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This is a raw transcript of the Opening Plenary of the World Cities Summit, held at Marina Bay Sands, Singapore, on 3 July 2012. The panel comprised:

- **Tommy KOH** – MODERATOR  
*Ambassador-at-Large, Ministry of Foreign affairs, Singapore*
- **Kamal NATH**  
*Minister of Urban Development, India*
- **Djoko KIRMANTO**  
*Minister of Public Works, Indonesia*
- **Amal PEPPLE**  
*Minister of Land, Housing and Urban Development, Nigeria*
- **Pamela COX**  
*Regional Vice-President, East Asia and the Pacific, World Bank*
- **Shintaro ISHIHARA**  
*Governor, Tokyo Metropolis, Japan*
- **Vivian BALAKRISHNAN**  
*Minister for the Environment and Water Resources, Singapore*
- **Henri PROGLIO**  
*Chairman and CEO, Électricité de France*
- **Roland BUSCH**  
*CEO, Infrastructure and Cities, Siemens AG*
- **QIAN Min**  
*Commissioner, Huaihe River Commission, Ministry of Water Resources, China*

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[Start of Transcript]

**Mr Nath:** “Thank you, Tommy. I’m delighted to be back on a podium with you after I think 20 years when I was Minister of Environment and for those who don’t know, Tommy played a very very important role in the Climate Change Treaty at Rio at Earth Summit in Rio in 1992. If not because of Tommy Koh, we would have not had any Climate Change Treaty at that time. Tommy, the biggest challenge we face in India is the growth of our urbanisation, though today only 31 percent of India is urbanised, yet we have the second-largest urban population in the world and as India grows, growth has preceded infrastructure.

You were right when you said that India has used infrastructure challenges. So with growth preceding infrastructure, we have a huge infrastructure deficit. Now that infrastructure deficit is not only in urban infrastructure, but also in other areas of infrastructure whether it's roads, ports or airports. So the biggest challenge is bridging this infrastructure, urban infrastructure deficit. What we build in the next five years will be really catching up with the past, not building for the future. So the challenges not only to build, to bridge the deficit, but also to build for the future. We have about today 55 cities with the population of more than one million which is in the next decade expected to go up to about 65 to 70 with a population of more than one million, which is larger than the whole of Europe. We have about 13 cities with a population of more than four million and of course our six megacities.

The biggest challenge in this is water sewage, transportation and one of our biggest emphasis has been that in our smaller cities, that is in our smaller municipalities, which most countries in Asia face is capacity building. How do we build up capacity of our urban municipalities? We launched the Urban Renewal Mission five years ago and we're now launching our second Urban Renewal Mission. This Urban Renewal Mission will be close to \$40 billion which the federal government will support. Our states, our various state governments, besides the outlet which the state governments will be having, support them in water, in sewage, in urban transportation.

One priority which we have made and which we've succeeded in is urban transportation. Today we have urban, our metros, our metros in Delhi, Calcutta, Mumbai, Bangalore, Chennai, Hyderabad and Jaipur. They're in various stages of construction. In Delhi, we have launched our phase 3, we're building our phase 3 of our metro and when we finish phase 4, we shall commence shortly, Delhi would have 440 km of metro which will be larger than the London Underground. We have targeted that all cities above two million should have metros and for that, we are working towards preparing the project reports so that we can launch this as fast as possible.

One of the big problems we've had is in our water sewage and in the functioning of our local bodies. That is the functioning of the municipalities, the role, the devolution of powers. What is going to be the balance between political, politically-elected representatives? India is not only the largest democracy, it is the rowdiest democracy and being a very large democracy going down to the village level and the municipal levels, the governance in municipalities between the bureaucracy at the administrative level and the politically-elected leaders.

So what is the kind of devolution of powers? This is the kind of governance issue because if we can put together our governance issue and the issue of capacity building which I mentioned earlier, we would be able to move much faster than what we are doing today. We have used opportunities in water and sewage and I said in urban roads. So strategic urban planning is what we are at the moment engaged in and I think that briefly sums up the challenges we have, how do we have land resources, how do we use our land resources efficiently, optimum and efficient use of land which covers both the

largest cities and the smaller cities, how do we monetise some of our land assets of the smaller, medium and large municipalities. So that as a whole with India now having such a large urban population with a young population, the mobility becomes much more and with the mobility of a younger population, urbanisation's pace increases. So with a young population, a large young population which is highly mobile, we see India moving towards having perhaps one of the largest urban populations in the world. Thank you, Tommy."

**Prof Koh:** "Thank you very much, Kamal. The next speaker is also a very good friend and an old friend, Pak Djoko Kirmanto who has served Indonesia with distinction and many portfolios. He's currently the Indonesian Minister for Public Works. Pak Djoko, could you share with us what are some of your biggest challenges in your current portfolio and share with us some of your success stories?"

**Mr Kirmanto:** "Thank you, thank you Professor Tommy. Since I was assigned as the Minister of Public Works about eight years ago, our vision is to provide reliable public works and human settlement infrastructure to support Indonesia's prosperity by 2025. The biggest challenges for me as the Minister of Public Works among others are as follows. Indonesia specially composed of more than 17,000 islands which are divided into 33 provinces, about 400 districts and municipalities. In terms of population, with a population of more than 277 million people, Indonesia is the fourth most populous country in the world. Culturally, it is composed of more than 300 ethnic groups scattered throughout the region. Almost 60 percent of the population resides in the island Java alone, which is only account of seven percent of the total area.

At the moment, about 52 percent of its population resides in urban areas. This number is estimated to increase up to 65 percent by 2025, primarily in 16 large and metropolitan cities. Second, Indonesia now is experiencing rapid urbanisation, which is not only create various social and economic problems, but also environmental challenges and degradation due to the land use change and deforestation. There are as many as 25 new towns have been developed surrounding Jakarta alone which triggers urban sprawl phenomenon that has creating greater demand for permuting transport, hired ((?) and city housing and sufficiently supplied infrastructure.

Third, the scale and magnitude of water resources, road, bridges as well as human settlement infrastructure to be managed and maintained under the Minister of Public Works are huge and this is not an easy task to distribute the available resources among the regions. Technically our Minister looks after more than 7.2 million hectares of irrigation area. About 38,000 km of long of national roads, 340 local companies for drinking water and manage 378 regional solid waste dumping area.

On the other hand, we have very limited budget to be allocated throughout the region and across various sectors and among different activities. The total budget for the Ministry is not enough to maintain the available infrastructure assets. The challenge here is how to allocate the budget efficiently and effectively to make sure that the surface level of the infrastructure is maintained in the steady condition. Next, the

globalisation and decentralisation era in our political landscape, the role of infrastructure is very very important to maintain our global competitiveness as well as to maintain our local connectivity and united throughout the country. This is certainly add another burden to our Ministry to make sure that every single part of our country should effectively connected and sufficiently accessible particularly for remote areas such as the national border areas for small and outer islands.

