This is a raw transcript of the Plenary 1 of the World Cities Summit, held at Marina Bay Sands, Singapore, on 3 June 2014. The panel comprised:

Plenary Chairperson:

- **CHAN Heng Chee**
  Chairman of Lee Kuan Yew Centre for Innovative Cities, Singapore University of Technology and Design, Singapore

Speakers:

- **Peter HO**
  Chairman, Urban Redevelopment Authority, Singapore

- **Tsevelmaa BAYARSAIKHAN**
  Minister, Ministry of Construction and Urban Development, Mongolia

- **Mark CHANDLER**
  Director, San Francisco Mayor's Office of International Trade and Commerce

- **Andrew STEER**
  President and CEO, World Resources Institute

- **Gianfranco CASATI**
  Group Chief Executive, Growth Markets, Accenture

- **Geoffrey WEST**
  Distinguished Professor, Santa Fe Institute, Visiting Professor, Nanyang Technological University

- **Laura IPSEN**
  Corp Vice President, Worldwide Public Sector, Microsoft

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Mr Ho: "Good morning to all of you, distinguished guests, ladies and gentlemen. Well, yesterday's World Cities Summit sessions threw up some interesting points about how cities can be better prepared for the future and among the key points raised was that cities must develop in a smart and green manner to safeguard environmental quality while remaining competitive and to do so, cities must take a long-term view in their planning and development. To achieve their visions, governments need to work together with the private sector, engage their citizens, as well as embrace new technologies and

these are of course all important points but what I thought was missing in yesterday's discussions was an emphasis on the fundamental importance of good governance.

I think what makes a good city is not just visioning public participation, technical competencies or even adoption of smart technologies. These are all important, but they are second order requirements that can only be built on a foundation of good governance. Good governance that integrates all these elements and translates the vision of a good city into reality for its people. By good governance, I'm referring to a whole of government approach to planning and development that acknowledges the complexity of the urban environment and the uncertainty of the future. It is about developing integrated solutions based on an understanding of an entire urban system and its many inter-related dimensions which entails effective implementation of solutions to create intangible improvements for its people. It also necessitates being open to new ideas and always being ready to experiment, discover and innovate. Now such good urban governance is particularly important now when cities are a vital part of the global eco-system. With more than half the world's population living in cities, urbanisation today has a decisive impact on trends and demographics, climate, the global economy, energy and technology and these are evolving and co-mingling in profound and complex ways, leading to more uncertainty and creating more wicked problems for cities. All cities aspire to provide equitable, inclusive and liveable environment for their people. They aim to be resilient and adaptable in the face of uncertainty and rapid change. Unfortunately, there are no clear and obvious solutions to such challenges and this morning, I will highlight some key challenges that I feel cities need to focus on in order to achieve economic, social and physical resilience.

The first challenge is to achieve economic resilience in a globalised economy in which competition is fierce and changed course by technology is disruptive. A multi-polar global economic order is emerging as advanced economies' growth taper off while emerging economies experience rapid economic development. For example, between 2004 and 2013, the average GDP growth rate per annum of emerging Asian economies was 8.6 per cent in contrast to the 1.4 per cent of the advanced G7 economies.

As emerging economies increase their share of the global market, their fortunes will become more intertwined with those of the advanced economies. Many businesses both large and small are now part of the global supply chain. As a result, they create more interdependencies within this globalised system. A case in point is how the breakdown of the Japanese supply chain after the Fukushima nuclear disaster hurt global production of cars and electronics and a similar narrative emerged from the floods that persisted in Thailand in the second half of 2011. An increasingly volatile global economy has only compounded the situation. Contagion effects can be felt from events that may have first seemed distant and far away and we experience this during the 2008 to 2009 global financial and economic crisis. In such an environment of rapid change, prudence dictates that cities should be on the lookout for game-changers such as the opening up of the northern shipping routes, the shale gas revolution and technological changes such as big data analytics and the digital economy, each of which could fundamentally change a city's destiny by creating either a big new challenge or an enormous opportunity.

One game-changer could be technology as advances in robotics, artificial intelligence and so on could lead to the hollowing out of middle-skilled jobs with machines replacing human labour. For instance, leading global mining and metals company Rio Tinto bought 150 driverless trucks in 2011 but this is only the tip of the iceberg and we will see more of this. Online dispute resolution software provided by companies such as Cybersettle and Smartsettle are already being used by Ebay and Paypal to resolve 90 per cent of all 60 million business consumer disputes every year.

Technology is also changing the nature of work. For example, with the widespread use of smartphones and tablets and more people working in knowledge-based industries, work is growing less deskbound. As a result, live work arrangements will change. With increased life expectancy around the world as a result of better and more accessible medical care and improving diet, more people will need and will want to work longer. Conflated with changes in industries itself because of technology, in future people will probably have more than one career in their lifetime. This in turn will require a radical change in the education system so that instead of preparing the individual for one job in his or her lifetime, it is able to train and retrain him or her for perhaps several completely different jobs during their active working life.

How can cities continue to provide good jobs that cater for the wide spectrum of skills while meeting the aspirations of their people? In particular, how will cities provide new middle-skilled jobs to replace those that have vanished or that will disappear as technology changes? What are the new growth sectors and new jobs that cities need to retrain their workforce for? These are important questions because those cities that can successfully capitalise on emerging growth opportunities will be better able to provide good jobs for their people, compared to those that cannot. These will be innovative cities that can turn clever new ideas into commercial success but to innovate systematically, cities need to constantly re-invent themselves, create synergies out of market demand, infrastructure, human capital and education. They will need to be knowledge hubs that have the capacity to provide lifelong learning to their workforce in order to meet changing economic demands.

We can perhaps take a leaf off the page from Malmo. Malmo received a joint commendation together with Copenhagen for the 2012 Lee Kuan Yew World City Prize for its sustainability efforts but not only is Malmo sustainable, it is also the fourth most inventive city in the world according to a 2013 report by the OECD. Malmo is reinventing itself from an industrial city into a city of knowledge. Older the industries are being replaced by investments in new technology and training programmes of high calibre. Today, over half of Malmo's people work in business services, commerce, healthcare, social services and in education. The provision of good jobs with opportunities for all is crucial for social resilience. This helps to ensure that cities remain equitable, inclusive and cohesive and are able to attract talent to sustain competitiveness, however, the task of enhancing social resilience in cities looks to be increasingly challenging given three social trends today.

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In many industrialised cities, the rich are getting richer but wages for the low to middle income groups stagnates, even decline. In OECD countries today, the average income of the richest 10 per cent of the population is about nine times that of the poorest 10 per cent. The income gap between the higher and middle earners is widening in part due to the displacement of middle class jobs by technology. Faced with shrinking job opportunities, flat wages and rising prices, the middle class is being squeezed on both sides.

The demographic profiles of cities and the social needs of their people are changing. Declining fertility rates coupled with rising life expectancies are demographics phenomena that are most pronounced in the cities. This is leading to an ageing world population. The number of people 60 years and above has in fact swelled by 178 million in the past decade, almost the entire population of one Pakistan, the sixth most populous country in the world. Having fewer children means less caregivers for the many more old people in the future. Cities may thus have to revisit the ingrained policy assumption of families as core caregivers of the elderly in society but as cities bring in foreign labour to augment their rapidly ageing and shrinking resident workforce, their social needs will also become more diverse and this will create more social challenges. As cities develop to meet the needs of a growing population, urban dwellers will see their familiar reference points like traditional lanes, public spaces, landmarks, giving way to new developments. This loss of the familiar is in particular more abrupt for migrants to cities who also lose their languages, cultural norms and social support systems. As a result, cities could see their communities struggle with a sense of alienation and a loss of identity and belonging.

