

WORLD CITIES SUMMIT

Singapore, June 2014

Conference Report

By

Max Hipkins, Mayor

City of Nedlands, Western Australia



1. Introduction

The World Cities Summit 2014 was held in conjunction with Singapore International Water Week and CleanEnviro Summit Singapore, 1 - 4 June 2014 at the Sands Expo and Convention Center, Marina Bay Sands, Singapore.

The theme of the summit was Liveable and Sustainable Cities: Common Challenges, Shared Solutions. As well as plenary and concurrent sessions, there were site visits to demonstration projects in Singapore that are considered to be world's best practice.

Over 3,000 delegates attended joint sessions, with over 130 mayors and 40 government ministers present. Mayors from capital cities of all Australian states and territories attended, as well as a number of non-capital city mayors.

The context for the summit was that 20 per cent of the world's population was urbanised in 1978. The figure had risen to 52 per cent in 2012. Between 2012 and 2014, an additional 100 million people moved to cities from the countryside. By 2050, over 70 per cent of the world population is expected to be living in cities.

The World Cities Summit 2014 clearly demonstrated that all growing cities, whatever their size or level of development, have similar problems:

- infrastructure that cannot keep pace with population growth,
- increasing motor vehicle congestion,
- rising pollution,
- degrading natural systems,
- loss of identity for individuals,
- growing inequality,
- an increasing frequency of extreme climatic events.

These pressures give rise to common needs for economic, social and environmental sustainability, with open and transparent governance, that makes the most of available technology.

Sustainability is now core business for all levels of government – a necessity, not an option. National governments are often slow to take up new ideas. Cities (and mayors) need to show leadership in sustainability and response to climate change, with adaption and mitigation strategies.

This report summarises the content of conference sessions attended. It also identifies common themes and activities undertaken by the City of Nedlands relative to these themes. Attached are a program of daily events (Attachment A), notes from site visits (Attachment B) and highlights of speakers' presentations (Attachment C).

2. Content of Conference Sessions Attended

Mayoral Forum

The Mayoral Forum comprised speakers from Asia, Europe and Australasia discussing common challenges and sharing solutions. Topics covered included vibrancy, sustainable environment, competitive cities, integrated long term planning, city governance and intelligent cities.

Safe and Liveable Cities

This session included speakers from Asia, North America and Europe. It considered the changing nature of crime, emergency response and the role technology could play in making a city secure. The future importance of “big data” and “machine to machine learning” was identified, also a role for public private partnerships (PPPs).

Water and Environment for a Liveable Future

Speakers at the session were from Asia, Europe and the Middle East. Climate change and ways to adapt and mitigate were examined. The importance of resource conservation was stressed, also the need for sustainable, green cities, particularly with respect to water and energy. The application of technology to recycling and water treatment was discussed. Open, honest and transparent governance was advocated.

World City Prize

The World City Prize was won by Suzhou, Jiangsu Province, China. The city of 10 million people has strong economic growth but has retained a high standard of liveability with many parks and waterways. Advanced planning protected natural and built heritage areas. Extensive community consultation was the key to success.

Runner up to the world prize was Medellin, Columbia, for its success in reducing its crime rate and social inequalities through the introduction of community initiatives. Improvements included new transport and utility infrastructure for the city’s slum areas, river clean-up, community hubs to promote music and social interaction. Innovation was encouraged in public spaces.

The World Water Prize was won by the Orange County Water District, California, USA, for its sophisticated management of its water resources, integrating water supply from surface and ground waters, flood control, groundwater recharge with treated waste water, prevention of salt water intrusion and planning for a desalination plant. Extensive community communication was the key to success.

The Next Decade: Critical Challenges and Opportunities

In this session, speakers from Asia, Europe and North America discussed shifting patterns of world development, global supply chains and the need to experiment and innovate to create jobs and overcome inequalities. Cities can change their image by focusing on being clean, green and smart. Cities need to have visionary plans and use technology and PPPs to implement short term actions.

Future Mobility

This session included speakers from Australasia, Europe, Asia and North America, and demonstrated how technology, particularly big data, real-time apps and mobile GPS could be used to manage road congestion and integrate public transport. Driverless motor vehicles, light rail transport and bicycles already offered scope for diversifying available options. Charging moving electric vehicles and distributed renewable energy storage were game-changers currently being developed.

