to look at it is that in 1950, less than 1 billion people on earth lived in cities, and only about a third of the world's total at that time; less than 1 billion. By 2050, it's to apply your 66 percent number to the expected population of 9 billion; we will have 6 billion in cities. So it's more than a six-fold increase in the urban population. So, the global population will have tripled over that time, but urban population will have gone up by six-fold.

So that's just a remarkable change. You know, if you want to summarize, I think what's happening demographically in the world, I never knew this until this -- or never thought about in these terms until the study, but the 20th and 21st Centuries are presumably in the great history of mankind, the years that we are filling up the earth with people and sticking them in cities.

That's basically the demographic short story. And if the human species survive many more centuries, which I hope it will, then it's hard to believe that there'll ever be centuries where there's as much growth or as much urbanization as is happening right now. That's sort of where we are in the grand sweep of history. It's really a very, you know, central fact and really underscores the importance of your research program and your study. So that's just a long-winded way of complimenting you all for what you do.

Another thing that I really liked about the way that you described the patterns of global violence, and we can find this in our work as well, is that when people think of terrorism which, of course, is often the headline grabber, it's by far in a way the various major causes of preventable death in cities, it's by far in a way the smallest, when compared to almost anything else you could want to identify by way of a big category.

And so the numbers are, that about maybe 30,000 people a year are dying from terrorism, almost all in Muslim countries from other Muslims. Very few are of these are attacks in the West. That's statistically and numerically, even if those are the ones that get the biggest headlines.

And then there are about 100,000 people a year dying from civil wars around the world, you know, obviously it can vary a bit depending on what's happening in Syria, or Yemen at a time. And then there are about 400,000-plus people a year, who are murdered. And you mentioned the Americas and the challenge we have here, and also in much of Africa. And then there are, you know, this is sort of

a little bit of a different category, but there are more than a million a year who die from car accidents.

And so if you think about what you're trying to do with urban security, these numbers help remind you of where the real chief challenges need to be addressed. That's just a second broad framing point. A third thing that really struck me as I try to learn some of the literature that you folks have generated and that you know well is -- and it gets to the fragility concept, is that, of course human beings are living better than ever before.

At a higher fraction of the world's population is living better than ever before, we are in the midst of a great period of progress in the fight against poverty, and my good friend Ken Lieberthal and others who work on China have helped make this possible in the world's most populous country. But it's happened in many other places as well. And so that's tremendous.

But if you think about how it's happened, it's often sort of progress, not just in developing countries, but here too, on top of rickety infrastructure, electricity grids that could go down, water systems that may not survive some kind of a one-time violent episode whether manmade and natural. And so we are creating all this prosperity on top of an increasingly fragile infrastructure.

Because, you know, I think back to my Peace Corps days in one of the cities that I think does make the list, Kikwa, DRC, I think it was about 150,000 then, now it's about 750,000 people, and Kikwa just sort of reverted back into the jungle under Mobutu. And so it doesn't depend on rickety infrastructure so much.

People are living subsistence even within the city, but in most places, you have people depending on refrigerated food, on water coming through their pipes, and when these systems break, you know, if they break small and they break piecemeal you can fix them, but if they break in a catastrophe even, then you could have a far greater catastrophe than we've really seen in most episodes in modern human history, at least in terms of one-off catastrophes.

And I was struck looking at the various catastrophes that we are familiar with in the last 20 years. So, whether it's the Haiti earthquake, or the tsunami of 2004, or the Fukushima disaster in Japan, some of the earthquakes in South Asia, these have been tragic, a lot of people have died, but they typically hit city areas of 1 or 2 or 3 million. And the next time it could be 10 or 20 or 30 million, and we are in a sense, are going to have to get ready for that.

You know, and this is where some of General Odierno's military background did come in handy in thinking about the responses, because if you got to that scale of a disaster you would need, in effect, to at least partially militarize the response temporarily. And so this got us thinking about catastrophes and how to, you know, to some extent urban architecture and design can mitigate against these kinds of concerns.

If you have various access points for authorities you don't just have mega slums that make areas almost, you know, unapproachable. And so there is an element to which you can make cities more resilient if you plan the city, and it's sort of the flip side of the research you all have done that show that these fast-growing cities are the most vulnerable, and for this kind of reason.

And then just a couple a couple more points and I'll be done, thank you for letting me meander a little, as I try to, you know --

MR. GOOTMAN: I can't stop you, once you get going.