So even as cities develop and societies become more diverse, how do cities ensure that benefits from growth remain equally distributed to all? How do we build more equitable, inclusive cities with good quality living environments that are accessible to all and can meet everyone's needs? How can cities more adeptly manage the pace of change of the urban environments? The city of Suzhou in China which is conferred this year's Lee Kuan Yew World City Prize can offer other cities some inspiring insights on how such challenges can be addressed. Suzhou has adopted inclusionary social policies towards its migrant workers who are given equal opportunities to access health and educational benefits as the local residents. Even with modernisation, Suzhou has maintained and preserved its old city, its historical and cultural core by redirecting urban growth to a new central business district. As a result, it has been able to preserve historical sites like Pingjiang, a UNESCO heritage site which continue to be attractive neighbourhoods for the residents.

In addition to being attractive, the physical environment must stay resilient against the impact of climate change and unanticipated events like security threats and epidemics. The loss of lives, damaged properties, infrastructure breakdowns and disrupted livelihoods from events like superstore Sandy, Typhoon Haiyan as well as the ongoing MERS outbreak as stark reminders of how such shocks can significantly compromise a city's safety and liveability. At the same time, we must also remember that the design of cities itself can contribute to the currents of shocks. For example, the 2003 SARS

outbreak in Hong Kong was compounded by poor airflow and ventilation due to its many high density wall-like developments. In Singapore, relentless urbanisation coupled with increased rainfall due to climate change has put new pressure on well-designed drainage systems. Floods, once a thing of the past are increasing in frequency and as a result, a lot of effort and resource is now being put in to restore the effectiveness of drainage systems.

Rotterdam's efforts to turn every conceivable area of the Delta City into water storage in the form of water plazas or green roofs, demonstrates how appropriate urban design can help cities stay resilient against shocks. How can we future-proof cities' physical infrastructure to remain resilient against shocks and systemic failures? How can we put urban resilience as well as public safety and health at the heart of city management? Smart cities which leverage new technologies and big data to upgrade their infrastructure and improve service delivery will be better equipped to tackle these challenges.

For example, New York City which the Lee Kuan Yew World City Prize laureate of 2012. First responders and agency personnel can practice managing large scale emergencies in real world settings in an advanced disaster management simulator without disrupting public activity. Its residents can use a mobile device-friendly hurricane evacuation zone finder to determine whether they live in a hurricane evacuation zone, the nearest evacuation centre and how to get there.
To conclude, the challenges which I highlighted place huge demands on cities. At the same time, they also present big opportunities for those cities that are able to reorganise and reinvent themselves to thrive in new realities. The best cities will be those that manage to find solutions to these challenges. To reiterate the point that I made at the start of my remarks, the best cities will also be those that are able to achieve and practise good governance to overcome these challenges. These cities will emerge resilient in the long-haul. Thank you."

Emcee: "Thank you Mr Ho. It is now my pleasure to invite the session Chairperson and speakers to please take their seats on stage. I'm honoured to introduce the Chairperson for this session, Ambassador Chan Heng Chee. Ambassador Chan is the Chairman of the Lee Kuan Yew Centre for Innovative Cities in Singapore University of Technology and Design. She has served as Singapore's permanent representative to United Nations and also as the Executive Director of the Singapore International Foundation. Ambassador Chan is the recipient of many awards, including the inaugural Woman of the Year Award in 1991. I shall now invite Ambassador Chan to begin this session. Ambassador, please."

Amb Chan: "Well ministers, mayors ladies and gentlemen. A very good morning to all of you. Welcome to this session on the next urban decade – critical challenges and opportunities. If you did not come this morning to listen to this, you're in the wrong room. We've been discussing over the last two days about urbanisation. Urbanisation is indeed the critical issue of our times. From now to the next decade, cities will continue to grow and expand and by 2050, 70 per cent of the world is expected to live in cities. Cities have seen their populations grow. Jakarta 28 million, Manila 20.5 million, Delhi 23

million, Shanghai 25 million, Mexico City 21 million, Legos 21 million. In the next decade, urban growth will produce more stress on government and city governments will have to house new population, educate them, provide jobs, worry about resources, energy, clean air, water. If we handle this mega trend well, we will leave earth's rich legacy. If we do not, we will create a mega mess. Technology and science will provide some of these solutions, but that is not enough and this morning Peter Ho spoke about governance. In fact yesterday Helen Clark, administrator of UNDP talked about governance, empowering cities to deal with city problems. She said when she was a Prime Minister of New Zealand, she gave a great deal of power back to the cities so long as they can fund their own activities with the centre holding back defense foreign policy. That's her ideal.

Today we are going to talk about some policies and how to think about urbanisation. We have with us six speakers and let me now try to give you a brief idea of the format. Each speaker will get five minutes to make a positioning statement, after which I will pose them a question each then we will poll. By now you're used to that. We will do a polling question on what is the most critical urban challenge for cities in the next five to 10 years and after the polling, they'll comment on the results and we'll take questions from the floor or you can send the questions through Pigeon Hole to us. So let me now begin by calling on His Excellency Minister Bayarsaikhan, the Minister of Construction and Urban Development of Mongolia to make his positioning statement. Minister, floor is yours."

Mr Tsevelmaa: "Thank you. (Translation) In recent years, Mongolia's population reached 2.9 million and it has been experiencing rapid urbanisation due to a big number of population migrating to the city from the countryside. 67 per cent of the total population now lives in the capital city and other big towns. 44 per cent of the total population lives in the capital city of Ulaanbaatar alone and 70 per cent of business entities and organisations produce 60 per cent of our total GDP.

The rapid growth in number of people residing in Ulaanbaatar and the Ger area expansion has resulted in forming 15 unplanned and haphazard Ger areas. The increase in air, water and soil pollution in those haphazard Ger areas many times beyond the permitted level, the increased concern of vulnerability of the residents to natural disasters threatening the lives and safety of the residents, an inequal access to social welfare services and provision of poor quality social services for the residents demand an effective resolution of these challenges faced by the Ger areas.

There is an increasing demand for changing and building public roads, facilities, social and engineering infrastructure in connection with the rapidly growing percentage of the city population. In order to resolve these issues, we formulated and got the update on the Ulaanbaatar Master Plan until 2020 based on the green city development principles to ensure its sustainable development and development tendency for 2030 approved by the State Great Hural (Parliament) of Mongolia last year.

Within the framework of this program, developments of 10 residential apartment block districts and 12 engineering infrastructure and power grid facilities in the Ger areas of Ulaanbaatar are being financed using government bonds.

Furthermore, many projects on restructuring and redeveloping of the plots in the Ger area by constructing new apartment blocks and demolishing the existing buildings and facilities that do not meet operation requirements and reconstructing them for the city redevelopment are being implemented with the help of community involvement. On top of that, the 10-year Investment Programme for the Ger Area Upgrading was developed to be implemented in 3 phases with participation of the Asian Development Bank. The purpose of the Programme will be further expansion of water supply, sanitation and power supply services, improvement of the social infrastructure and staff skills in those organisations, working on implementation of the projects in support of microfinancing. The Programme involves construction of 6 sub centres in the Ger area. Within the framework of the general consultations for financing of the Programme, USD 224 million will be invested by the Asian Development Bank and USD 96 million – by the Mongolian Government.