Building Resilient Cities

Speakers from Europe and international agencies stressed the importance of global research and applying common approaches to environmental sustainability to achieve resilience. Measures discussed included tree planting to aid city cooling, permeable paving to absorb stormwaters, reduced emission (energy use) targets to combat climate change and use of social media to advise people of impending natural disasters.

Liveable and Sustainable Cities

This session had speakers from Asia, Australia and multi-national corporations. The common message was that sustainability was a necessity, not an option. A sustainable city was a smart city, putting liveability first. The emphasis should be on water and energy conservation, using technology to increase efficiency. Targets for improvement were utility systems, transport and buildings, where there were many inefficiencies. Because of digital technology and social media, collaboration between people and cities is unprecedented in history.

China, Latin America and South-east Asia in Focus

As well as speakers from the regions there were also presentations from global agencies and business. Although globally there was disparity between cities, there were common problems. It was acknowledged that a new urbanisation pattern was required to achieve efficient, inclusive and sustainable cities. Cities could reinvent themselves. Green initiatives and social inclusion could be achieved with a long range vision and action plans. How cities were financed was important. Leaders had to be champions of change.

3. Common Themes and the City of Nedlands

Key themes from all sessions are shown in bold below. Activities of the City of Nedlands relative to each theme are also shown.

Economic Sustainability

- **It is difficult for utility infrastructure provision to keep up with population growth. Centralised infrastructure networks are costly to up-grade. On-site systems are more flexible and take pressure off centralised systems.** Nedlands is not responsible for the provision of water, sewer and energy networks in the Perth metro area but does have ability to influence stormwater drainage and water and energy supply through conditions of development approval. It could require on-site water tanks to be provided but this is considered unnecessary if stormwater runoff replenishes groundwater supplies. It requires all stormwater to be disposed of on-site. It is currently considering requiring on-site power generation for all new development, to encourage provision of PV solar panels and wind generators.
- **There should be fewer “bad” taxes and more “good” taxes – lower company and payroll taxes (because they assist job creation), and increase property, consumption, pollution and congestion taxes (because they improve the quality of life). It is not a case of “jobs or being green” but “being green and creating jobs”. A smart city is a green city and a green city is a smart city.** In Australia company, payroll, consumption or pollution taxes are the responsibility of national and state governments. Nedlands does use property taxes and congestion taxes in the form of council rates and traffic and parking infringements. It could offer rate reductions for preservation of the natural environment and conservation of heritage places where these are privately owned.
- **Due to limitations on financial resources, prudent financial management requires risks and failure chains to be identified. There is scope for PPPs to provide infrastructure but financing with value capture is questionable.** Nedlands does assess financial risk but has not examined failure chains to date. Its on-site disposal of stormwater and power generation could be considered as small scale PPPs. The suggestion to finance the section of Perth’s proposed LRT through Nedlands with value capture should be abandoned.
- **It is possible for cities to change their image. In many places, manufacturing economies are transforming into knowledge and service economies.** Nedlands is well placed to take advantage of a change to a knowledge and service economy. It has located within its boundaries a major research hospital and part of the University of Western Australia. In local government reform discussions it has requested boundary changes to absorb more of the University. It is lobbying for the creation of a technology park to accommodate creative new industries that would complement university research facilities. In addition it provides informal community education at local hubs and libraries.

- **Cities need to collaborate and compete; they must be marketed.** Nedlands fiercely protects its independence and competes with other councils for public and private development. It has in the past collaborated and shared services with other councils in the western region of the Perth metro area. Current local government reform proposals have prompted joint initiatives with councils elsewhere in the metro area. It works with the media and is investing in promotional videos.