MR. O'HANLON: It can be difficult, yeah. But I'm just about done, because really what I want to -- I'll say just two more things. First of all in the United States context; and I'm sure this is true in many countries, partly because of that potential for large-scale catastrophe, partly because of things like Ebola, globalization that allows threats to quickly spread from place to place, urban security is becoming national security.

That was of one of General Odierno's big sound bites by the end of the project. And we asked Mayor Landrieu from New Orleans to come up and help us make that argument, which he was more than happy to do, because he feels that up here in the Washington debates, we talk about national security, and we pump up the defense budget by $54 billion, and part of how we do that, is to take from those little FBI programs, and Justice programs, like COPs, that are already smaller than they used to be.

And as if the Urban Security Mission could just be totally relegated to local authorities and it had no consequence for broader national security. So, I was glad you opened up that debate, and I'll just put there in conceptual terms without trying to draw a lot of budgetary implications. But it's troubling to see. That’s one more reason why, even though I support President Trump's proposed $54 billion defense increase, I don't like at all how he's proposing to pay for it. And I think we are going to have to do it by either, you know, tax revenue or some other kinds of concept, not from stealing from

diplomacy, foreign aid, urban security, and so forth.

The very last point. One more thing that troubled me in the 2016 presidential debate as it unfolded, and sort of the state of this conversation in our country. It might be getting a little better now, because maybe it was more politicized in the campaign. But of course with the issues with body cameras, and police misbehavior, and police crime in a number of cases, that became very prominent. We got a little bit of a cleavage in our society, where people were tending to choose sides with the police or the community, the police or the racial minorities, quite often, that the police were protecting.

And we all know this is a totally unproductive way to think. And if there is one central thing that General Odierno and I learned about urban security, it's that concepts like community policing are the only thing that work. In other words, everybody buying-in together. You can define community policing in different ways, there are debates about just how to do it best, what exactly it means tactically.

But the whole concept if having a lot of police, getting to know and working with a lot of communities, private actors as well as neighborhood activists, and other kinds of representatives, of the troubled communities themselves; this is the only way you have any chance of securing these communities. So, we need police, and if there are problems with the police we have to help them get better, we can't, you know, get into a sort of a polarizing debate about their overall approach.

Recognizing of course that individual crimes must be punished, and individual mistakes must be remedied, and sometimes police forces need makeovers, but I'd rather see the debate in those terms, instead of what I think we've heard over the last couple of years.

MR. GOOTMAN: So, I'm going to ask one more question and then starting yours, prepare your phrasing. But built off of this, there's this discussion, you mentioned it early, John, about the lack of recognition, or the fact that we've been looking at these fragility issues through the national or nation state lens, for a long time, without the recognition or even empowerment of, the fact that there are these metropolitan, urbanized areas. There really where things are happening, whether it's security or economy, and so on.

And so I'm curious what the reception -- this is coming out of the U.N., this project, what the reception, what has been or the reaction of the nation states, or the other recipients of information like: okay, but we are really concerned about the countries. What's been the feedback?

MR. DE BOER: Great, great question. As you know the U.N. came out with the Sustainable Development Goals, one of those goals, Goal number 7 is on cities. I think the U.N. has woken up to the idea that, look, not only do we have to understand how to deal with some of the key problems that cities are facing, but secondly, they could a great ally in tackling some of the greatest challenges.

Climate change is one example. I mean, nation states have a problem getting together and agreeing to an action plan. Cities are already on their way. Why? Because their survival depends on it, right? There are also corporations behind it that see a lot of opportunity. So, the United Nations has kind of understood that, it's also facing a financial crisis, and it needs to adapt to the 21st Century.

And so at the U.N. level, I think people are starting to come around to the idea, but the question is, how? Right? It is a member states based organization, and essentially a union of member states. And oftentimes, in many of the context we are dealing with, and I'm not speaking on behalf of the U.N. now, states, federal governments, are not necessarily allies of their mayors of their localities. They are competing for minimal resources.

A great example is in Senegal, a couple of years ago. One of the key challenges for cities, as you know, is actually having access to credit; commercial credit. Senegal managed to get actually approval, they were about to announce it, with The World Bank support, et cetera, on that day, that announcement was cancelled because the Central Government said: we don't want you going ahead with this, we are not giving authorization.