A project entitled "Street" was launched to be implemented in phases in 2013 as part of the integrated measure to link the residential area in Ger districts to the engineering lines in order to ease overload of the traffic network and traffic jams in Ulaanbaatar and Aimag centres with the use of state budget. The purpose of the "Street" project is to focus on building the correctly planned roads in the city centre in line with the Master Plan of the Capital City and Aimag centres, establishing the highway road network, which meets the requirements of the international standards and reflecting the urban planning solutions for infrastructure development in Ger areas. Within the framework of the project, 33 road intersections in Ulaanbaatar will be improved and rebuilt, some newly designed intersections will be built, 119 new streets will be created, 122 km long highway along the Tuul and Selbe rivers and 25 new micro centres will be built in Ger districts.

A comprehensive action plan is being implemented on a policy level in order to develop and update the city and town development planning to build smart and green cities in line with the global and local social and economic development tendencies. In connection with this, we are collaborating with foreign and local expert agencies on developing and updating the Master Plan for Aimag centres and towns until 2030 with the use of state budget and the master plans for the satellite towns of the capital city and habitable regions to be built along the main auto road and railway networks in the country that are being developed around the major mines.

In order to cut down on in-coming migration of the population into the capital city and other big towns, expanding the supply of residential housing in the local areas and providing the residents with safe and comfortable living conditions, we are working on building social and engineering infrastructure, such as linking the Aimag centres with the capital city through building paved roads and developing partial and master plans to build a residential complex for 1000 households in the Aimag centres. Thank you."

Amb Chan: "Thank you, our next speaker is Mr Mark Chandler, Director San Francisco Office of the Mayor for International Trade and Commerce. Mr Chandler."

Mr Chandler: "Madam Ambassador, thank you very much and good morning to everyone. It's an honour to be here representing the great city of San Francisco and to be here meeting so many of our colleagues from around the world. What I want to do in the few minutes available this morning is to one, just give you a brief snapshot of where San Francisco is today because it's remarkable and I think it's almost a lab or a test for many of the ideas and thoughts that have come out of the last three days' worth of meetings and to tell you how our current situation is challenging us in government and how we're having to respond to that in order to continue our roles as a really economically viable and leading city in the world.

Today, San Francisco is probably – vibrancy was a word we heard a lot this week. Vibrant, vibrant, cities have to be vibrant. I would argue that there's no city in the United States that is more vibrant than San Francisco today. Today, three years ago, you came to San Francisco, our unemployment rate was about 9.6 per cent, at the end of April it is at 4.4 per cent and dropping. That is much lower than the national average, much lower than the state of California average and we're probably going to hit four per cent by the end of this month. In the last three years, the city of San Francisco and remember the city of San Francisco is not a bit city. We're 122 sq km, about a million people. Our urban areas about six million people that you know as the Bay area including Silicon Valley, Oakland and other cities but the city itself is only about a million people.

In the last three years, the city of San Francisco has created more jobs than all but three states in the United States; New York, North Dakota because of shale oil and Texas because of energy, have created more jobs than San Francisco. That's remarkable when you consider the small geography and the population. So today we have a highly intelligent space, innovative economy, we continue to be a business service centre, but today we are the centre of innovation technology in the United States. So we are the centre of application development, gaming, social media, biotechnology, green environment of technology. Any of you that have a portable device have used something that comes from San Francisco. If you've tweeted, if you've played a game, you've used it in San Francisco.

So what we recognise today is that our city's future is not depended geography, it's not dependent on raw materials, it's not dependent on cheap labour, it's dependent on having a quality of life that keeps this highly skilled workforce in our city because they can go anywhere and as a government, we found there's four new challenges with this highly skilled, highly intelligent, highly productive workforce. Number one is information and the demand for information, number two is the demand for liveability and sustainability, number three is a continued demand for encouragement of promotion of diversity and number four is a new definition of infrastructure. So I'll quickly go through what have we done to reflect this.

Information demand. The new young urban workers driving our economy today is connected to information instantaneously and they want the same from government. So as a city, we have opened all of our data. We've allowed app developers to play with our data. We've had hackathons, we've had, we call them datapaloozas to get together and allow the private sector and the individual to work with our data. As a result, we now have over 60 applications that are free to the public to get any access government services from parking to parks to is your roof good for solar. We've created a chief innovation officer. Our mayor meets weekly with innovation leaders and workers privately in their offices all over the city to find out their concerns. We're finding that this resonates very fast and very highly and very quickly with our workers that they have instantaneous information and they feel the government is responsive to their needs.

Number two is sustainability. These people can live and work anywhere and they want the best environment in the world. The United States government takes lead in sustainability, in global warming or any of those issues, so it's up to us as a city. So we are the greenest city. Siemens has called us the greenest city in the United States and we've done that through green building standards, through mandatory recycling, we recycling 80 per cent of our waste, the first city to ban plastic bags, the first city to ban styrofoam, the first city to put in free electric car charges and etcetera. We're making our city sustainable and liveable.

Diversity. Our workforce is from around the world and comes in every shape, size, colour, sexual orientation etcetera, we welcome all. Forty per cent of the citizens in our city were born outside the United States, half the new companies are created by immigrants, we welcome all. We give city services to all, we recognise you as a San Franciscan the day you set foot in our city and we promote that. My Mayor is from, is an Asian-American, our City Council is made up of all ethnicities. We are a diverse city and lastly, we're finding our citizens this new young urban worker that's driving the economy has different ideas of infrastructure. Yes, there's the traditional infrastructure but they're also coming to us and say more bike lanes, tear down freeways, get rid of that, build pocket parks, make our city continue to make it liveable. So the challenge for us as government is to listen to this new paradigm and respond quickly and accordingly because if we lose our workforce, we lose our city. Thank you very much."

Amb Chan: "Thank you, Mark. How do we get there? The, our next speaker is Dr Andrew Steer, the President and CEO of World Resources Institute. Dr Steer."

Dr Steer: "Thank you very much Ambassador. Good morning everybody, what an exciting conference this is. There is no city in the world better equipped to put this on, a wonderful model for all of us. So thank you although I agree San Francisco is also a great model. Look, there are two urban revolutions going on. One we'll know about and that is the fact that never before in the history of the world have we had this kind of growth of cities. Astonishing, 750 million every decade. Today 3.5 billion people live in cities, it will be five billion who are living in cities in just two decades from now. By 2025, China will have 220 cities over 100 million people in it. Today Europe has only 35. Massive costs

will be required, 40 trillion over the next 20 years just for infrastructure, seven trillion for buildings and a gap of about a trillion dollars of the deficit.

That's a massive challenge. It's also good news. Almost 80 per cent of India's urban infrastructure that will exist in 2050 hasn't been built yet, which gives an amazing opportunity to do it right. This decade is Asia's challenge, next decade, even a bigger challenge in Africa. Are we ready? So a massive, massive challenge ahead of us and we're not doing it right at the moment although there are some bright spots and we're hearing about them at this conference. Many estimates suggest that the total urban area by 2050 will be three times what it is today.

This isn't doable, currently we are subsidising urban sprawl and we need to do the opposite and this leads to the second urban revolution which is an amazing shift in the understanding of what makes an efficient city. Many books in the last five years have come out, books with titles like Triumph for the City, The Metropolitan Revolution, The Great Inversion, Smart Cities and many cities like here in Singapore are actually putting into practice this new paradigm and it says this; it says if you actually focus on a clean city, a low emission city, you will also get an efficient city, a competitive city, a city with jobs and there are three elements to this.