Social Sustainability

- **A key ingredient for successful cities is not only economic growth but liveability; urban growth must be accompanied by social growth, to enhance the quality of life.** Nedlands appreciates the importance of liveability, It has an active Community Development Directorate that organises activities and events for different age and special interest groups of the City.
- **As cities become larger identities of individual people become lost. It is important that localities either retain, or are given, distinguishing characteristics with preservation of natural features (landscape, waterways, trees), protection of built and cultural heritage, and promotion of greenery, artworks, local events and architectural style. In particular, the appearance of streets and public places determine a city's identity.** Nedlands has an identity as a spacious garden city and has done well protecting landscape and remnant natural vegetation under its control but there remain other natural areas still subject to development pressures that are worthy of retention. Private property is becoming more densely built-up. Nedlands could do more to ensure quality private development and improve the quality of surface and ground waters. The City has many places of built heritage that could be provided with statutory protection and/or incentives for retention. It could do more to promote music and the performing arts. It has a track record of public art provision and is currently investigating a mandatory requirement of 1% for art when non-residential buildings are constructed. It has awards for best-kept gardens and is currently implementing a statutory change that would require landscaping as a percentage of site area with all new development. The City sponsors popular community events and street parties. To improve the quality of architecture it is investigating the formation of a Design Advisory Panel and could consider limited competitions for the design of its buildings. In relation to its public spaces, Nedlands has management plans for all its parks, considers streetscape amenity in its statutory decision-making, is protecting its street trees and where they have been removed, has an active replacement program. It is promoting a variety of activities at identified community hubs.
- **Traffic congestion adversely affects quality of life. It is growing in all cities and must be managed. Solutions include higher residential densities around public transport nodes and encouraging cycling and pedestrian only areas. On the horizon are electric and driverless vehicles.** Nedlands is working with the University of Western Australia for the early introduction of light rail and to encourage electric vehicles, although more could be achieved with greater funding. The City has implemented a TravelSmart program to boost

public transport use, supports higher densities along transit routes and is implementing a bicycle network. It has trialled electric cars.

- **A city's poor and disadvantaged cannot be ignored – law and order and health will deteriorate, ultimately affecting all; a compassionate society will provide low-income education and housing, at least basic transport and utility infrastructure, and support community hubs for social interaction.** Nedlands is not responsible for low income housing, policing of law and order or provision of public transport. However it provides a variety of educational and social services for all age groups at local community hubs. It is implementing a disability services and access plan.
- **More educated societies are more likely to have a better quality of life, with less crime and unemployment.** To supplement state based education, Nedlands provides adult education at local hubs and libraries. It is working with the WA Police on community policing and crime reduction.

Environmental Sustainability

- **Crucial for protection of natural systems and environmental sustainability is conservation of resources and proper management of solid and liquid wastes.** In one form or another Nedlands has had a Sustainability Committee for almost 20 years but has been slow to acknowledge the importance of the challenge. It has shown leadership in solid waste management and waste water recycling, and has installed PV collector panels on its buildings. Some climate change issues, such as specification of minimum floor levels for habitable rooms above anticipated flood levels, are being acknowledged in the City's statutory planning scheme. It could do more to investigate the City's wind resources and to encourage energy savings in new and retrofitted buildings.
- **Too often there are conflicts between job creation and environmental protection. All resources have a value and should not be wasted. Proper economic pricing will encourage reuse and recycling, putting less pressure on natural resources.** Nedlands is regarded as a leader in solid waste management and recycling in Western Australia. Reuse of wastewater within the City is minimal – reticulation of treated water to local parks and gardens is being investigated to climate-proof watering and relieve pressure on falling groundwater levels. More could be done in the recycling of building materials.

Governance and Information Technology

- **There is no preferred model for metropolitan/city governance. Metropolitan services need to be coordinated. Local Government should have general competence powers and national/state governments should devolve more decision-making to local government. The delivery of services by separate departments operating in silos hinders comprehensive planning and integrated development. The way to break down barriers between departments is to share information and allocate budgets differently – less to**

individual departments and more to a central pool, available for joint projects. Within the Perth metro area, of which Nedlands is a part, there is currently local government reform in progress, with the State Government reducing the number of local governments from 30 to 15. This will not achieve more effective metro co-ordination, which is needed, nor satisfy local government requirements. Nedlands presently has general competence powers and is a multi-purpose local government. However it has recently lost responsibility for large development projects, which is of local concern. If Nedlands was given control of land subdivision the development control process would be simplified. It has a Development Control Unit with representatives from all departments to assess new private projects. Its own projects are assessed on their merits interdepartmentally, with elected members deciding priorities for funding.