The tendency is to look at these things, as a -- you know, somebody taking a cut from a very limited pie. I think we need to change that chip. The United Nations has a big role to play in terms of creating a new dynamic, working with a number of organizations on the humanitarian front, we are already making progress.

Buts it's a global alliance, an urban crisis, there a number of other areas. So, I think reception has been mixed, but I think people realize that this is the future. And as Mike mentioned, urban security is national security, urban growth is national growth as well, urban health is global health. So these interconnections in a completely interconnected world, I think for me is a no brainer.

MR. GOOTMAN: Questions. I will start with you. You raised your hand first. Yes, sir.

The microphone is coming up.

SPEAKER: Thank you. Anasha, International Urban Alliance, I'm an urban planner. John, fascinating report, a real tour de force, and I hope the data are available in public. I would be (inaudible). The question is: How do you detect -- how can you detect hidden fragility? A simple example, Wall Street looked in 2006, and it was hollow on the inside. And X-ray doesn't work, MRI doesn't work. Can you perform a biopsy, and if so, which should be the instruments. Thank you.

MR. DE BOER: Answer now, by the way?

MR. GOOTMAN: Sure.

MR. DE BOER: Thanks very much, Anasha; merci beaucoup. It's a great question. What we've done in terms of these indicators, are also kind of red flags, right. So one of the ideas about putting together this, it is publicly available. You can go there; you can hover over each city. You can also run regressions right on it, and see the exact data.

The idea is to say, if we are able to track these over time and see trends over time, then we are able to say, okay, there are a number of factors that are brewing here. For instance let's look at Syria, right, some of the cities there, I mean, right before the crisis, I'm not saying this is the only cause, but there was 75 percent loss of livestock; 80 percent of the crop was lost due to drought, et cetera.

I mean you see the interconnections between what were not commonly understood as causes, say, of instability, violence, et cetera, and large-scale violence. So here what we need to be attuned to I think are these red flags, warning signs. The private sector actually does this really well, particularly the insurance industry. And so here I think working with alliances like insurance industry, elsewhere, having an understanding also with urban planners in terms of: what are the lifespan generally of certain infrastructures? What are probably scenarios based on, you know, certain projections?

These are the kinds of thinking I think we need to get into, based on data, improving the database, working with governments, not to identify necessarily culprits, but to try and solve problems.

SPEAKER: Thank you. And I suppose unstructured data as well?

MR. DE BOER: That's right. Absolutely! The only thing is, and I'll say that, you know, the majority of the data that's out there on cities is in private hands. For this thankfully, we work with Swiss Re that were able and willing to give the data on hazards. We also work with Siemens which have

a huge amount of access to data. But if you are talking about security, private security companies, have incredible data, and in many of the areas that we are not able to access. So, here we need, you know, a data revolution, if you will, a contact to work with these corporations to develop a robust database.

MR. GOOTMAN: We are going to go across and then come back to you. Go ahead. Yes.

SPEAKER: Thank you very much. Jean O'Connell, former U.S. diplomat. I'm confused as to whether or not, and you can just clarify, if your study also looked at the primary stimulus for the growth of the cities. So some are stimulated by food and security some -- in India one would think that mostly it's job opportunities, I mean it's urbanizing. So the extent to which fragility is reflected by the fact that the organization might have been stimulated by instability versus natural course. So, just whether or not that was within the scope of what you were looking at? Thank you.

MR. DE BOER: Great question. We weren't able to go to that level of granularity, what we did was to try and isolate those 11 variables that would allow us to compare and contrast across continents, across cities. It's not necessarily as vertical of an investigation as we'd like. So that's where the complementarity with focused study needs to happen. But I think generally speaking when you are looking at, for instance, an aggregation of multiple risks, that was just to touch on a variety of probable causes for fragility.

So, we can approximate that, but we can't get down to the exact. I mean, that would be definitely the next step, and research like this is to take a framework such as this, test it all on the ground, right, undertake case study-based analysis that allows us to go in-depth into the particular drivers, of whether it be resilience or fragility, growth, et cetera, in these places.

SPEAKER: Some cities like in Latin America have been -- Brazil, whatever, have experienced significant growth in part because that's where the opportunities were perceived, so each younger generation look more and more to the cities, more and more children. Other places, the growth of the city has been because of insecurity in the countryside. So, it's actually a pre to what you're studying. Whether or not you were able to look at that, and I appreciate that the answer is no. I mean, I appreciate that.