One, compact and connected urban form, a massive transition from what we have today. Second, smarter infrastructure in smarter transport systems, smarter buildings and smarter local utilities. And third as Peter Ho said so well this morning, much more effective and accountable institutions with long-term plans with the capacity to actually deliver. Lots of economic analysis going on at the moment, all showing the same thing. The gains from focusing on lower emissions, taking these policies into account have huge benefits. Savings and infrastructure, if we did it right as Mark said, actually you'd spend less on infrastructure, you'd close the infrastructure gap. Second, a savings in terms of lost congestion. Many cities in the world are losing five per cent of their GDP to congestion alone. Third, gains in reduced pollution costs. Many cities are suffering another five per cent loss due to pollution costs and fourth, perhaps most important of all, an increased dynamism which comes from closeness which is what cities are all about in the first place and overwhelmingly, the results are the same as all of these analyses are currently doing. Yes, it costs more money but these are not costs, they're investments with very rapid pay around usually in the four-year or five-year period.

So the time is short quite frankly and that's why the World Resources Institute is making this a central thrust for us. It is a race against time if the emerging cities of the world do it the old fashioned way, there's lock-in for the next 200 years and we have a bleak future. So too if the existing large cities don't get it right now, we will lose the race that we're all embarked on. So we currently have about 200 staff in some of the major cities in the emerging world and these staff are actually working with city governments trying to learn from them and creating a knowledge base that will spread more broadly and we hope and pray as you do too that this will lead to the third urban revolution, a revolution in which cities will become more competitive, they will grow faster, they'll have a higher quality of life, they'll be healthier and wealthier and they'll be part of the

solution to climate change and many of the other major global problems that we face. Thank you."

Amb Chan: "Thank you, Dr Steer. Our speakers have kept to time very well so far so I come to the next speaker Mr Gianfranco Casati who is the Chief, Group Chief Executive, Growth Markets, Accenture. Mr Casati."

Mr Casati: "Thank you Chairman. Before I start, allow me, I recognise a few speakers over the last couple of days in the room and I want to say that the quality of the debate, the quality of the discussion that has taken place in the last couple of days here is truly remarkable. I mean the city leaders, the mayors have shown vision, pragmatism, they're on top of their agenda and of course they deal with the vision of the future of their cities and still have the constraints of inclusion, financial budgets and so on and so forth and they are also willing to network and to learn one from the other. This has been an incredible conference so far and incredibly insightful.

The topic that I'd like to frame today is building cities for digital citizens and as I've been here for the last couple of days, I have to say that this topic will have to be managed in the context of the fact that digital infrastructure will not necessarily help building barriers against floods or natural disasters, will not help in, directly in building better streets, bridges, tunnels but they can substantially help in that sense and I will tell you why in a moment. One thing that has emerged during the last three days is the fact that many city leaders have adopted the digital technologies and are looking at digital technology not for the sake of the technology itself but they have put the citizens and the enterprises at the centre of what they need to serve and technology is becoming more and more an enabler rather than an objective in its own merit and I think this is a fundamental shift that needed to take place after the big wave of technology for the sake of technology but I said that the digital city can help even in the context of physical and demanding priorities that every city has to deal with.

The notion is to think about cities as social enterprises. Social because every single city has to provide the services that citizens require to live, to move, to work and yes, they are also enterprises because they have to deal with cost, with investments, with cash outflows, inflows and deal with all these factors like an enterprise. So if you think about the notion of the social enterprise and the way a social enterprise can evolve in a digital environment, I can offer a framework for mayors and city leaders to reflect on and this is based on three building blocks. The first one is cost optimisation, the second is announcing existing services, the third one is actually creating brand new services enabled by a digital environment.

From a cost optimisation, very quickly the e-government is one of the key drivers. Online services allow citizens to optimise their time, their movement and that has implications on transport, on public offices, real estate on a number of levers that cities can use and optimise in order to redirect business somewhere else. Cross-inter-agencies interconnection allow businesses and citizens to get more benefits, more rapidly in terms of time to service and this is an area where many cities have made significant

steps ahead like New York with Mayor Bloomberg introducing the 311 service for all citizens or even Copenhagen where there is a platform where utilities, businesses and citizens can come together and optimise the cost of energy.

Announcing existing services, yesterday we had Manila as an example and then the creation of new services like the digital health, the private transport enabled by electric cars or the information marketplace which is the other one. I think if you put all these things together, you create a different city and you have a framework to migrate from the current model to a future model where digital can enable ultimately better lives and job creations in cities which is the goal. Thank you. "

Amb Chan: "Thank you, Mr Casati. Now we have Laura Ipsen who is the Corporate Vice-President from the Worldwide Public Sector of Microsoft Corporation. Ms Ipsen."

Ms Ipsen: "Thank you, it's a huge opportunity to listen to all of the mayors and leaders about finding solutions that scale around the world. I was in Barcelona at the last major cities summit and I heard from many of the mayors that they'd love to have the collaboration to see what's happening, what's working around the world in terms of technology solutions, but how do we replicate that so that we don't invest money that don't scale and that we don't recreate the wheel every time we turn around. So it's great to be here to talk about technology from a technology company Microsoft about an initiative that we created to really think through the opportunities that we have in cities. What you hear from all the leaders it's about taking a people-centred approach and that's what we've done.

We've been working in cities with many of our technologies for years but I think now more than ever there's an opportunity to leverage the four mega trends in technology around global, social, big data and mobility in ways that we haven't before. So we think about a platform approach, we think about putting people for, most importantly for Microsoft about creating partnerships with large companies like Accenture and very small startups that may happen through an appathon. To create solutions that are compelling across education, health, government administration, public safety, planning and development and infrastructure tourism where big data is really compelling in terms of attracting tourists, giving them unique opportunities. In energy and water we've heard a lot about water here and I'm going to tell you a little bit about what we've done here in Singapore and transportation.

So this is the approach that we've had around three pillars, which is first, looking at the infrastructure. Technology doesn't build all the infrastructure but how do we transform in terms of the infrastructure operations, how do we better engage citizens and business and through this summit we've heard a lot about public-private partnerships and collaboration and scaling these solutions and then finally how do we accelerate innovation and opportunity and jobs. When we work in cities, we think quite a bit about jobs of the future and when Mark in San Francisco talked about appathons, we're finding new young eager entrepreneurs and startups leveraging big data and open data to create new opportunities and I think one thing we all have to think about as we move to

cloud and more datas open, is to make sure we get that right with the appropriate cyber security in controls and governance over data to make sure that we ensure data privacy for our citizens in very sensitive areas, whether it's healthcare or others. So those are the issues that we focus on.

I wanted to just give a few examples of the types of solutions that we look at and how we replicate it in other parts of the world. For example in transportation, Auckland, New Zealand and Manchester in the UK are working with big data and information content launching applications for their public transportation system and I think now you can't go to a city where you can't find a transport app. We just had a recent hackathon in Kathmandu and two young entrepreneurs created new transportation app for public transportation to encourage more riders there to understand when transportation is delayed. For tourism, lots of people think well tourism is how cities run but now that you have data in cities and you can coalesce that differently. There are many tourism apps we've launched in places like Hainan and Barcelona that leverages also open data to give tourists a better opportunity even before they fly to a location to attract more tourists. So we're finding that to be a growth opportunity for cities to harness the data to make their cities more attractive for tourism.

In public safety, a number of people mentioned New York City. We work with New York City, I see the parks commissioner sitting here, around public safety, creating what's called the domain awareness system for public safety, providing real time data both in video but other data in terms of crime report and incidents to help police officers understand the situations and crime to be more predictable where crimes might happen into real time run down the street either with a Surface tablet from Microsoft or a handheld device into an area to understand who's at risk, are there someone with a weapon, to be more safe in New York City.