Now this is very difficult question about the success story. It is not really easy to measure the success and achievement but institutionally we have set up several meter indicators to measure our achievements in performing our tasks and duties in maintaining the Indonesia Public Works infrastructure. First is how the infrastructure could maintain the economic growth by providing the necessary accessibility and mobility for freight and people movements. Secondly is how our infrastructure development could increase the prosperity of our community through property elevation, job creation, reduce disparity and isolation, improve community empowerment. Thirdly is how our infrastructure development do not adversely impact the environment, particularly through the introduction of green construction, special plan with development and try to adapt to the climate change.

In this way, we hope that our infrastructure development could maintain the balance between pro-job, pro-growth, pro-poor and pro-green objectives. Some of the success that we have achieved during the period include among others as follows, enactment of all levels of special planning, those are national special planning, island special planning, provincial, district and municipality special planning and also special areas special planning, based on Special Planning Act Number 28, 2007. Green initiatives programme as an incentive to promote the provision of green open space 30 percent in open areas as well as sustainable development.

Urban slum upgrading programme with the setup to eradicate poverty provide basic infrastructure, access to safe drinking water and sanitation to our low income neighbourhood. Ladies and gentlemen, I still have time little bit?"

**Prof Koh:** "Ya try to conclude if you can. Try to sum up please."

**Mr Kirmanto:** "Ok. Actually my next speak will concerning about the Indonesian effort towards sustainable urban development through green initiatives but since the time is not..."

**Prof Koh:** "Maybe we can do that in the Q&A session."

**Mr Kirmanto:** "It's okay, thank you. Thank you very much."

**Prof Koh:** "Thank you very much Pak Djoko. I'm very happy that the next speaker is from Africa and it's a woman. Minister Amal Pepple is the Minister for Land, Housing and Urban Development of Nigeria. Minister, we warmly welcome you to our meeting. The question I'd like to ask you is the population challenge you face in Nigeria and Africa

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more widely and what has Nigeria done to address the challenge of sustainable housing and urbanisation?”

**Ms Pepple:** “Thank you. I’d like to start by saying that most African countries have a population growth of between one and 2.5 percent. I’ll just take a few figures. Ivory Coast 1.84, Ghana 1.99, Zambia 1.91, Botswana 1.23, Morocco 1.2 and Nigeria, my country has a population growth of 2.27 and we have a population at the last count of 167 million. We have statistics state and a federal capital territory and about 48 percent of our people live in urban areas. We also have about 20 cities that have a population of over one million.

Obviously, this creates problem for us because sometimes we plan for a population of about a million or two millions in a particular city and then the growth rate becomes so high, you find that some of the challenges we begin to face is pressure and decay of existing of infrastructures that we have such as roads and drains, water, electricity, street lights, worse disposable facilities and this undermines the economic efficiency and compromises the competitiveness of African cities in the global economic environment. Secondly, we have a problem of implementation of national transformation agency, but the government is trying very hard to concentrate on areas such as power, agriculture, security and poverty reduction because of the high population growth and the high population that we have already, they risk a lot of our children, young ones, older ones who are jobless so government believes that in area of agriculture, housing and power will be able to create thousands of jobs and reduce the challenge of unemployment in our society.

Also, we have adopted Nigeria private public partnership in order to enable the private sector assist in development of infrastructure especially in the areas of housing and provision of power. Only two weeks ago, our housing and urban development policy was approved and this is to help us implement the public private partnership in housing and also enable the private sector to provide houses for us because government cannot afford to do that on its own. There is a bill before the National Assembly, draft bill on social housing and when it is approved, we do hope that this will enable the government look for funds to subsidise housing delivery so that we can have affordable houses especially for the low income group and the people in the informal sector. We’re also looking at changing our mortgage system and making it more accessible to the low income group.

We are conscious of the fact that the task of managing human settlements would most likely increase in scale and dimension especially with the problem of rural urban migration which creates a huge problem for us in Nigeria people move, I’m sure in most African countries, move from rural to urban areas in the hope of securing employment and when they get to the urban areas, there’s no job, they cannot afford housing and so they move to the outskirts and sometimes even within the cities, you find slums growing. So in our new policy we’re concentrating on trying to encourage state governments to do a bit of slum upgrade and urban renewal so that we’ll have rural areas that are better planned, urban areas also we encourage people to do a bit of

resettlement and provide new cities so that those in the slum areas can move to the new cities. We have programmes like that at least I know going on about three states of the country at the moment.

You also asked the question how are we going to address some of these programmes. First, we suggest that we place the city in a new position that it can provide high level health and safety in the environment, reposition our cities to provide high level convenience and comfort, ensure the availability of higher quality infrastructure in the cities, guarantee employments opportunities for the residents of the cities and in our rural areas also to ensure that there is infrastructure and there are jobs available through small scale industries because that will stem the tide of migration from rural to urban areas. We're also trying to promote community participation in the process of decision making so that those in the communities will be able to discuss what and how they will like to change their environments.

Finally, we think it's important to make our cities functional and able to discharge the assignments such as providing goods and services and good governance in the cities and urban areas. Once more, I thank the organisers for the opportunity to share a few thoughts with you and I thank you for your attention."

**Prof Koh:** "I thank Minister Pepple for her statement. Tokyo is one of the world's largest cities and belongs to the category of mega cities. Many mega cities, especially those in Asia are not well governed. They do not afford their citizens with a high quality of life. Tokyo is an exception. So the question I'd like to ask the Governor of Tokyo, Ishihara Shintaro san. How did Tokyo succeed in overcoming the many challenges of mega city and make it a city that's clean, efficient and liveable? Governor, please."

**Mr Shintaro:** "Good morning, ladies and gentlemen. I'm delighted to be here, but I speak in my own language. Why don't you use your earphone?"

Interpreter: "Well what are cities? Cities are the places where human beings' wishes, dreams, expectations, aspirations are expressed. That is what cities are. Precisely because of that it is a conglomeration of one entity. Therefore it must harbour diverse functions. Otherwise, you can't call it a perfect city or complete city. It is an ironic principle. Brazil created a new city called Brazilia. When I was in my 20s, I went there and saw it. It was an ultra-modern buildings erected in large numbers but there was no taste. However, 10, 15 years afterwards I went there and then Brazilia had some slums within the perimeter and then the human impression was generated from Brazilia, the city became attracted.

In Japan too, in the nearby Tokyo, venture technology is to be developed and new science city was created. It's called Tsukuba New Science City. It is a place for scientists to gather but it's so ironic, the city was created and then works are preceded and there a lot of people committing suicide. So there was a big problem, but eventually the people gathered in larger number and vulgar bars and cabarets would be opened, parlours would come into existence and then the number of suicides committers decreased. So in

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that sense, cities are the places where human desires, wishes and the demands have to be catered and that is the mission that city has.