0MR. GOOTMAN: We'll go right there, that gentleman, and then we'll come back to this

side.

MR. D'AGLIANO: Lou D'Agliano. My question is primarily concentrated on the U.S. and the other framing question -- the other framing thing I would say is that urbanization complicates health care delivery tremendously in the United States; I can't speak to the rest of the world. But the real heart of what I have seen that works in the inner city is changing the dynamics of households relative to stability of income, workforce development, et cetera, and what I haven't seen well done, at least in the United States is the transfer of the concepts that what works best.

So that we are harvesting and taking the lessons learned and changing the dynamics of what goes on in our inner cities, and that would apply to me throughout the world. So, I'd like somebody to comment on how good or bad you've seen that happen, and whether you believe your work will lead to that improved basis for those migration patterns?

MR. GOOTMAN: Alan?

MR. BERUBE: Yes. I would only concur with the questioner that the lateral transfer of effective practice for poverty alleviation and mitigation of instability in inner cities has not been robust in the United States. It's often so that every neighborhood on its own, or maybe every city on its own, is sort of wrestling with what ultimately are similar sets of issues, but the other thing that they share is frankly, I'd say, not enough resources in the main to tackle the scale of the challenges that inner city communities face.

But certainly there are many efficiencies to be gained, I think, by networking people, practitioners more effectively around the issues of education, of workforce development, economic development strategies in cities. We see a lot of the same bad ideas tried out time after time, just because they are easy to do, or, you know, somebody knows that we did that 30 years ago, so why don't we try that again. So, that's what we work on at the Metropolitan Policy Program.

We are only 40 people so we can only get to so many places, but I would not be surprised if an international context, and I don't know if it's in a developed or the developing context, if there are better examples that the United States should borrow from in terms of how to network people more effectively around the sharing of best practice interventions through these kinds of communities.

MR. GOOTMAN: There are 200-some international city networks, a variety of issues,

C40, and climate change, and in Europe there is the EU organizes around security issues, and even at the local level of security exchange. Do you all have any other comments on this?

MR. DE BOER: The only other thing I will say is, you know, I'm optimistic because mayors have to be problem solvers in a way, right, and the other thing is that the mayors I talk to instinctively want to learn from other mayors. They talk. Now, are they learning the right lessons; is a question mark. You know, is there the evidence base behind it to kind of underpin a longer trajectory of analysis of what works and what doesn't?

That's still wanting, but I think that there's the inclination and the need to move forward. The other thing I'll mention is, you know, we are talking a lot about urban here, and oftentimes one of the criticism I get is, well what about the rural, right.

MR. BERUBE: We get that a lot too, and don't know what to say.

MR. DE BOER: Yes. They are intimately interconnected, intimately interconnected as you know. Most people living in the city, particularly in Africa come from rural villages, right, so they are interconnected in multiple ways. And here we have to find better ways of kind of bridging the two, of thinking about how they can work together to solve, you know, multiple issues, to prevent mitigating crisis.

One of the greatest examples is the Ebola, and how that traffic, right, from the city into rural areas, et cetera. So here we have to think through these connections as well, both as urban planners but also as policymakers.

MR. O'HANLON: I'll say one more thing on Ebola. Why did we get lucky? Or why did people do a good job on the ground? And the next time, what if Liberia and Sierra Leone had still been at war when the thing struck, could we really have plausibly helped to quarantine it? What if those 12 cases that got to Nigeria had spread. I still don't know how the Nigerians dealt with that so well.

And I just want to remind folks and this gets to the globalization and the connections between these cities, that in September of 2014 we didn't know how that Ebola virus would play out, CDC I believe estimated that there would be 20,000 fatalities and that it would burn out, they were a little high, but they were in the right ballpark. WHO, if I recall correctly estimated 1.2 million fatalities from that outbreak, and the reason they were wrong wasn't because they were stupid, or that their methodology was flawed, they just didn't assume rapid containment of the threat, and they could easily been right.

And next time, I'm afraid they might very well be. So, that's part of why we've got to generalize these practices and work together and share, you know, information on outbreaks as quickly as we can.