Around government administration, we worked with London, with the citizen app called London Clean Street where citizens can take pictures of a broken water pipe or road issue and report that before a major incident may happen or someone may crash their car. So you see the citizen engagement now really taking hold with the ability for two-way communications on these platforms. We talked a lot about healthcare in cities because the best cities are safe cities, health cities, educated cities and now we're using technology in countries like Denmark, working with Welfare Denmark and a great partner KMD to use Microsoft's Kinect technology for remote care for the elderly and in a country like Singapore I think with the fastest elder population, it's important to provide those types of health services in countries. So we're using that for physical therapy, using sensor technology to give physical therapy in the home.

And finally I wanted to mention Singapore because we're very proud to work with Public Utilities Board on My Water app. I've heard a lot about the flash floods in Singapore and the acceleration; we use this app for real time information to citizens on the condition of water. Situations that may have been blocking drains and pipelines and where there may be risk real time and then also giving citizens more information about water quality, water safety etcetera. And so those are the types of things that give great

value to citizens that don't just happen in the country that I referenced but they can truly scale around the world. So I just wanted to share some of those perspectives and looking forward to talking more about how we learn around the world on the best practices for technologies in cities. Thanks."

Amb Chan: "Thank you very much, Ms Ipsen. That's a very good sort of Segway to Professor Geoffrey West who's our final speaker on the panel. Professor West is a distinguished professor and former President of Santa Fe Institute. He's also a visiting Professor at Nanyang Technological University and he thinks about using complexity theory to apply to solving problems and problems of cities. Professor West."

Prof West: "Thank you. Pleasure to be here as usual, lovely to be back in Singapore especially to talk about cities. Two points I want to make at the very beginning. One is that cities are not isolated individual objects. They are part of an urban, every city is part of an urban system. Every urban system is part of the global urban system and all these are interacting among each other, each part of the city interacting with every other part. So we have to, in order to mitigate against unintended consequences, we need to understand how those multiple things interact among themselves and in particular to recognise this during a time that is totally extraordinary in which we have been urbanising as we heard earlier at an exponential rate and this has had extraordinary consequences, all of which you're very familiar with. Cities of the origin have almost all of our problems now whether they're to do with global warming, the environment, financial crisis, health, pollution, disease, distress on all kinds of resources for managing water and metals and so on. Everything is, everything that we face has its own origins in cities but on the other hand, cities of the origins have all of our solutions because cities are the place where all the smart people are. Cities are the place where all the ideas are created, where wealth is created, where innovation takes place. So we need to understand how all these things interface and in particular the point I want to make here and the major point of this, we need to think seriously about a kind of universal theory of cities and ask questions about the commonality of cities, not just about the individuality and ask is there a commonality of cities that we can develop into a serious quantitative, predictive science so that we can avoid a possibility of the whole global system of urban cities collapsing.

So we need to have that kind of framework that incorporates all of these things I've written up there; from the scalability, the resilience, the growth, the vulnerability and ask questions like what can we learn from the other scientists such as physics and biology. So one of the things that gives credence to that is the idea there might be, is that cities do show an extraordinary universality. So what is plotted here is on the vertical axis is various metrics like income, GDP, crime, number of patents produced as a metric of innovation of the city and on the horizontal axis is the size of the city and what you see is all these things scaled in the same way. They all behave in exactly the same way and in fact I've written down everything else that goes in the same and everything you measure about a city. Anywhere in the world scales in this way and there is a kind of generic rule about cities. There is a kind of underlying commonality and systematic behaviour of cities that are independent actually of the politicians and the programmes

and the rest. We need to understand that because it is the kinds of things that we've heard about San Francisco, of the value-added on top of that. Unless you understand the internal dynamics that led to it, we won't be able to solve the multiple problems.

So here's what that graph says in English. It says if you doubled the size of the city anywhere in the world within an urban system, on the average, you systematically increase all socio-economic quantities, income, wealth, patents, colleges, creative people, police, disease, crime, number of social interactions. All of that increase approximately by 15 per cent and at the same time you save 15 per cent collectively on infrastructure. The bigger the city, in a certain sense, the better it is in some of those metrics despite the fact that you have along with it the bad and the ugly and all of these have its origins in a framework that is derived from social interactions, the fact that people interact and that is the sense of city and this is what the city is, this is what made New York City great. This is a photo from 150 years ago, it shows you the buzz, the activity, the entrepreneurship, the ideas being created in the streets, interacting between people and the infrastructure. No city in the western world looks like this anymore. They are in the developing world but the spirit of this is what a city is all about. This is what cities should be about, is increasing the buzz and the activity, the interaction between people so that ideas are created, new things evolve so that the whole well-being of the system increases.

So there is a theory behind this and I'm going to try one last thing and that is we have open-ended growth of cities. Cities been open-ended growth and this is just the cartoon version of it, if you have open-ended growth, I can tell you as a physicist, this is destined for collapse. This is exponential growth, it always collapses and it will collapse and the only way it stops collapsing is if you innovate and so to speak start over again, you reinvent yourself in some way and you would collapse again but you have to keep reinventing and the only hitch to all this is you have to do it not only every time you go up one of those curves, that's the pace of life increase, but you have to do it faster and faster. So the question is to understand that dynamic in the context of all of these metrics and in terms of the interface between the development, infrastructure and the development of social interactions and information exchange that goes along with it. Thank you."

Amb Chan: "Oh thank you very much. Thank you very much, Professor West. Now we come to the questions. I get to put a question to each of the panel speakers and I'd like to begin with the Minister. Minister Bayarsaikhan, Mongolia has been going through very rapid urbanisation. I believe it's about 64 per cent over the entire country but 44 per cent go, of the urbanisation is in in Ulaanbaatar. Nomads are going to the cities but they go to the cities with their tents, they live in tents in gers (yurts) around the cities. Is this because it is a way of life that they haven't quite transited to urban life or is it because of the high rents in the city? How is your government dealing with that, how do you provide employment and is the Mongolian government thinking of moving the, trying to move the population to second tier cities, smaller cities?"

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Mr Tsevelma: "(Translation)Our citizens are migrating to big towns, particularly to the capital city of Ulaanbaatar, mainly to access social welfare services, and secondly, to get their children educated. Therefore, it is important to us not to restrict these migrants by administrative procedures, but let them have an access to social welfare services as much as possible and on top of that we are trying hard to resolve the issues of providing them with housing, improving educational services in the countryside and increasing the supply of housing in the countryside and local areas. We totally understand that educational and social services are well behind in the countryside. Therefore, we are specially focusing on creating engineering lines, improving educational services in the Aimag centres and villages and bringing medical services to the same level as in Ulaanbaatar and other populated towns."

Amb Chan: "Thank you, Minister. I have a question for Mark Chandler. Mark, San Francisco is a great city, you've been telling us about it this morning. Your advantages are many; good climate, Silicon Valley nearby, California is the eighth largest economy in the world 2012 data and you are on the rim of the Pacific Ocean facing Asia, the most dynamic region in the world. You are almost too endowed to fail, what do you worry about in terms of competitive challenges for the city?"