In the case of Tokyo, I have some soul searching I've to do. I was with the National Parliament for many years. I served as Minister in the Cabinet. So I'm responsible partly. Because of the National government going into the wrong way, there was an excessive concentration and integration of too many things in Tokyo. The daytime population of Tokyo, big businessmen would commute from nearby cities, so it increases four million people daytime. So 20 million is the daytime population of Tokyo and lifeline has to be prepared by Tokyo metropolitan government which creates a lot of fiscal burden.

Since I became the governor, I reduced the number of civil servants and 23,000 people were used from 150,000. The wage structure was changed, 20 percent was reduced with the diverse mechanisms and the physical rehabilitation was completed but then so many jobs still remaining in Tokyo which have to be done going forward. Job is not complete. So how effectively can we disperse various functions within the concentrated city?

In the past we used to have national railway and then it was divested into three companies. The JR Central is run by Mr Kasai, very excellent leader, my friend and then it's been 15 years since the embarkation of this project, that is the super conductive electricity would be used for maglev and Tokyo-Osaka 800 km and it will travel in 55 minutes with one stop in Nagoya. It is an epoch-making transportation. Tokyo and Osaka can get together. Tokyo's function can be distributed to Osaka, dispersed to Osaka by enhancing the functioning of a mega-city. So functionally it is going to be a mammoth city.

What is happening in Osaka? Osaka is dilapidated. Osaka used to be the second largest city but it is waning in its power. So it has to be rehabilitated. So Tokyo and Osaka can be connected not by airplane, it takes only, it takes more than one hour. So downtown to downtown can be connected in 55 minutes with maglev, we call it linear motorcar. So epoch-making city function can be created by combining the functions of Tokyo and Osaka. In any event, Geneva Convention was violated by the United States and air controlled power over Tokyo. The B29 flew at 200, 300 altitude and it dropped incendiary bombs and then Tokyo was up in flame and we rose from the ashes of the defeat of the war and we rebuilt but rejuvenating Tokyo is very difficult in a very good city planning because of the sporadic way of city planning, but anyway we are making efforts.

Cities have to be the locomotive of the nation state. We are living in the civilisational engineering situation. In this context, excessive concentration of mega cities has to be distributed with new technology in a good way. If possible, from Osaka, Tokyo, connecting these two cities Pacific Coast industrial areas between could become a major one city in a very highly function way. That is what we are trying to do. I have to take the airplanes and because the airline schedule, I have to be excused. I am very sorry I have to be excused. Thank you very much."

**Prof Tommy:** “I thank Governor Ishihara for his statement. One takeaway from his statement is that in the past there was an over-concentration of activities in Tokyo and Governor Ishihara is trying to devolve some of this to the neighbouring city of Osaka and the two cities are linked by a very rapid train. It takes only 55 minutes. So, thank you, Governor. The next speaker is Dr Pamela Cox from the World Bank. She has a very distinguished career with the bank and the early part of her career when she was a very young woman, she worked on Southeast Asia and then she left this region and for seven years was the bank’s Vice President in-charge of Latin America and the Caribbean. In January this year, she was appointed as the regional Vice President of the bank in-charge of East Asia and the Pacific. So, the question I’d like to ask you Pamela is can you share with us some of the bank’s success stories in this region in the areas of water, of liveable cities, the environment.”

**Dr Cox:** “Thank you very much, Professor Koh and indeed thank you for inviting us to participate. I do want to want to emphasise that these are not World Bank’s success stories. I’m going to talk a little bit about how we have helped cities in the region to have successful outcomes, but before I start, I do want to say that our approach to urban development has been changing. One of the things that we do now is try to use an integrated spatial and institutional approach to urban development where we do urban reviews that we try to bring together these factors of liveable cities, environment, transport and all of these things and recently in both Indonesia and Vietnam, we have completed urban reviews and I’ll talk a bit more about that later.

Let me start with two examples from Indonesia. Indonesia is actually the most urbanised country in developing East Asia. Urbanisation is now 54 percent in Indonesia and we have two examples of some things that we have been helping Indonesia with. On the social side, we have been helping through our National Programme for Community Empowerment in Urban Areas and this is essentially a community-based approach to urban poverty and since 1999, it is, we have reached 11,000 urban wards and 22 million beneficiaries in Indonesia. We’ve helped build roads, we’ve helped build drains, we’ve helped rehabilitate houses and we’ve helped rehabilitate health facilities and indeed this approach which is called PNPM was also used in the reconstruction of Aceh following the awful tsunami in 2004.

We also helped on the infrastructure side and we’ve recently approved a loan for what we call JEDI which is what we call the Jakarta Emerging Dredging Initiative which is going to help the city dredge some 11 floodways to help prevent the floods which periodically plague Jakarta.

Now let me turn to Vietnam for a minute. When we did the urban review for Vietnam, we were very inspired by the remarks of Deputy Prime Minister Nguyen Thien Nhan who said Vietnam will have only one chance to get urbanisation right. If we fail at urbanisation, we will fail at industrialisation and modernisation. So as a lower income and rapidly urbanising country, one of our big lessons from Vietnam comes in the area of slum operating and what Vietnam has been doing with our help is really creating diversified supply of housing to meet the needs of slum dwellers. Now this could various

income segments. We're working not only of course on slum dwellers but on liveable cities for all, but Vietnam has taken approaches of using small contractors, rehabilitating existing houses of updating infrastructure.

Another challenge we're working with Vietnam cities on is transport and I was interested to hear of course this is a big problem in India. We've benefitted some 700,000 people in urban upgrading projects in Vietnam that have addressed not only transport issues, but also roads, sewage and electricity and when we did the integrated urban review, it helped contributed to policy dialogue on a range of issues that affect cities, issues such as urban transport, freight, land use, land markets, urban planning and of course it helps Vietnam channel the international assistance that it gets.

Now let me turn to China. China is another rapidly industrialising country of course and we've been very happy over the years to have assisted China in thinking about urban issues. We have a particularly strong partnership with Shanghai. Since 1980 we've done some six projects with Shanghai to help develop urban infrastructure focusing on wastewater management, water supply and solid waste management and this has gone beyond infrastructure. We've also helped the city look at implementing wastewater tariffs and upgrading their tunnelling technology.

Let me turn to the Philippines. I was recently in the Philippines and I saw a very successful project we've been doing on water supply and wastewater in the Philippines. This is a public private partnership between the city of Manila and it's serving some 100,000 people with improved wastewater and of course clean water which is so important. But let me close by saying we're also very happy to be partnering here in Singapore where we've set up a hub, a global hub that can help bring the experience that Singapore has had on a range of issues; urban planning and urban development is one of them but also on public private partnerships and on infrastructure and we're hoping to use our hub here, partnering with the government of Singapore to help exchange some of the lessons among countries in the region and between the region and other countries in the world. Thank you."