MR. GOOTMAN: Just one other comment, and then we'll go to the questions, is that the challenge on this information sharing is a little bit what you said about mayors, so the infrastructure is not there, how is -- how are the mechanisms supported, it's either by philanthropy or by corporations or by government. And this investment in information sharing is not made or it's not sufficient. We are doing a lot of work, we've got about 30 some places in the U.S., and about 15 internationally with which we are interacting regularly on these issues, various issues.

But that still doesn't get you to scale, right, with 40 people. So you don't scale up, and the other challenge is that you just -- these are very -- to your point originally about, these are siloed activities and what this does is show the interconnectivity of these issues to be fragile or resilient, so you've got the mayors and the mayors are talking to the mayors, you've got the community development people, they are talking to the other community development people, and they've got the infrastructure people, and they are talking to each other.

But these are cross-sector coalition issues, and there isn't a mechanism that has been effective, even if it's recognized that this is something -- we are doing stuff on economic development, workforce development, those systems after 20 or 30 years of trying still don't interact effectively with each other, and are not measured on the same goal. So, I think it's like a very fundamental problem, of resources, scale and even if it's the right groups meeting together. So, we'll solve that next. So you have a question?

MR. ROSE: Herb Rose. I'll start off with a confession that I know very little about this subject. And so I have limitations of knowledge in this area, but I also am a skeptic. I wonder about the methodology that you use, because I've heard you use a lot of quantitative terms -- qualitative terms rather, not very many quantitative terms. I wonder how you measure these things and what weight you put on each factor, and whether the same weight is used in each city that you study, and how transferrable these factors are from one place to another.

MR. DE BOER: It's a great question. I mean, the first point I'll mention is that what we

created is not meant to be an index. It's not meant to rank cities in any sense of fragility, et cetera, it's mean to create awareness, right? But in terms of the methodology, it's much easier to measure the factors of fragility that we mentioned there.

I mean we are talking about unemployment rate, we are talking about homicides, you know, these are relatively standardized sets that exist; albeit different cities, different countries measure them differently, so there are some serious limitations there that we need to work on.

When it comes to measuring resilience, that's a nut that is very hard to crack, particularly when you are talking about social cohesion, strong community, government relationships, these kinds of things require qualitative assessments. So that's what we haven't mapped out resilience yet, in terms of -- but that's something that should be done, because fragility is only half the picture.

So in terms of weighting, they are all equally weighted at this point, because for one thing, how are you to justify which variable is more important across multiple context, the scientific kind of a proof, or validity of doing so is extremely difficult, so these are all equally weighted to this point. It's a first stab, it's something that we've done over the past, basically, year and a half, hopefully, we'll continue with much more vigor.

MR. GOOTMAN: First the man in the tie, then back there, and then, okay, back up to you.

MR. APGAR: Sandy Apgar, CSIS, and a friend of Brookings Metro. It's ironic in some ways that the military is in this country, the U.K., Canada, Australia, elsewhere, have been pioneers in the engaging business, private enterprise in general. In their infrastructure, and I'm separating the war fighting aspects from everything that supports a war fighter.

Within your framework, how do business institutionally in private enterprise more broadly, particularly its entrepreneurial initiating functions fit?

MR. DE BOER: That's a great question. I mean, just before this came from lunch with somebody who works for the insurance industry, and they look at something like this and they say, okay, here we have a framework to be able to understand multiple risks, at a global scale. We can use this to complement our own kind of risk profiling. So that's one key area.

The other is to use this for mayors, et cetera, to use this as a tool to engage the private

sector, right. So, if it's dealing with, for instance, infrastructure-related issues they know how to engage. So, that's one other aspect to deal with. And I mentioned earlier the idea of when it comes to looking through resilience one of the key factors we've seen across continents, in multiple areas has been access to credit.

And so here this is something that the private sector in particular is probably the only engine that can provide viable, longer-term access to credit for cities and individuals working in cities longer term, in these markets that have been off the radar screen. So, I see this as a platform for engagement, as a platform for also critique and self-interrogation, and possibly it's something that can be used to help further buttress or deepen what exists out there in terms of political risk and instability analysis.

MR. GOOTMAN: Mike, you uncovered across all the dimensions of securing global cities analysis at the private sector role, which we normally think about security is the public sector role, that the private sector role actually was emerging or strong in various ways. Maybe you can give a little comment on that.