- **For a population to have confidence in government and become empowered, transparency and listening to feedback are essential. Be prepared to experiment and innovate. Only when the reasons for decision-making are open and honest do people support significant policy changes.** All Nedlands Council meeting agendas are posted on the web and made available to the press at the same time as they are supplied to elected members. With limited exceptions, all Nedlands Council meetings, briefings and workshops are open to the public. The Mayor's diary is public. Periodic surveys are undertaken to ascertain community attitudes and needs.
- **Any plan is better than no plan for city management; best practice is a comprehensive vision and overall plan, with short term actions for implementation.** In 2013 Nedlands adopted a 2023 Strategic Community Plan and a Making it Happen 2013-2023 Corporate Business Plan, with annual budgets for implementation.
- **Technology is used for efficient service delivery. It also enables populations to be better informed - to participate in city planning and development and to be aware of current events. Extensive community involvement has to be part of plan preparation and is essential prior to construction. Technology can relay real-time information; a variety of communication techniques should be employed.** Technology has been embraced by the City of Nedlands, appropriate to its size and financial capability. The City lists major city projects on its web site and requires all private development taller than single-storey to be advertised with a display sign on-site. Also on its web site are all community groups operating within the city and forthcoming events. The City uses social media. It advertises regularly in the local press, distributes newsletters to residents and holds community workshops as part of project implementation.
- **There are rapid advancements in technology and cities should take advantage of this; next steps in the development of wired cities are widespread availability of WiFi and, where security cameras are used, facial and vehicle number plate recognition, enabling partnerships for widespread integration of databases. Cloud storage is becoming cheaper and specialist apps using "big data", with machine to machine learning, are inevitable. Making big data publically accessible, and encouraging manipulation, stimulates innovation.** Nedlands has partnered with a local internet provider and uses VOIP

technology for its internal communications. It currently uses cloud storage and is rolling out city-wide WiFi in partnership with the University of Western Australia and a major hospital. It uses number plate recognition for parking control. It has an award system to encourage innovation. It could do more to make data available and encourage development of new apps.

- **Cities should be prepared for management of emergencies, be they fires, extreme weather events, transport accidents, equipment failure, health scares or natural disasters; shared facilities is the way to go; technology can assist here. Twitter has a role to play in emergency response.** While emergency services in Western Australia are the responsibility of state agencies, Nedlands has its own Emergency Management, Recovery and Business Continuity Plans. It assists state agencies as needs arise. It uses Twitter.

Program

Attachment A

30 May 2014	am	Flight to Singapore
	pm	Site Visits - CBD
31 May 2014	am	Site Visits - Punggol, Bishan
	pm	Site Visits - Orchard Road, Bugis
1 June 2014	am	Mayoral Forum
	pm	Safe and Liveable Cities
2 June 2014	am	Shaping Our Cities, Water and Environment
	pm	World City and Water Prizes
3 June 2014	am	The Next Decade: Critical Challenges and Opportunities
		Future Mobility
	pm	Building Resilient Cities
		Liveable and Sustainable Cities: Fast Forward
4 June 2014	am	China in Focus, Latin America in Focus
	pm	Southeast Asia in Focus
5 June 2014	am	Site Visits - Henderson Waves, Solaris, Star Performing Arts Centre, Urban Redevelopment Authority
	pm	Site Visits – Esplanade Theatres
		Art Science Museum, Gardens by the Bay
6 June 2014	am	Site Visit - Marina Bay
	pm	Return to Australia

30 May 2014 – CBD Hotel and Offices



Park Royal on Pickering

Hotel and offices, opened 2013
 Architect: WOAH Singapore
 World Architecture Festival 2013 – Winner
 Green Mark Platinum Award

This is a “green” building, designed as an office and hotel in a garden, with a high level of water and energy conservation. On the ground the contours create dramatic outdoor plazas and gardens which flow seamlessly into the interiors. Greenery from the adjoining park is drawn up in the form of planted valleys, gullies and waterfalls. The landscaping comprises 200% of the site area and conceals openings to the above ground carparking while allowing in air and natural light. The top of the podium is a lush landscaped terrace accommodating the development’s recreational facilities, with infinity edge pools opening up unobstructed views of the city. Roof surfaces collect rainwater for irrigation of the landscaping by gravity feed. A drip irrigation is used with rain sensors. A 60kW photovoltaic cell array is fitted to the roof, sufficient to power all the grow lamps and landscape feature lighting. Heat pumps generate hot water and LED bulbs produce a 30% energy saving.