**Prof Koh:** "Thank you, thank you. Thank you very much for your statement. The next speaker is Mr Qian Min, he's the Commissioner of the Huai River Commission. The question I'd like to ask Mr Qian is, China faces many water challenges but in recent year, China has made tremendous progress in solving these problems. Could you just share with us an update of the water challenges that you face in China and how are you doing in tackling these problems?"

**Interpreter:** "Thank you, Professor Koh. China faces similar challenges in terms of water affairs. I believe that the challenges are quite similar in China as well in some other countries, although some of the manifestations can be a bit different. I think in, we, at our Commission we are mainly faced with two challenges. One is the from the natural climate. Second is caused by human reasons. The natural cause challenges are mainly also two. First, China has a serious shortage of water supply and the distribution of water resources is not balanced geographically and so in terms of time. China has total

reserve of 2.8 trillion cubic metres reserve that ranks number two in the whole world. However, divided by 1.3 billion then our per capita water reserve is only one quarter of the world average. For per hectare farmland, we can only have 21,600 cubic metres of irrigation water. That's very small compared to the world average. And then, most of the rivers in China you will find that 60 percent to 80 percent of the rainfall in the water basins are concentrated in several months from May to October. In the other months, the rainfall is very small. So the water resources are highly concentrated and it is difficult to utilise them fully. If you look at the different years, it also differs from year to year. Sometimes for several years straight, the rainfalls are very high and then for the next few years, we have drought.

Geographically, North China and South China have imbalanced distribution of water resources. According to statistics, North China accounts for 64 percent of the total country's area and the population accounts for 46 percent of the national total arable land accounts for 60 percent of national total but water resource in North China only accounts for only 19 percent of China's total. So you can see that in terms of the timing, distribution and geographical distribution, water resources is distributed very imbalanced. As a result, we can suffer severely from natural disasters and the community as well as economic development are adversely affected.

The second natural challenge by the nature is actually the vulnerability of the water environment. As we all know that water is the basic element of the natural environment, whether it is water reach or water region, the volume or the value or the form of water actually has some impact to some degree on the environment and we can feel the changes when it happens but of course there are some challenges that we cannot sense but we can see the vulnerability of the eco environment exist there and the vulnerability can actually impact on us resulting in the incontinuity and insustainability of our economic development.

From the human factors, there are two aspects. First, our, we haven't paid enough attention to the preservation of the water resources. In the past 30 years, the economic development speed is relatively high. The industrialisation and urbanisation is pretty fast and the utilisation of water resources is also high. However, in this process, we have seen, in some regions the utilisation of water resources is not so good and is going beyond, it has gone beyond the supply of the water resources and there are some serious results. For example, the underground water extraction has caused the sinking of the ground and the waters, the extraction of waters from the upstreams of the rivers actually has resulted in the drying of the downstream and sometimes the pollution resulted in the severe drop in the water quality in the river.

On the contrary, in the water resource protection aspect, we have not done enough. The second challenge is basically on the aspect of our national situation. We have this imbalanced distribution in east and west and on the per capita basis and this knowledge is not really enough. We all that the Chinese have, China has a very large population but many do not know that we do not have enough water resources. We always think that

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there are endless water for us to consume. In some area in China, the severe shortage of water has actually affected the life, daily life of people.

In most of the regions, there's no such problems, so that people don't really feel about the shortage of water and they just open, they just switch on the taps and let it flow, but we can always feel that the water is getting less and less. So with the industrialisation and urbanisation and also because of the natural disasters caused by the water shortage over water flow, the impact is quite big and the Chinese government has actually realised that there is a severe situation in water management. In 2007, our central government has actually set up a policy of scientific management of the water resources. In our daily life and operation and manufacturing, we must build a environmental friendly, water friendly society and we also have proposed the theory of human beings living in harmony with nature.

So in water management, we will try to give outtages to floods and change the unlimited extraction of water resources from the rivers and lakes and we also emphasis on the conservancy of water and to enlarge the self healing aspect of the nature and also on the reutilisation of water resources. We must pay more attention so that the economic development will be in balance, in harmony with the water resource management and development. Especially in last year, 2011, the Chinese government has actually published several documents about water conservancy and also we have held the highest level water conservancy meetings with the plannings for the future.

We have also some very detailed measures in managing water resources. There are several points here. The first is that we have emphasised the importance and severity of water management and we must pay very much attention to the water management and secondly through government budget management, we will put in four trillion rmb into the vulnerability management of the water resources and third we will build water channels to effectively improve the utilisation of water resources and to build three flood channels and fourthly, to form a reformation mechanism and fifth, we will try to cultivate and train more water conservancy talents and to enhance collaboration with other countries and sixth, we will try to publicise and propagate more on this more population less water resource concept to the civil service education, to the public education so that every citizen in China can actually have the concept of saving water, conserving water and through all these measures we believe that in the future in 10 to 20 years, China will be able to solve the problem of the water resources. Thank you very much."

**Prof Koh:** "I thank Mr Qian for his statement. Some of the important points that I understood from his statement is that although China has a very large population, China is not well endowed with water resources, that there is also a very serious discrepancy between the north and the southern part of China. The north has 67 percent of the population but only 19 percent of the rainfall. Mr Qian has also said that in some parts of China, water's unable to keep pace with the speed of economic growth and industrialisation and he also said that China needs to do more to protect the river systems of which the Huai River is one, but I would also point out that in this area China

has also made good progress. I remember that a few years ago, the Huang Her, the Yellow River, the Commission was given the Lee Kuan Yew Water Prize. So let me now go on to the next speaker. The next speaker is from France, Mr Henri Proglgio, he's the Chairman of EDF and the question I'd like to ask you is relate energy to cities. What is the role of EDF and other energy companies in helping cities gain sustainable energy? What are some of the innovations of EDF in delivering sustainable solutions to city in the field of energy in the long run?"

**Mr Proglgio:** "Well, first of all thank you for the invitation. It is really good opportunity to share EDF vision of the energy utility leader that having long-term view on the systematic approach are the key to successfully making the sustainable cities in the future. We at EDF are leaders in the field of energy and we act to mitigate climate change. The EDF group is an integrated energy company active in all areas of the energy business from generation, transmission, distribution, supply and energy trading. The EDF group is involved in supplying energy and services to 40 million customers worldwide. In France, 96 percent of EDF's energy output is sold to free. We at EDF are spending up innovations for cities of tomorrow. For instance, with innovations in batteries, renewable energy, smart grids, energy efficiency in buildings and in new low carbon energies of energy.