Mr Chandler: "Thank you for the easy question. Appreciate that. I'm going to answer that in, with two different answers. One which is more the global concerns and I think more importantly and then second a concern about internal governance because so many of the people here today are mayors or government leaders or city officials and it's a challenge we're facing in San Francisco that I think will resonate so first, the issue of ultimate importance to us now given frankly our prosperity, given this new paradigm of this city is one that Peter brought up during his talk which is the disparity of income and in our city it's not so much rich versus poor. We actually take very good care of the poor and it's a very inclusive system where the poor have education, healthcare, the things that we do a good job of that and we're creating a lot of rich people. The question is the middle class are we losing the opportunity to have a middle class and what happens to a city when your bureaucrats can't afford to live there, your police, your fire[fighters], your teachers, your merchants can't live there. The people who are bringing great intelligence to their positions, into their jobs are maybe not in these high value added sectors and that is a huge challenge facing us and I, there's a number that was just recently released, the study which looked at various cities and there's a thing called the Gini coefficient, I may say that wrong, which is a global measurement of the difference between the highest of the income and the lowest. So the Gini coefficient for the United States is .45. The bigger the number towards one, the worse your differential. Denmark .24, the United Kingdom .34, China .47. In San Francisco now, our Gini coefficient is .523. That's comparable to Brazil's and Rwanda's. So are we losing what has made America great and that is a middle class society because we are so successful. That's a huge issue in our city right now, one we're grappling with everyday and it's very very difficult. The second thing and I'll be very brief here is internally, the effects of technology and disruptive technology are being felt very quickly and it's in funny areas of governance that you don't think about in global areas. It's things like taxi cabs where now in San Francisco all the companies are disrupting our technology right, or have disrupted

technology. The Uber, the Sidecars and the Lyft [1:04:41 – 1:04:42] have taken away the regulatory system of taxis. Airbnb has taken away the regulatory systems of hotels and so it's a change of governance. How do you look at this, how do you give up the regulatory oversight of these industries? How do you financially take care of that? It's a big challenge and it's one that the citizens are very involved in. Just before I got on the airplane, I was reading about a new app that somebody had just released in San Francisco; a parking app. Parking apps are very common but this parking app is one that when you get into your car, you go on to your app and you say I'm leaving my parking space at eighth in Howard Street right now, who wants it and somebody that's driving around says five bucks I'll take it and so you wait till it drives up, you have the five bucks and you go out. So parking is something that government has controlled for eons, we're losing control of that and that raises major issues of governance that we have to adapt to and we have to find solutions in order to move ahead. Thank you."

Amb Chan: "Thank you, wow. Gosh new way of making money."

Mr Chandler: "I'm not making any money, I'm one of those middle class guys being kicked out."

Amb Chan: "Yes. Dr Steer, you speak with great urgency about the need for awareness and the practice of sustainable living and that's been your work really in the World Resources Institute. You speak of the second urban revolution and where people are in fact getting a bit more aware, you find people getting aware, cities getting aware of this and you hope to transit to the third where things will sort of work out with the solutions implemented. If the city leaders from Asia and Africa were to come to you and say tell us the three things, the first three things we should do for sustainable living, what would you recommend?"

Dr Steer: "Wow, well if it's only $5, take it, that's what I would say for the parking lot. On the board of the World Bank, we have a man called Jaime Lerner. He was the mayor of Curitiba who really invented the idea of a green city in the 1980s and we're just creating a new centre for sustainable cities so when I met him recently I said to him of all of your wisdom over the last 40 years in this area, what should I know and he said most people look at cities and they see them so messy, so complicated, so inter-jurisdictional, they think it will take a generation or longer to make progress. He said that is wrong. He said what you need and you can achieve this in the political lifetime of a mayor if you've got a plan, if you get citizens in the private sector engaged in that plan and if you focus on delivery the way a private sector Fortune 500 company would focus on delivery, you can deliver that and you can make change much more quickly than ever you thought even if you are the mayor of Lagos or the mayor of London, you can do it and I think there's something to it. The land on which we are sitting right now is reclaimed and I understand this was planned more than 40 years ago and the founding father Lee Kuan Yew said we need a 50-year plan and he's updated every 10 years, so the citizens and the private sector know where Singapore is going.

China now with its low carbon plans, we're working in two mega cities in China helping them think through how do they become a low carbon city and now you're studying in China to see the footprints of cities actually starting to shrink as density is growing and that is a long-term policy plan. So having a plan, having a vision would be the first thing. As many others have said, Laura in particular, city engagement though is absolutely essential. I grew up in London and we drove into the centre of London all the time. The last 10 years I never once have driven a car into London even though I've been living there for part of the time, I will never drive into London for the rest of my life. I live on Washington DC, try not driving downtown Washington. There's no way you can do it. Citizens in London have got used to it just as they have here. They've been engaged in the process. They're proud of the fact that their city now as congestion charging, for example. We've spent a lot of time in the World Resource Institute working on citizen and private sector engagement in urban transport. Bus rapid transit has shift, has expanded from one city in Curitiba in the 1980s to 200 cities today. It will be 400 cities in the next 10 years and the reason for that is it's good economics, it's good for citizens but you must engage citizens in the private sector and the planning. So that's the second point, the third is focus on delivery.

Civil servants in Singapore are paid very well and they jolly well should be because their job is as important as any Fortune 500 company and I would plead with mayors and governments in all countries to stop thinking about cities and city hall as dusty old places where you might have all kinds of no treat it as if it's a Microsoft, treat it hire the best people, get them to work. Spatial planning is not easy as Jeffrey was saying. This is difficult stuff, you need people that are really skilled at it and you've got to be good at economics as well because in the moment we're taxing good things like work and profits and we're not taxing bad things like congestion and we need to. So you've got to have economists in the city government that can really and a sort of a bonus point here, you asked for three.

A fourth would be when you think of emissions, think of carbon emissions. Don't just think of that as related to climate change. Think of it as a litmus test for how efficient your city is. We have discovered that if you look at what the carbon emissions from a city are, that is a very good indicator of how efficient that city is. Why? Because it shows how much energy they're wasting and in addition to that, it suggests that they're travelling much too much. They're wasting too much time in their cars, they're wasting too much time creating air pollution and so think of these environmental issues as not as oh this is for the greens and then the economists over here. No, this is the canary down in the mine shaft. It will show you whether or not you are really becoming an efficient city."

Amb Chan "Thank you very much Dr Steer. I come to Mr Casati, Mr Cassati, the buzzword of the moment is smart cities and many of the mayors here and the city leaders want to create a smart city. They want that to be their city and now you have the term smarter city to distinguish one from the other. What is the actual difference from of one smart city to the other? And is smart city the more digitised the better, the more wired the better?"

Mr Casati: "Well, the short answer is not really. Digitised cities are good but then you need to ask yourself to do what? And I think that back to what Dr Steer just said, every single city has to go through visioning, planning and execution and I think that these are the three stages that will allow to use the digital technologies the best possible way to enable all the services that every single city has and will have to deal with. One element is that because of the number of priorities that cities have to face, the risk is that even in the context of digital city, the urgency tends to take priority, traffic control, congestion control, environment, managing natural disasters. There are a number of things that tend to be important, urgent and non-negotiable. What I think is important is that whatever the vision plan and execution every city has there are elements that are in common for, with between very successful cities. The cities that create the more jobs and San Francisco's learned the lesson very well or has been ahead of the game very well is where education has been put at the centre of using the digital technologies to increase the ability to create higher profiles, higher level of education. Education which is inter-connected when people are at universities and are connected with universities and students and professors from other parts of the world and they share knowledge, they share experiences, that is the way to accelerate growth and a way to accelerate the fact that we create the global leaders of the future. Education is one of the key elements and so when you think about whether you want to digitalise more or less city, you need to ask yourself in which sectors, for what reason and the more you do to plan and the more you pay attention to education and to enabling businesses, the more you have job creation and you more attract investments from outside."