MR. O'HANLON: A couple of examples. Some of the most impressive were in Detroit, that we saw on this project, and especially the are downtown where, you know, Quaker Moms and others have their hub of businesses, and they wanted to revitalize downtown Detroit by moving there, but they needed to be safe, so they created a network of sensors, and their own -- armed, but unauthorized to shoot, patrol officers, and basically linked all the information they were collecting into police who could actually do something about a problem as it might have been unfolding, beyond just simply defending themselves.

And so that was sort of the beginning of this way of thinking at least as I understand some of the evolution of Modern Detroit. But there were a couple of other institutions, like Lane State University that recognize that they also needed to make their campuses safe and needed to -- and since hospitals that wanted to worry about things that could go wrong. Whether, you know, some kind of active violence, or some kind of breakdown in infrastructure, they needed to be plugged into the police. So people started building essentially communications grids that allowed their eyes and ears to be shared across the public-private space.

And then one last example of that same kind of thing, but at the very local level, individual gas station owners got this off, and it wasn't just gas stations, but convenient stores, other places that get held up at night. And they basically, they call it the Green Light Program, and they basically have a deal where, if you are a business owner and you buy the light and the camera, then the police will let you plug in your feed to their system, and from that point on, they are in a quick-response mode potentially to defend your property.

So those were just several examples that were very striking in just Detroit specifically which, of course, in broader terms has huge, huge challenges still before it, but that's part of why you saw such innovation, I think. Where people realized they couldn't wait for a perfect fix from authorities, they had to start working piecemeal, and locally, and with the private sector.

MR. GOOTMAN: So, a question right there?

SPEAKER: Thank you. Larry Ottenberg is the name. I'm curious to know about recent examples and in some cases not so recent examples, that you could put into your data, such as New Orleans and New York, that have a lot of pre-event, pre-disruption data, and then a lot of post-disruption data that could prove or disprove your methodology, enable us to better understand how the methodology would potentially apply to cities where we don't have any post-disruption data.

MR. DE BOER: You know, it's a great question. And this is one other thing that got us to think about fragility more deeply, and one of the reasons why we mapped it out, which is actually, no city is immune to fragility. Many cities including New Orleans; or even New York have some of the key fragility factors we are talking about. The question is: How do you mitigate against that? Or how do you respond effectively to that?

One of the individuals was actually on our Project Advisory Committee was from Siemens, he was also formerly part of the Taskforce to Governor Bloomberg in the wake of Sandy, Hurricane Sandy, in terms of to learn from the lessons there. So, we've integrated, to some degree, some of those lessons. And I think there is a lot to learn from places like New Orleans, and New York. The question that was mentioned earlier about the transferability of some of those lessons, it's still, you know, a question mark. But I think here it's a key lesson, and one of the key takeaways from us was the issue that the fragility, no one is immune.

MR. BERUBE: And I'll take the other, I mean, when I hear of those cities and the examples of Sandy and Katrina, you know, it's a resiliency question, and especially fragility question that's evoked too.

MR. DE BOER: That's right.

MR. BERUBE: And I think gets to the value of finding some way to operationalize the resilience factors in your paper and to -- you know, I think you interestingly observe that these are not mutually exclusive categories, being as we talked about being a very fragile place does not necessarily mean that you are not resilient. There are some 2 by 2 diagram, right, which has fragility on one axis and resiliency on the other, and being able to sort of plot where cities lie, and how they move and evolve over time, could be a really --

MR. DE BOER: Exactly!

MR. BERUBE: -- it could lead to the development I think of a really interesting set of tools for urban areas in terms of where you direct their focus to move them along the right axis, set of axes.

MR. O'HANLON: Just one additional point. Some of this you could do without the kind of empirical data that you are discussing. So, for example, if you are thinking about response to a major catastrophe, and let's say you either need to, heaven forbid, evacuate a city after a nuclear power plant disaster. Or if you need to access a city when food and water have been cut off, you can evaluate transportation access, you know, arteries, a number of lanes, of highways relative to population that might need to be served.

And if you are worried about certain kinds of infrastructure breaking, like transformers and electricity systems, you can think about what would be the response. So, either having extra transformers lying around is one way to go. Most cities don't to that, we don't really do much of that, and we probably should do a little more of that.

But another way to think about it is what kind of federal emergency response has been practiced, what kind of capacity exists at the national level to move in. So these are the various ways, you can evaluate this without waiting previously to be struck by a catastrophe. And your question is right on, but I think there are certain ways where you could do this just by taking the next level of research and

thinking through how you would operationalize this kind of resilience.