EDF has a research centre dedicated to sustainable cities and is working here in Singapore, in Asia on this very issue. Cities are the models our economy and are the homes of innovative processes in industry and culture, but at the same time, cities are responsible for the majority of energy and water consumption, waste production and CO2 emissions. Half of the world's population now live in cities. The number of people living in cities will almost double by 2050, to which more than six billion individuals. Asia is engaged in a level of urbanization that is unprecedented in history. It is, at the same time, challenging itself to embrace low carbon developments. There is always the tremendous pressure on scarce land resources and on the provision of urban energy, water transported waste. China for instance builds the equivalent of New York City each year. Megacities such as Singapore have an enormous task ahead to establish low carbon in a sustainable development. Singapore has already achieved success in many fields. Water management is one of the good examples of this success. Water management along with energy, CO2 emissions and the environment are major concerns for our world.

We at EDF are happy to announce that we are working here in Singapore using our international expertise gathered through operations utilities in cities around the world. Today, I would like to share with you our EDF approach with the objective of improving quality of life and saving resources while reducing the environmental impact of the city's development. In other words, achieving Singapore spirit to make Singapore a great city to live, to work and to play in. Here we can demonstrate added value, combining expertise, our systemic approach and our innovative nature. EDF has the unique ability to globally optimize utilities for cities and moreover to commit to the effectiveness of our solutions.

We at EDF have a wealth of operations experience, especially utilities infrastructure services, including the side effects and social impacts, climate change, pollution and emissions and impact on health. This enable us to identify the gaps. We don't only work with data, we don't only design networks, we don't only advice cities, we don't only sell equipment, the EDF workforce spends every day serving the public and improving day-to-day services for people around the world.

Building on this experience, we know that to achieve a sustainable city without slowing economic development, the two keys of success are first long-term vision and second, a systemic approach. First, long-term vision. Each of the infrastructure previously mentioned, energy water waste, transport, buildings, has a time scale of several tens of years, sometimes a century. This means that our decision today for the infrastructures will have an impact over the long run. We have to anticipate innovation and technological development as well as behaviour changes and new policies. Second, cities need an integrated both technical systems and also local policies. For instance, the successful approach has to couple infrastructure development for own carbon transport where electricity mobility is part of your solution. With policies like landuse to increase population density or to increase access to public and shared transportation.

By the way, this will also greatly improve quality of life. Moreover, our research labs have developed the capacity to understand the evolution of cities in all their complexity. For each of its activities and with all its partners, EDF always to use an integrated industrial model which focuses on long-term commitment, experience and collaborations of all stakeholders. This is also the way we at EDF approach sustainable cities. With regard to energy and electricity, we have to adapt reduction to its vision (?) and distribution. To our new energy needs and to new and renewable production. Sustainable energy development, innovative energy networks are necessary to ensure the efficiency of energy production towards mission and distribution. Our proposal is first to identify and localize energy needs and resources within the urban areas with the objective of choosing and developing technologies to satisfy these long needs while maintaining a systemic point of view. We have to choose the right technology at the right time.

At the moment the variable technologies are not in the same level of maturity for instance, hydro power is already cost-effective. Wind turbines are very close to being effective by building integrated PV needs, further research to reduce it's overall cost. Second, it's not architecture encompassing smart grid solution and centralized and distributed production is a key element in developing a modern distribution network capable of managing demand as well as production.

Third, we act on energy demand in cities to increase energy efficiency. This obviously means using new technologies but we also place the public at the centre of our approach. We assessed that for the same building, the energy consumption can vary, has a factor of three depending on people's behaviour and practices. Some innovations like smart grids, smart readers, smart buildings may result in behaviour change on new

practices that are sensitive to the value of resources and the threat of climate. We have been demonstrating added value on mega cities like Mexico city and Singapore. We coupled strong cooperation or expertise and worldwide experience, a systemic approach for cities and 3G capacities and advanced (1:03:21). Here in Singapore, EDF has assessed the alternatives for building, cooling and waste collecting, looking at district cooling options, waste water and taking into account the potential of solar renewables as well as behavioural change. Thank you.”

**Prof Koh:** “I thank Mr Proglia for his statement. I guess the main takeaway from here is that there are private company like EDF that are creating new solutions and help cities to continue to grow to maintain our way of life without increasing our carbon footprint. The next speaker is from Germany. He’s Dr Roland Busch. Dr Busch heads a new division in Siemens, a division focusing on infrastructure and cities. Dr Busch, the question I’d like to ask you is what has your new division got to offer us in terms of new and innovative urban solutions?”

**Dr Busch:** “Thank you, Professor Koh. Well first of all you have to understand the market in order to come up with innovative ideas, you have to know where to shoot at. So Siemens is doing business with cities and infrastructure customers since many many years, in many cases since more than 100 years and by the way when we talk about infrastructure customers, we talk about airports, municipal utilities, harbours, logistic hubs, race stations, maybe even data centre. Last year, Siemens decided to make a really bold move in terms of customer orientation and market orientation and we bundled a very comprehensive and unmatched portfolio into one new sector. We call it sector rather than division and this is the new sector of infrastructure in cities. This is again consequence of our strategy of following megatrends and these megatrends are globalization, climate change, ageing population, but in particular, urbanization. Urbanisation is one of the major drivers of our economy and this is one of the drivers which helps us maintaining the growth path in the future. We are focusing in doing that step on a 300 billion euro market. This is the Siemens addressable market, the total market is even two trillion euros.

Just to give an idea about this new sector, it’s a 17 billion euro sector with 90,000 employees in more than 160 countries in the world and we are able to address the basic needs of each and every city. Is it transport? That means moving people and goods with rolling stock or automation system. Is it energy? Energy distribution, product and solutions from high voltage, medium voltage to low voltage, smart grids but also energy efficiency solutions. Is it a broad range of building technologies? For building automatic, energy efficiency as well but also urban safety and security solutions and products and amongst that, we are one of the big largest water treatment suppliers in the world and we have environmental portfolio of 90, 29 billion euro in 2011.

Well customer orientation goes beyond that. We do also invest in account management. This is our phase to the city. We are investing in competent centres for cities in order to really have a good discussion a higher level of integration with our customers for cities. So we urban research and together with related partners and one of the most famous

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one is our project with the economics intelligence unit which we call the Green City Index where we benchmark 120 cities all over the world and look into certain KPIs such as energy efficiency, clean air, water, transport, land use and others.

By the way, if you go to our booth, you can see the basic results which is highly interesting and I'm very often asked what is the basic conclusion. I mean you're doing business in all countries with cities, you did this study, what is your overall conclusion? Well there are some. Number one if you really want to have a good city management and urban development, you need a holistic approach. That means a strong mayor, decision bodies with an overall strategy in a clear way to go forward into the future, long-term planning. You have to eliminate silo thinking. I'll come to that in a minute.

And civic engagement is one of the key elements really to execute finally the plans you're laying down. Benchmarking, the best of the best benchmarking themselves every time. Involved is important. It's good to have a constant revenue coming from the city you can spend, but in the beginning, even policies are more important and with policies you can bring even not so wealthy city on benchmark level amongst others.