Ocean Financial Centre

Offices, opened 2011
 Architects: Pelli Clarke Pelli
 Green Mark Platinum Award

Another “green” building, designed to incorporate state of the art technologies to maximise indoor environment quality, employee health and productivity, while minimising energy and water consumption. Triple-glazed façade glass with low emissive coating is used to maximise transparency and light transmission while minimising heat gain. Power-saving LEDs are used, with a 75kW solar PV panel system. All passenger lifts are fitted with regenerative drive during braking to reduce energy usage. An integrated paper recycling facility encourages the reuse of paper waste from offices. Extensive use of green walls provides a cooler and greener environment. Water conservation measures include using water-efficient fittings, with sub-metres for leak detection and monitoring, and harvesting rain water for irrigation. There are motion sensors for all toilets and staircases, heat recovery systems for hot water production and collection of condensate water for cooling tower make-up.

31 May 2014 - Punggol 21+ New Town and Commercial Development



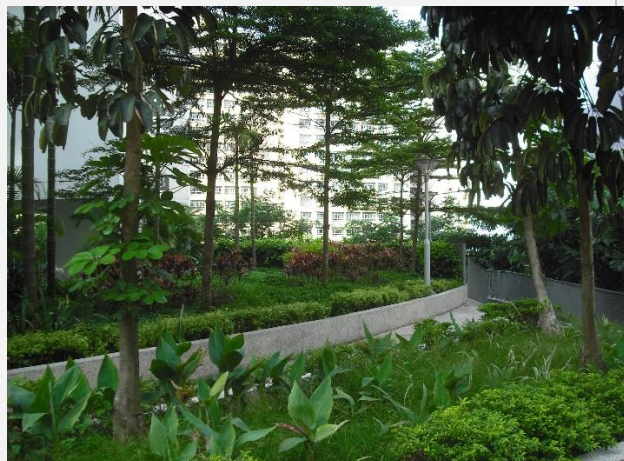
Light Rail Transit, Punggol

Punggol 21+ is a waterfront new town for the 21st century, where driverless LRT vehicles efficiently loop around high-rise residential blocks from an MRT station.



Ion, Orchard Road

Retail & leisure complex, with residential, MRT and bus stations; opened 2009
Architects: Benoy Architects
Best Shopping Centre MIPIM Award



Landscape deck above parking, Punggol

Treelodge@Punggol is a high density residential complex adjoining an LRT station, which was completed in 2010. Designed as Singapore's first eco-precinct, there is centralised waste recycling and extensive landscape decks above car parking.

A central feature of Punggol 21+ is the Punggol Waterway, which runs through the Punggol Waterway Park and serves to both increase park and water frontage for the housing estates and also provides a green respite for residents.



Iluma, Bugis

Shopping & entertainment, opened 2010
Architects: WOHA
Shortlisted World Architecture Festival 2010

Another example of an integrated, commercially profitable, "green" building. A pedestrian bridge creates a link to neighbouring development and an MRT station. All paths lead to a central atrium, a 40m high space, provided with light and sound for performances. There is a rooftop theatre, with green terraces and café pods located around a central glazed skylight, providing views back down into the atrium.