Amb Chan: "Thank you Mr Casati. Now I have a question for Ms Ipsen from Microsoft. Ms Ipsen, the data is now the big concern. We have so much data, we have harnessed the data for use and you have highlighted how much data there is and data where citizens can engage in apps to inform government so that theoretically governance can be better, city problems can be solved faster but what if the data comes fast and the citizens do respond and the governments are unable to respond as fast? Does it create special pressure on city governments?"

Ms Ipsen: "I certainly see that there's a major pivotal change happening. We see it through this whole internet of things. Everything's connected, every person's connected, every device is connected. At Microsoft we run our campus where everything's connected, fire extinguishers tell us if they're having a problem before we get it so we can service it. So I think we're just in the data overload world. What's important is to focus on the areas that are critical to manage and monitor and to have insights, to be able to take action and as these applications and apps proliferate, leveraging data, I think citizens will make the deciding vote on which apps are important and how they connect into government. So right now we may say there are so many citizen apps, we're getting so much feedback and kind of exposure of things that are important to citizens, that should be good. How you manage it I think is the challenge that many governments have but I was talking to a gentleman yesterday who was talking about, youths getting so engaged with these appathons and hackathons and then they really felt more empowered to have an impact in their cities. What does that mean for many elected

officials? They're more likely to be voters of the future too because they feel that they can have an impact and in this case, it was an exponential growth in terms of registration voters because youth populations that grow up with technology are going to behave differently in the future. What's really important in data as I mentioned earlier is to get the governance of data right. Understand what becomes open data that can be mashed up by entrepreneurs to create value for trade and economic growth and new jobs and what data is very sensitive and private. I think that's the challenge that we have and our friends at Accenture, Microsoft, we work with governments from around the world to get that right so that we don't put any individual citizens or populations at risk and I think that's the big focus that we have. I think the value as Gianfranco said for the world is and Peter Ho said you know technology shouldn't displace jobs. Technology should enable jobs of the future if we get it right and obviously through every wave of technology, remember when we had fixed line for phones to mobile and voice over IP, there was jobs displacement. We had to create the next level of jobs and I think we have to see that happening now. In the next decade, over 77 per cent of jobs will require some type of IT skill. So when I think back to what's really important to cities for sustainability, education and skill sets are things that we all need to invest in. We do it at Microsoft through entrepreneur programmes like BizSmart, connecting 100,000 over several years. We train teachers with our partners in learning platform, we have over 200 million students, over 14 million teachers. We've invested now almost 750 million just to create a platform for teachers to learn. How do we train our students, how do we use technology better and I think those are the things that make the future more sustainable, those are the things we're going to open up data and learn more and have insights that can drive impact. So as we cull through all of this data around the world, I think it's really that the governments will have to be prescriptive about what they want to get done, the solutions that they build and how do they harness the data for good, sustainable solutions for healthier and more sustainable cities."

Amb Chan: "Thank you, thank you Ms Ipsen. Professor West, can you hear me? Professor West, you are, you've been advocating the science of cities and you argue that the science of cities can devise a strategy for long-term resilience and sustainability. Do you take into consideration the politics of this strategy? What if the strategy is hard to implement? For instance, just take the question of migration from the countryside to the city? We can understand the science of it but how do governments actually deal with people who move into cities unless you take fairly drastic steps?"

Prof West: "Yup, well there's a very challenging question of course but it's the same question really that relates all of science to its practical applications. So for example, you would never dream of building a Boeing 787 or building this laptop here without knowing the science. I mean it's completely nuts or even going further to mitigate something in it, to change something. If you didn't understand the science, it would have all kinds of unintended consequences and all kinds of arbitrariness to it. Basically that's how we deal with cities as far as I can see. Basically we don't have the science, we don't really understand how they work, why the work the way they do. We heard the extolling of San Francisco, a city I love. I was at Stanford for many years but of course one of the major reasons that San Francisco's going through the boom now is not got much to do

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with San Francisco other than its beauty and its attractiveness as a geographical location, it's the fact that there's Stanford, which is outside of San Francisco and Berkeley over the Bay and there was San Jose which developed Silicon Valley. So this is a trivial example of the extraordinary inter-connectedness and we need to understand that so that if you come to questions of the politics, of course the theoretical structure does not in taking into account with politics but what it advocates is we need to understand that and we need to enter into a dialogue and serious dialogue. I don't mean dialogue like this and this, it means sitting down, working together day in, day out to understand what the generic problems are , what the big picture is, what the systematic behaviour is, what the science is and how does it apply to this specific situation and in particular you brought up migration. Migration is actually part of it because the urban system is continually exchanging people between cities and but it is a mistake politically in terms of a city if it only thinks of migration as a silo kind of salami effect and not recognising the obvious really that when people are moving in and out of a city, that effects the transportation, it affects infrastructure, it affects the education, it affects the health, it affects the financial markets etcetera. So it's developing that framework and having a framework where one can at least make some kind of metrics in which we understand what the probabilities are when you change something, not only is something going to happen within what you're talking about but all these other effects going to happen and indeed we saw that when the most classic case which happened just a few years ago, it brought the whole system down with the subprime mortgage system which is a trivial part of the economy of the United States, the United States' economy, it's a diddly part of the economy but a small change in that had extraordinary reverberations throughout and that's true within a city on a smaller scale and we need to understand that dynamic. So I'm very frustrated that somehow we don't have kind of a major programme that is really attempting to do this and engaging with the practitioners and the politicians and so forth in a way that we can make this work because I share with what was remarked earlier, we have very little time left. We have very little time left."

Amb Chan: "Thank you, thank you Professor West. I believe I do want to call for an extension of time for a few minutes because we have taken a little longer because people have interesting things to say. Now it's polling time. I believe the question has been asked, do we see the results now? Right. Can you poll? What is the most critical urban challenge for cities in the next five to 10 years? And you can choose one of the five. Oh, there's the choice. Sustainable urbanisation is the most critical urban challenge of the times, 52.3 per cent of the votes and the next challenge is effective urban governance, 24.4 per cent. So I think and the third one is exploiting technology for development, the fifth is maintaining competitive advantage and balancing national and regional development not so high in your priorities. Thank you. Now would you all like to comment on that? You must be happy Andrew."

Dr Steer: "Well, congratulations. You got it right but actually these are all, the others to some extent are part of getting sustainable urbanisation. You can't do the sustainable urbanisation unless as Peter Ho was saying you get the effective urban governance and unless you exploit technology but if you do sustainable urbanisation, you will maintain

your competitive advantage and you will balance national and regional development. So these are all inter-related. I must say just one final, a couple of weeks ago, I was in Abu Dhabi where we were preparing for Ban Ki-moon as this summit in September for the heads of state of think about climate change and I had the privilege of chairing the cities track and it was wonderful to see that the head of C40, the head of ICLEI, the head of UCLG together with the mayors saying we want this sustainable urbanisation and we're going to commit to sustainable urbanisation plans and they hope by September there will be 100 cities that will commit to lowering carbon in a way that promotes their competitiveness and they hope that by the time we reach the end of 2015, there may be 500 cities. So we're heading in the right direction."

Amb Chan: "It's now up to 58 per cent as we talk and think, it's 58.2 per cent. So."

Dr Steer: "Wow."

Mr Chandler: "I want to add just a point there, I don't think sustainable and economic development are separate, they are one and the same and we have found that in our city. We made a pledge in 2006 to lower our Co2 standards to 1990 levels by 2020. Well guess what? We did it by 2012 and we've had the economic renaissance of our city at the same time. They are part and parcel, one of the same."