Financing was a topic which came up all the time but here we do have already efficient, cost-efficient solutions with a payback of two or three years but also solutions which are creating an additional income at the same time solving problems and road pricing might be a solution for that. After all, a sustainable city development creates jobs and increases the competitiveness of cities at the same time and we have to have in mind cities really are competing against each other and this on a global level. Maybe the most important part about it, what we learn is that an incremental development of what you do have currently as infrastructure in your cities is not doing the trick. Think about every city, maybe your own city and increase the population by 20, 30, 50, increase the traffic by 50 percent, the energy demand, you will see that the incremental development is really not getting you to the point where you want to be. That means, we're needing, we need to deploy really new technologies, we're looking for pioneering solutions, solutions where we do things differently than we did before.

And this bring me to some of the top innovations I would like to share with you I mean beyond, going beyond the GPS-based tolling which we rolled out. Dynamic road pricing which we do in Israel is very interesting. This is the road pricing which adjust the actual tolling charge to the current traffic. So the traffic is increasing, we increased the price which keeps one lane at least running at a certain speed. E-highway. We have a pilot for trucks where we are running trucks on electric headline. That means you can run a truck for the major part of the travel on electricity and only the last mile it turns on his hybrid diesel engine and goes to the last mile into the city.

Advanced desalination. This is an innovation which we are pushing together with Singapore, right at this place. We are working on desalinating water with electric power and membranes and we have trust on our way to scaling it up that could reduce the energy consumption for desalinating water by 50 percent at least. Our integrated platform for managing energy and security and safety and buildings is another one but

also innovation comes not only in technology but also in business cases and actually performance contracting is one where we bring financing, we look into your building, we analyse it and we are investing in improving efficiency at the same time, cutting the energy cost, sometimes by 20 to 30 percent.

Or driverless metros is another one which we have deployed in Paris which would reduce the energy consumption by 15 percent and increase the utilisation by 20 percent. This is just some examples, there's much much more which we have to do in the future and so finally Siemens like no other company is the natural partner for cities and we are here to help solving the most pressing challenges cities are facing. Thank you."

**Prof Koh:** "I thank Dr Bush for his statement. I think in the case of Siemens as in EDF, the company has come up with many innovative urban solutions and obviously there's scope here for our PPP model to apply. I think I will send a bill to both Mr Proglia and Dr Bush for getting the privilege of speaking this morning. There's an English saying that you keep the best for the last, so I kept the best for the last. The last speaker is the Singapore Minister for the Environment and Water Resources, Dr Vivian Balakrishnan. Minister, I'm sorry to put you last, but I'm sure you'll give us a brilliant statement. My question to you is two-fold. First, this plenary brings together our colleagues from water, city and the environment. What is the common thread that ties the three together and what are some lessons learnt that you'd like to share with us?"

**Dr Balakrishnan:** "Thank you, Tommy. Being last, I will follow a lesson which Tommy taught me, which is that if you're making a speech, just make three points. So I'm going to quickly make three points, after that you all can relax. The first point is that dense, open, integrated, well-connected, well-planned cities are the greenest and the most sustainable way of life for the future. I'll explain that later. The second point is that the quality of the environment is a source of enduring competitive advantage. Money, ideas, people are mobile but whether or not you can have a blue sky clear, safe drinking water and clean streets is something which you can't create overnight and it's something which once achieved gives you an edge and I'll elaborate that using Singapore as an example later on. My third point is to beware of subsidizing consumption. Instead, what governments need to do is to invest in infrastructure and the key is good governance. Having honest, competent public authorities capable of envisioning the future, inducting the latest technology, working with a competitive private sector to not only build infrastructure but the point I want to emphasise is also the need to be able to maintain and renew that infrastructure and that really is a key point. So let me now use Singapore as a case example to illustrate these three points.

First, we're very very small but we're a city, we're a city-state. We know that globally half of humanity now lives in cities and by 2050, 80 percent of all human beings will live in cities. Why is that so? They don't live in cities because it's government policy to live in cities, they come because they're voting with their feet. Why? Because cities are a focal point for opportunities, for jobs, for cultural capital, for social capital, most important, it's about opportunities and a key issue as humanity congregates in cities, it's going to be housing. You've heard examples of slums. Well we don't have slums in Singapore. Why?

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Because we have provided subsidized public housing but the real genius of public housing in Singapore is the fact that 90 percent of people do not rent these premises but are owners of the premises and therefore have a stake in real asset and therefore maintain their homes for the long-term.

The second point on the environment being a source of enduring competitive advantage. We are now sitting on reclaimed land. This took 30 to 40 years to envision, to implement and to execute. If you look outside now at the waters around us, this used to be an open sewer, but in 10 years, we converted an open sewer into a river which would supply freshwater into Marina Bay. Everything which you see around Marina Bay now has been developed really built only the last five years. Why do we do that? Because we showcase that it is possible to build, to invest for the long-term and to provide for our people as well as our guests and our investors a place where you'll have blue skies, clean safe water and clean streets.

You see the point is, if I can provide an environment where you would trust your wife and your children to live in, this is also precisely the same place where you would be prepared to leave your money with for safekeeping, to invest for the long-term and to use as your regional or even global headquarters. So there is actually a logic to that. The third point if I run out of time is to avoid subsidizing consumption. Now in the case of Singapore, we import everything that we eat, half our water and almost all our energy. I say almost because one percent of our energy come from incinerating our waste, but in such a resource-constraint society, we don't subsidise energy, we don't subsidise water, in fact we don't subsidise any consumption items, but we ensure that we give cold hard cash to those members of our society who may be less well off. They then decide on very rational grounds how to use their own hard-earned income plus the cold hard cash that the government has supplemented with to consume water, food, transport and all the other essentials of life, but the point of achieving that is not only to ensure social equity and opportunity, but also because a market signal exists and it makes it worth the while for companies like Siemens to consider long-term investment in this place because you know that we are good for our money, we will pay for the latest and the best and we will continue to renew our infrastructure and maintain it in tip-top condition.

So the point is that we create opportunities for the private sector, we create a test bed for new research and technological breakthroughs which emanate in universities and laboratories and then we create a working model of the future. So that's really what Singapore is. So you're all sitting in the midst of a place which has been developed but I also would challenge you to find the oldest places in Singapore and look for places where we may have lapsed and I would put to you and in fact actually we're doing a not a bad job in maintaining, in renewing and making sure that this is a working model of the future.

So let me just conclude by saying that we have tried to use Singapore to illustrate these points; that the future for humanity is in cities and cities can be the most sustainable way of life for humanity in the century to come. Secondly, there is competition between cities and a key enduring source of advantage is how well you maintain your

environment and third, it is possible to achieve social equity and business logic to join the dots between technology, commercial interest and social and political objectives and that really is the secret behind the Singapore that you see today. So thank you all very much for your presence.”