5 June 2014 – Award-Winning Architecture



Henderson Waves

Pedestrian & cycle bridge; opened 2008
Architects: RSP Architects
International competition winner 2004



Star Performing Arts Centre

Civic building – theatres shops ; opened 2012
Architects: Aedas Limited
Shortlisted World Architecture Festival 2012



Solaris

Offices, opened 2012
Architects: CPG Consultants
Shortlisted World Architecture Festival 2012
Green Mark Platinum Award

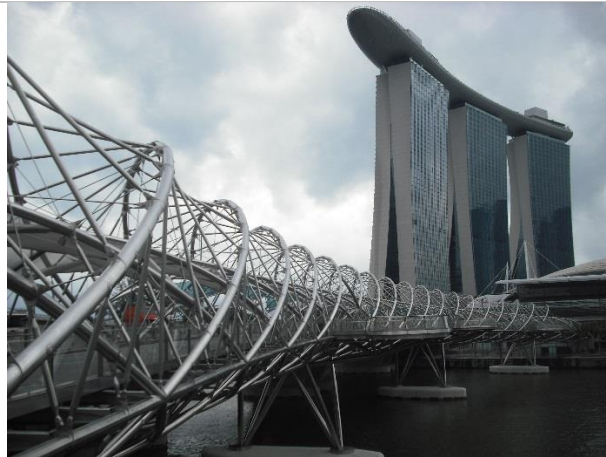
A “green building”, where a spiral landscape ramp wraps round, linking the adjacent one-north Park with the series of cascading roof gardens. The ramp has deep overhangs with lush shade plants for ambient cooling of the façade. It also acts as habitat and enhances biodiversity. A shaft brings daylight to inner areas; sensors reduce energy when daylight is adequate. Landscaping (108% of site area) is irrigated by rainwater harvesting.



Urban Redevelopment Authority City Model

Every 10 years the Concept Plan for Singapore City and Island is reviewed, updating land-use and infrastructure proposals to provide strategies to sustain economic growth, develop a congestion-free city and ensure a high quality living environment. Reclamation areas are identified for industrial expansion, water catchments and heritage are protected, good design is encouraged, parks are linked by pedestrian and cycle ways, new town centres and residential areas are located, low income housing is provided. All land sales are 99-year lease. “A City in a Garden” is promoted. Much emphasis is placed on education.

6 June 2014 - Marina Bay (good design with environmental sustainability)



Helix Bridge and Marina Bay Sands

Pedestrian & cycle bridge; opened 2011
Architects: Cox Rayner Architects
International competition winner
World Architecture Festival Award 2010

Hotel, convention and exhibition facilities, theatres, entertainment venues, retailers, and restaurants, opened 2010
Architect: Moshe Safdie
International competition winner 2006
Cost: US\$5.7 billion



Flower Dome

Conservatory; opened 2012
Architects: Wilkinson Eyre
International competition winner 2006
World Building of the Year Award 2012

The Flower Dome is the world's largest columnless glasshouse, around one hectare. Rainwater is collected from the surface and circulated in the cooling system, which is connected to the Supertrees - used both to vent hot air and to cool circulated water.



Three-level shops, Marina Bay

Marina Bay Sands is situated on 15.5ha of land with the gross floor area of 581,000m². The iconic design has changed Singapore's skyline and tourism landscape. The hotel has three 55-story towers with 2,561 luxury rooms and suites, which is capped by the rooftop Sands SkyPark, home to restaurants, gardens and a 150-metre vanishing edge pool



Supertree Grove

Supertrees are fitted with environmental technologies that mimic the ecological function of trees – photovoltaic cells that harness solar energy which can be used for lighting; and collection of rainwater for use in irrigation and fountain displays. They also serve as air intake and exhaust functions as part of the conservatories' cooling systems.

1 June 2014 - Mayoral Forum – Common Challenges, Shared Solutions**Lee Yi Shyan, Minister of State for National Development, Trade and Industry, Singapore**

Singapore instituted the World City Award, to share ideas for the improvement of cities. Europe and North America are struggling with recovery from the world recession and Asia now contributes over 50 per cent of world economic output. Asian cities are now in the spotlight. Singapore is promoting vibrancy while protecting the environment. Being implemented is economic sustainability, social sustainability and environmental sustainability, with integrated long term planning. It is promoting greenery – “A City in a Garden”. Strong leaders and clear vision are the key to shaping cities.

Greg Clark, Minister of State for Cities and Constitution, UK

This presentation covered six best practice themes:

- Vibrancy
- Environment (water and waste management)
- Competitive economy
- Integrated long term planning
- Urban governance
- Intelligent cities.