MR. BERUBE: And just another compliment to John and his colleague's work, is the recognition that resilience or fragility is not only a measure of the quality of the infrastructure systems that move people in or out of the city, it's a question of social cohesion, and you observe in the fragility index that the concentration of poverty is a key contributor to fragility.

And I think many correctly observing that the reason that so many people did not successfully evacuate New Orleans as Katrina approached; was a question of social isolation, distrust between communities and local authorities. So, even if the infrastructure had been great, I think that city would not have been as resilient in the face of Katrina.

MR. GOOTMAN: Ken?

MR. LIEBERTHAL: Ken Lieberthal of Brookings, Emeritus. This is a fascinating presentation you made. I was a bit troubled, I think like a lot of questions have reflected various members of the audience, your key here is fragility and resilience, those are very dynamic concepts. But your data seem to be very static. So, you're developing a kind of taxonomy of indicators, but without a test for whether those indicators are really critical in each instance to an eventual determination of how fragile or resilient a city is. And in different localities, what would be more important given that environment and social structure, and the recent history of that locality?

Do you intend or are you trying to partner with others to develop at last some notional models that would be dynamic, that you can then test either into the future, or there's a lot of climate scientists have learned to do? You develop a model then test against the past. You know, plug in data point, you know, X, this is what the model will predict, now let's see what we now know what actually happened.

Because otherwise I'm a little afraid -- I really like the focus you are directing at the metropolitan areas, but I'm really troubled that it kind of has a packaging that is so dynamic, and a reality that when you had your graphic up there, of the different components, that you are looking I thought, as a I think as a number of us did, yeah, but what's more important, under what conditions, a lot of the definitions, for example, inequality of income, did you mean inequality of wealth?

Do you factor in degree of social mobility, you know, that kind of thing? Even the

definition of city, I know, and as Mark mentioned earlier, I deal mostly with China, cities in China are on the whole, certainly are the larger cities include vast rural areas within the city. And so, would you define those cities as being just the central core, or do you include the administrative jurisdiction of the city? So I just ended up being both excited by what you're doing, but concerned that it may be too taxonomic and not sufficiently dynamic.

MR. BERUBE: That's a fantastic observation, and something we thought about a lot. The reality as you mentioned is, you know, these concepts, at the national level, also at the city level, community level, are very dynamic. And in fact you can see that dynamism if you go online, because what we've done is track it back 15 years, and you can play a button there, that actually shows how fragility across these variables we've highlighted shifts.

The Middle East lights up, right, other places dim down, et cetera. That is a very, very important factor. And in terms of, I think as I mentioned earlier, this is not meant to be the definitive, or the only tool, it's meant to complement existing tools.

One thing that we are planning to do, pending funding, is to actually test this out in a number of localities. We are looking at right now, a couple of cities in Tanzania, Somalia as well, as well as looking at Uganda, right, just to start. These are costly enterprises, very taxing, but necessary as you mention. In order to understand okay, what matters most, in what locality, and how are things actually changing over time. Populations are dynamic, right, populations change, as do economic opportunities.

And so there are things we need to keep a constant tab on. In terms of definition of cities, that was another key issue we encountered, right. In Canada definition of cities is 10,000 people, in Japan it's a 100,000. We went with the U.N. definition of a city, which standardized things, but that's to without problems. Now you also have new categories of cities called super cities, city conglomerates, et cetera.

So, this whole field is extremely dynamic, something that we need to keep a constant tab on, and something continually challenges us, and we don't want this to be a static kind of a study, or a snapshot at a point in time. But what you say is absolutely a core challenge, a key challenge that, hopefully, you know, us with others can join on and start building on.

MR. O'HANLON: If I could add one footnote to that. So, as we are finishing up this

Security and Global City Study, my good friend and colleague who has since moved down to California, Beth Pearce, was helping me and we kept saying, you know, 66 percent of the world's population is going to live in cities by 2050. And I said to her, I've been saying that so long, I never thought about what it meant. So, what does it mean? Like what's a city? And we find out what a city is. And so she spent about a week on that, and I think ultimately, Ken, the answer is whatever a given country defines it to be.