**Prof Koh:** “Minister, thank you very much for your answer and now we, I want to turn to some questions through Pigeonhole I received many questions. The question with the highest number of votes and I will put these questions to the panel. My first question which received the most number of votes is meant for the ministers. So Minister Kamal Nath, Minister Amal Pepple and Minister Djoko Kirmanto and the question is this; cities are magnets, so in your three respective countries, you can’t stop people from migrating to cities. So the question is how do you plan a sustainable city when you have no control over the influx of people into your cities? So who would like to go first? Ya Minister.”

**Ms Pepple:** “I do agree that you cannot stop people from moving but I believe that when we plan a city, we should be aware that people are bound to move. The reasons they move into cities, I think one panelist said that cities are centres of opportunities. People move because they believe that there are better opportunities for them in the cities than in the rural areas. So people are bound to move. I think one thing we can do, planners can do is to ensure that when they plan the city, they have this at the back of their minds. People are going to move, the facilities are going to be stretched, the facilities are not going to be adequate, I use my country as example. We have a lot of graduates coming up. There’s unemployment and people can’t stay in their rural areas, they can’t stay in their states, they can’t state in their local government areas, they keep moving especially now they move to our capital, Abuja, which was planned for about three million people and now we have much more than that.

One thing I believe we can also do is to ensure that there are infrastructure development in the rural areas in the state capitals so that there will be jobs for them, there’s lights, there’s water and then there are jobs. That’s why I said in Nigeria, we’re concentrating on agriculture because if you concentrate on agriculture, then most of the agriculture facilities take place in the rural areas. By doing that, you will stem the tide of people moving from, there’ll be jobs for them there and for housing, we just have to keep because one of the challenges we have is in the area of housing. When people we move, there are no houses for them so we have to keep providing houses for them. Low income houses, affordable houses so that when they come, even if they don’t have the kind of jobs that they’re expecting, at least they have a little something to do, there’s employment for them. They’ll be able to afford some kind of accommodation to live in because one of the problems also is that when they don’t have jobs, they can’t afford good houses and living conditions, they will move into the rural areas, they will create slums in the urban areas, they will move into the rural areas and slums will come up and until we lend and envisage these problems and provide for them, the problems will always be with us, the problem of slum environment. So we should be thinking of upgrading the slums, urban renewal, things like that and then I believe in that we can minimize the effects of rural urban migration.”

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**Prof Koh:** “Thank you. Anyone want to add something? Kamal first then Pak Djoko? Pak Djoko, ya.”

**Mr Kirmanto:** “Thank you. All of us agree that now we’re facing phenomena of urbanization and we also agree that urbanization cannot be stopped and therefore our development must be based on sustainable urban development. One of the ways in doing this sustainable development of urban is to make our city green by giving at least 30 percent open space, green open space in every urban area. We know that this is a very difficult task but we have to do that and we have to also understand that this programme cannot be the programme only for the government but must be programme for everybody. I think this is my comment on that. Thank you.”

**Prof Koh:** “Kamal.”

**Mr Nath:** “Well the reason for urbanization is economic activity is being generated in the cities and today 60 percent of new job opportunities are in urban areas and the next 10 years, 70 percent of the new job opportunities will be in the new urban areas, the growing urban areas. The question which we are addressing is how do you have urbanization by design and not by default? Up to now, urbanization has taken place by default and the future we are looking at urbanization by design and that means suburbanization. So we got to lay as much emphasis on suburbanization and twin cities which are planned and by prioritizing planning of suburbs and twin cities and ensuring their transport network, we believe that the dispersal, the dispersal of economic activity and the dispersal of urbanization will take place.

The classic example like in Delhi, we got two or three suburbs which are now almost integral with Delhi. Similarly, in Mumbai, we have New Mumbai which is now again moved on and all our cities are major cities have gone into suburbanization and twin cities.”

**Prof Koh:** “Thank you, thank you. Another question that has a lot of votes is about public private partnerships and market-based solutions for solving the problems of water in cities and I think clearly this is a question that should be answered by Pamela and by our two friends from the private sector. So Pamela, would you like to begin? I know that the World Bank supports, where appropriate, public private partnership and relying on market-based solution. Would you like to say something on this?”

**Dr Cox:** “Well I do want to emphasise that public private partnerships are one tool in an array of tools that cities can use and one of the things that we actually emphasise is that cities bring many partners, not just the private sector but citizens groups, universities and others that can work with them on different solutions. In other words, the city itself does not have to be the source of all the solutions, but we also see increasingly, a willingness by public private partnerships to experiment and it’s very important when you have developing cities where you may have very poor populations that you do the right kinds of public private partnerships. I mentioned the Manila water company which is a very interesting example about how bringing in a public private partnership not only

was more efficient in delivering the water so the water was being delivered at lower cost but they also retrained the workers that were working in the existing public water companies so they upgraded their skills, but the third most interesting thing is how they went out and brought water to very poor communities and they did this with the help of the communities by doing communal metering. The win-win for the community was they didn't have to buy water and carry it, it was actually for them now get water from the utility and the benefit for Manila Water Company was they enlisted the citizens to support in this communal metering in the middle of their communities and got a lot of support from the community to help them manage the process. So this is a wonderful example of not only providing clean water more efficiently at lower cost, but getting it to very poor people who did not have that before."

**Prof Koh:** "Thank you. Mr Proglorio or Dr Busch you want to add something to this? Yes, please."

**Dr Busch:** "So we see that as well. We see that there's a strong demand for PPP models. The reason is quite clear. It's raising money for opportunities to raise money to get the cost of the balance sheet. It's about sharing risks and one particular point I have thought it's really proper project execution because obviously some governance or municipalities have bad experience in project execution. They believe private companies can do that better. So I mean regarding Siemens, we are ready to participate under certain conditions of course. Number one is that of course even if you're gauging our own capital in projects, we want to see a return, a fair return on invest. We want to see the right share of our own products, product solutions. This is not only to really let's say contribute more but also to reduce first because we know our solutions, we know it works if they're bringing our products and last but not least, we are participating also in risk regarding the technology which we are implementing in terms of servicing it, maintaining it but things like ridership risk to something which we normally don't take. So this is a rough frame but under these conditions we are looking also into this market."

**Prof Koh:** "Thank you."

**Mr Balakrishnan:** "Tommy, perhaps I could add?"

**Prof Koh:** "Yes please."

**Mr Balakrishnan:** "Could add a Singapore government perspective to PPP's having some experience with this myself. We don't embark on PPPs because we have cashflow needs. Fortunately in the case of Singapore, our fiscal position is very healthy, but we do use the PPP for couple of reasons. Firstly, we do want private sector financial discipline to be applied to the project. It helps ascertain whether the project is viable or not or what are the prerequisites before we embark on a project so it provides another set of rigorous testing on the necessity and the viability of the project. Secondly, we want private companies to bring latest technology available to the table. If we leave it entirely within public hands, the temptation is to just make incremental improvements or maintenance but you're not going to get a radical proposal which could theoretically

even strand your previous investments. So you need that possibility that someone will come out with an idea that will completely change your business model, change your cost structure but having said that, a PPP is not a substitute for long-term planning. Public authority still need to know for instance how much water do I need, how much, what are my energy requirements, what are my transport requirements? Planning is still essential.