Amb Chan: "Right. I think we should move on because there are questions that we have to take from the floor. We have Pigeonhole questions but I would like to see audience participate as well. I'll take one Pigeonhole question and leave the rest for the floor. The question which had the most votes was, what is the role of cities to address the issue of sorry, what is the role of cities to address the issue of income inequality amongst their citizens? How will solutions be different from today's initiatives? We have inequality today. What more can we do? What new ideas have we? Anyone on the panel?"

Prof West: "What was?"

Amb Chan: "Oh sorry, you missed it, there you are, what is the role of cities to address the issue of income inequality."

Mr Chandler: "I'll speak on San Francisco, it is an incredibly difficult problem and frankly one that a lot of it is beyond local government in reality but there are things that we can do. In our city where incomes are becoming so desperate, housing has become the big issue and so the United States cities don't build housing but we control land use and so we've really changed our thrust into the creation of more affordable housing and right now our mayor has the task of building 30,000 units, which is big for our city, that's small by Asia's standards but big for San Francisco. 30,000 units of affordable housing, so not poor housing, market create housing. This is affordable housing, middle class housing through the processes that we have at our disposal of government and secondary is what Laura said earlier is skilled workforce is tantamount to equality and so we put a lot of our city's efforts in workforce training and workforce training into making sure that our workforce doesn't [does] have skills because all the emerging

sectors that are growing in our city demands skills so we've got to get those out to the workforce. Working with our community college is working with the high schools, working with the various NGOs and non-profits to ensure that they're there and so that's how we're trying to address this one. On the housing side, trying to get the supply up which is not easy in a free market system and two, making sure our workforce is skilled so that they have the skills to be part of this emerging economy."

Ms Ipsen: "I certainly can't speak for a city but what I can say is that I think we need to do more in terms of developing the public-private partnerships in cities around job creation and more equitable despatch of those opportunities. I see some of my friends from Jordan from last night and I had an opportunity to meet with the King a few weeks ago in Silicon Valley where I live to talk about employment and education and we're working and we challenge everyone to be part of a portal for education, employability that we'll do in the country and I think more of us with the private sector and the public sector need to come together to try to funnel and coalesce all of those opportunities to make them visible through mobile technology, online, in kiosks where people that don't have their own handheld device and there's lots of programmes around that to make opportunity for training and impact different, in addition to the basic needs that many corporations contribute to communities for shelter, food and other necessary things."

Amb Chan: "Thank you. Yes, I think Dr Steer has."

Dr Steer: "I think there's huge evidence to suggest that current city development that encourages car-based development, road-based development, energy intense development, that all benefits the rich. The poor don't. Energy subsidies 80 per cent of them go to the top half of the citizenry, car-based systems benefit the rich, public transport especially buses benefit the lower half. So choice is out. I mean the evidence is overwhelming that if you move towards more compact mixed-use cities, public transport-orientated, you'll move at least partly in the right direction."

Prof West: "Can I just add one small thing that depends a little bit what this means because there's always income disparity, I mean it's there and I suppose what this is about is the broadening of it and in that sense, it's a long-term problem, it's not a simple problem and it's societal problem and an economic problem that in some sense transcends individual cities but there are issues which you already raised. Long-term issues are to do with education providing obviously the right kind of education, the right kind of mobility and then the whole question of which is a very nasty one, minimum wage, providing minimum wage that there should be some liveable wage that every citizen in some sense has a right to, in the sense their right to health, good health and good education."

Amb Chan: "Right, thank you. I'd like to move on to see if anyone in the room has a burning question so that we have some audience participation? Yes, right in front please, take the floor. Have you got a mike? Is there anyone providing mikes? Someone at the back. Microphone here. Here, right here, in front."

Michael Rama: "Good morning."

Ms Chan: "Good morning."

Michael Rama: "I'm a mayor of Cebu City, one million people."

Amb Chan: "Cebu did you say?"

Michael Rama: "Cebu City, Philippines. I've been here for almost over a week from the discussion about smart and intelligent city, now on this issue on the World Cities Summit and it was brought to my attention this nagging question, why in the Summit and there've been a lot of issues, my question how can we make this summit with all 130, 40 mayors band together and bring all this intervention to be affordable because if we talk about all the topics, all that it should be, it's all amazing and wonderful but when you go down to the level, I love your presentation about biology and physics because I'm also a student for years on science. All of this will always bring to cost and very sad the word disparity and finally I've been managing the city, I've been very clear in bringing to the people what we should be focusing on, projects that will make the lives of the poor better, the middle class comfortable, and the rich not to control. With that spectrum, we need a lot of intervention and just an addendum which focuses people going to the city, going to the city, going to the city, how are we going to bring them back so that agriculture, mountains and all the rest of the land utilisation can be addresses, thank you."

Amb Chan: "Thank you, thank you mayor. Very good points. Just in short, how do we get the mayors here over the last few days, 120 of them, to focus on these problems and think also about the cost of implementing the solutions and the problems are enormous as he said. There's migration to the city but how do you bring back people to the countryside? So would anyone like to take a stab at this? Major problems or we take it as."

Prof West: "Well, I don't know if I can stab at it but the trend of the last 200 years has been one direction. I mean it happened in Europe, it happened in North America and now it's happening across the rest of the globe and the reasons are partially that it's very difficult for people to support themselves a living wage with families in a rural, agricultural areas of the world and a lot of that ironically is to do with the tremendous improvements in agriculture. We don't need that number of people any longer. That's one of the fruits, an unintended consequences of extraordinary technology and when people come to cities, their perception is and the data strongly supports it that on the average they can get high wages and in fact the bigger the city, the higher the wage and so there's kind of this dynamic that has a certain inevitability to it and it's been done in a kind of organic, it's happened in a kind of organic way, it's happened blindly and I think one of the issues that you're bringing up is one that we need to try to understand more seriously and ask the question even could it be reversed, is it good to reverse it? I mean I agree with you, my image of being in the country and enjoying the fruits of one's labour

and so on is wonderful. So I think it's a huge issue but an inevitable one which Singapore did not have to face by the way."

Amb Chan: "Now thank you Professor West and thank you for that question. I'm supposed to sum up but we've really run out of time by 15 minutes and I will say that we've discussed right from the beginning from one end of the spectrum to the other. From Mongolia where urbanisation is beginning, rapid urbanisation but the Minister by his answers have indicated that Mongolia too is thinking through moving in, learning from what has been discussed about cities and he's trying to move people back but it's going to be difficult. Then on the other end of the spectrum, we have all the discussions about technology, how it can be used to help in the governance of cities and in running the cities and there's even a science of cities and then there is the good news story of San Francisco which is actually putting it into practise and finally I think the points that Dr Steer brought up was that what we need is long-range planning, you really need to implement, you need to pay your bureaucrats and what was the other point? I took down. Engage citizens and I think those are very good points indeed. So I thank the panel very much for their participation and I thank you for being such a good audience."

Emcee: "Ambassador Chan, thank you Ambassador Chan and our distinguished panel of speakers. Ladies and gentlemen, we have come to the end of this session. Our urban solutions partners would like to invite you to their hospitality suite on level 4 and the WCS thematic tracks will begin at 11 am. Maybe a little later today at the respective breakout rooms. Do take some time to fill in our survey about the session via Pigeonhole live and if you're holding to a simultaneous interpretation receiver and do not require it anymore, please return it at the foyer. Otherwise, do proceed to the tea break. It is now served at the foyer. Thank you very much."

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[End of Transcript]