So, I don't think there is a capacity yet. You can standardize what you define in terms of size, to be a threshold for making your list, but I don't think there's consistency -- well I know there's not consistency in how different countries define cities, but even analytically, if you wanted to create a common creature, you would need to do a whole other level of data analysis, because the countries themselves are using their own definitions when they come up with their figures.

MR. GOOTMAN: I'll take that, a final question. This is true, even in the United States, right? Because you go state to state in different cities, or local jurisdictions have different capacities depending upon what the state imbued them with. And within the state differences between cities and what they can do, or can't do, tax, et cetera. And that's a real question here. So, we've got action from this response to fragility, there's economic, there's security issues, so much depends on resources and you mentioned access to credit.

If there's something that we take from this, about the relationship between mayors, or the city jurisdictions, and the states, what would, and this would be in the security area too. What would that be? Do you have thoughts about where this is unveiled in terms of the limitations or the opportunities? I'll give it to all three of you, and then we'll finish.

SPEAKER: Who is starting?

MR. GOOTMAN: Whoever feels most bold?

MR. DE BOER: Well, I mean, I think as we highlighted in terms of some of the resilience factors, cooperation between multiple levels of government is absolutely essential. Where you see governments working well together, you know, recovery is faster, the nature of the disaster is mitigated. I mean, that goes without saying.

I think one important thing, and what we try to do here, by looking, you know, at the literature base, and the evidence base of what seems to correlate most with fragility or resilience is

actually start a conversation about what are the factors we can focus on together, and who has the primary role in terms of delivering on those capacities. And use that as, not a blue print, but maybe as a starting point for action, right?

And as you've mentioned earlier, there are over 200 city networks talking, but they are talking in specific kind of areas. Can we start a horizontal dialogue that collectively brings those discussions together? And so that will be my answer and use this as a starting point, understand roles and responsibilities, understand more effectively how we can leverage certain resources from multiple, you know, actors. And then test it out to see if it's working or not.

MR. O'HANLON: Can I go second, and then Alan can correct whatever I get wrong.

MR. GOOTMAN: Sure.

MR. O'HANLON: So, building on that very good answer, I would say one thing that struck me is that most of the expertise for securing cities is at the city level, except when it's not; except when the local police force, or the local politician, or the dynamic between them doesn't work. And so if it's working it's because of locals. If it's not working that's where the Fed has to step in more to get the locals to retry their approach or change their leadership, but the federal government has very little expertise in urban security.

And I don't want to diss any individual agency, but they are just not that big, you know, and their job, like at the FBI their job is to go find a few specific bad guys who are illusive or who are crossing state boundaries who are national security threats, you know, but they are a tiny organization. So, the expertise is mostly at the city level, but the federal government is crucial and can provide information on who is on the terrorists' watch list. They can put pressure on a city to agree, or to consent (inaudible), and reform its police forces, can share best practices, try to create mechanisms by which best practices are shared city-to-city.

So that's the way I say it. I mean, I was struck that this is not like the U.S. Military, where the expertise is central. In this case the expertise is generally at the city level, it seems to me.

MR. GOOTMAN: Alan?

MR. BERUBE: I would not correct any of that, I would merely augment from the economic side, something that I think you are hinting at Marek, that our good friend Greg Clarke wrote a

book called A Short History: Global Cities, available in the Brookings Bookstore. But he actually argues that many of the economic challenges that cities face today will not be resolved by mayors talking to mayors, or a global parliament of mayors or what have you.

It's rather getting organized more deliberately to speak up to their nation states around the level of resources, but the flexibility to apply those resources in ways that are most attuned to their specific local economic circumstances.

And being given the powers by their nations, or in the United States, their states to raise resources in ways that they are not permitted to do so right now because the states or the nations hold too much fiscal power in the U.K. among other countries that's dealing with this right now. But really more of the action for enhancing social cohesion, dealing with inequality, promoting social mobility and economic opportunity, is a conversation to be had between cities -- between mayors and governors and national leaders, versus, you know, among global mayors.

MR. GOOTMAN: Yes. Then that just brings it back to the point you made up front about identifying the roles and responsibilities. Do you want to give the website one more time, so that people can find this information?

MR. DE BOER: Sure. So it's hosted at the Igarapé Institute's homepage, which is www.igarapé.org.br, I-G-A-R-A-P-É; FragileCities.igarapé.org.br.

MR. GOOTMAN: Thank you. Please join me in thanking our Panelists. (Applause) Thank you for coming.

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Expires: November 30, 2016