A related corollary is that the government agencies that are making decisions on PPPs needless to say, need to be honest, because otherwise the whole process is perverted. Secondly they need to be competent enough to be able to assess intelligently the proposals which land on their table. So all I'm saying is that the PPP is a good idea if the circumstances are right and but it is not a substitute for planning, it is not a substitute for integrity and it is not a substitute for the lack of familiarity with the latest technology.

**Prof Koh:** "Thank you. As your moderator, I do not wish to impose censorship on the questions you ask and this next question which is targeted at Kamal Nath, it's a very rude one but I have to ask it anyway. Kamal please forgive me for asking you to do this question. Urban projects are multi-billion dollar contracts, given the record of corruption in India, how can we ensure that the dollar spent will be spent for the intended purpose?"

**Mr Nath:** "Yes corruption is an issue but sometimes I think it is overstating, but corruption in such projects has to be corrected in a systemic manner, that means the process, the transparency and how do we make it participatory? All our municipalities which I said in the beginning, the (32:54) capacity building and in our process, in our process of procurement, the most important thing is to be able to make it transparent, transparent and participatory. There is substantial steps which have been taken in that I believe that this will correct to a large extent, issues of corruption which we've had."

**Prof Koh:** "Thank you, Kamal. I think we've time for one more question and this question is for Mr Qian and also the water minister Dr Balakrishnan and the question is this, for the first time at Rio Plus 20, the UN has recognized that wastewater needs to be collected and treated in order to protect the society, the economy and the environment. Could you comment on how we can achieve this? Mr Qian first."

**Interpreter:** "On the wastewater collection aspect, it is very relevant on the utilization of water resources and environmental protection. In China, for sewage treatment is actually on top of the list for the government. From last year, especially in the number one document of the central government, we have three regulations. Among them there is one that is emphasizing the for the control of the total wastewater discharge among. Until 2020, for the important water function regions, the water quality benchmarking should reach about 80 percent until 2030 it should reach about 90 percent. So this is just a volume index and if you dissect that into provinces and cities, you may find that for example for Huaihe River, especially since 2004, you probably know that the pollution in Huaihe River is relatively severe. After 2004, the central government and the four

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provincial governments has actually signed a pollution control index treatment, treaty and over all these many years, we have seen great results that has been achieved and these have also been listed in the KPI, the Key Performance Evaluation system.

In terms of COD, discharge volume, it has dropped from 1.5 million tones in history until 480,000 tones in last years. For ammonia and nitrogen discharge volume, the highest of all was 127,000 tones in the history, now it drops to 55,000 tones in last year. So I believe the next step is for us to especially in the sewage treatment aspect, an important measure is to reduce the consumption of water resources. Only when you can do that you can reduce the discharge of the wastewater. So the water collection index, in the three aspects, first is to reach the target of reducing the water consumption and in 2020, we will have to reach about 170 billion cubic metres and 2030 it will reach about 70 billion cubic metres and the second is to increase investment and this investment partially is the investment by the government and the other part is by the private enterprises from the society, especially for tone level and above, regions we need to build water treatment plants and that works and in this aspect we have been faced with great challenge, especially the pipeline network to collect the wastewater. Now we're trying to build the ground runoffs, to separate the ground runoff from the wastewater. In some of the old cities, these reformations takes a lot of efforts to do that. So on these many aspects is that, the third aspect is actually we will reduce the water tariffs or to regulate different tariff levels for the water consumption and this is actually joint efforts by the government as well as the people. Thank you very much."

**Prof Koh:** "Five minutes left and I want to do what I said I would do in the beginning. I'm going to go round the table, beginning with Kamal. Can each of you leave us with one inspiring thought in less than one minute? Kamal please."

**Mr Nath:** "In less than one minute Tommy, I think undoubtedly urban infrastructure is at the forefront of the challenges which we have and one of the biggest things I think is going to be resources and when we look at resources, competing resources within our countries, in health, in education etc, so resources for urban areas and one of the important points made was about PPP. PPP cannot replace anything. PPP can only complement it and PPP has to be incremental. So we would all have to look at innovative PPP projects and create a basket of PPP which adds to the resources of our municipalities."

**Prof Koh:** "Ok, thank you. That's too long and not inspiring enough. So Pak Djoko, shorter and more inspiring please."

**Mr Kirmanto:** "I am a little bit surprised that no one of us concerned about special planning. I'm sure that if we want to develop our urban area, not sprawled but by design, we have to follow a consistent, special plan. This is what happened in Indonesia. I don't know what happened in other countries, but I'm still sure if we are going to develop sustainable development of our urban area, we must based on our base development on the good special plan thank you."

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**Prof Koh:** “Thank you. Minister Amal Pepple.”

**Ms Pepple:** “I would say that it is important for us to have good urban governance and we should plan and plan and plan and leave room for expansion in the future and try to create better infrastructure, education, health and better jobs too in our various areas. Thank you.”

**Prof Koh:** Thank you. Pamela?”

**Dr Cox:** “Two words. Creativity and partnerships. I’m endlessly fascinated by the creative solutions that cities not only in the region but across the world are coming up with to cope with problems, but I think one of the key themes is these problems must be solved with partnerships amongst everybody that lives and works in cities.”

**Prof Koh:** “Thank you. Mr Qian? One minute, one message.”

**Mr Qian:** “I think the effective organization of the government, the innovation from the enterprise and great participation of the public is actually the way for us to go forward.”

**Prof Koh:** “Mr Proglgio?”

**Mr Proglgio:** “Well sustainable cities means long-term vision, best possible technology, expertise, infrastructures and investment and of course management of people and this drives (1:46:07) the best possible partnership between public responsibility and private capacity of brilliant operating these best possible technologies and infrastructures. This is the PPP system that (1:46:27) doesn’t, is not limited to finance and investment, but to expertise and know-how.”

**Prof Koh:** “Okay thank you. Roland?”

**Dr Busch:** “Don’t think about stopping or slowing down urbanization, drive it, plan it, embrace it because this drives our future economic growth. Do it with technology partnership without silo thinking because I believe, we believe that it needs a long-term planning also deployment of top technologies. We are talking about long-term investments, and therefore long-term consequences.”

**Dr Balakrishnan:** “30 seconds, build the most beautiful city you can, plant as many trees as you can, invest in the latest technology, conserve energy, water and resources and find a way to have honest, competent and visionary leadership. Thank you.”

**Prof Koh:** “Thank you. That brings us to the end of this session. Thank you all very much for being here and join me again in thanking the panelists.”

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