Ahmed Aboutaleb, Mayor of Rotterdam

Key global trends are climate change and scarcity of materials. Future proofing involves circular economies, processing waste. Working together is vital and education is very important. This triggers new investment.

Economic clusters are desirable. Waste heat can be reused by others; CO² emissions can be recycled to improve plant growth; waste water can be treated for drinking and processed to obtain medical products.

Urban buildings use energy but can produce energy. The future is about co-creation. There is a need for leadership.

Pan Ming, Vice-Mayor, Zhuhai, China

Zhuhai's economic base is a university, aerospace and a marine theme park – a smart city, energetic, protecting the coast, an eco-model city, the most liveable city in China. It is developing a green transport system, with transit oriented development and light rail transport (LRT), also conservation parks on islands.

An Esther, City Sustainability Officer, Singapore

Cities are both the problem and solution. Sustainability challenges are complex. Optimising single variables is not sufficient. Cities depend on their hinterland. They impact largely on the environment. Cities are agents of change. They are a function of their leaders, who are drivers and leaders of change. State policies are required for long-run sustainability planning.

Erdene Bat-Uul, Mayor of Ulaanbaatar, Mongolia

Ulaanbaatar is experiencing rapid increase in population and lagging infrastructure. The city is paying for a lack of technology.

Ridwan Kamil, Architect, Mayor of Bandung, Indonesia

Bandung is a university city, the most wired in the country, with the fastest growth – 9% pa. As well as a long term vision there are short term action plans with win-win projects. There is limited land for housing, forcing higher densities, where preserving local identity is important. The city is up-grading its public transport, as well as city parks. It is a requirement that 3% of company profits must go to community building.

Robert Doyle, Mayor of Melbourne

What gives our cities heart and soul? Why do people live and visit our city? Some people visit cities to see history. Paris was the first city to celebrate what is, not what was - what people could do and experience (liveability). In response to criticism that Melbourne was an empty, useless city, it launched “Postcode 3000”, where there was a concentration on public spaces and water planning. Melbourne now has the highest incidence of street furniture in the world. Swanston Street is now busier than Regent Street in London. It has a first-class public realm, with spaces to linger and link activities. It has a vision of where it wants to be, planning for people with vibrancy, thanks to Rob Adams and Jan Gehl. How do you make a vibrant city? the answer is to make great streets.

Hajime Fuguta, Governor of Gifu Prefecture, Japan

Known as the land of clear waters, Tajimi City was very conscious of conserving an environment to be passed on to future generations.

Francis Talentino, Chair metro Manila, Philippines

Manila is a polycentric city that uses technology based on need, not trends. The metro area is people centred. It uses public private partnerships (PPPs) to create a smart city with real-time information via smart-phones apps with 1+ million followers – on traffic, flooding, major constructions causing disruptions and ferry information. It is moving to facial and licence plate recognition on its security cameras. It has automation of pump stations for flooding and a cell-phone film festival. The Metropolitan Manila Development Authority has launched a Transparency Governance Wall (CCTV) for security in its main building.

Len Brown, Mayor of Auckland, NZ

Auckland is a city united on a central vision that can achieve anything it wants. It considers social liveability most important, focusing on the disadvantaged (homeless). It must lift everyone by raising education levels. The role of the mayor is uniting, engaging people.

Report from Young Leaders

1. People are ultimately at the centre of the city;
2. Technology is about enhancing lives and welfare;
3. Trust between people and government empowers;
4. No size fits all for governance;
5. Key ingredients are not only economic growth but liveability;
6. Transparent and open government creates trust (open data);
7. Nurture city identity and character;
8. There is a need for people to like their city;
9. Cities need to be inclusive, not just for adult males;
10. Cities need to collaborate and compete.

Sustainable Environment Discussion

Concentrate on water and waste management. Cities increase hard surfaces – ensure sponge retention to allow slower drainage. Access to finance is important – share limited resources, get private sector involved (PPPs). Manage supply chains to encourage recycling and reduce waste. Bring together demand and supply to recycle. Potable water is only a small part of total useable water. Jakarta is sinking, with danger of flooding – common to delta cities.

Competitive Cities Discussion

Balance economic growth with environmental sustainability and liveability. Bring inclusiveness into economic opportunities. Address changes emerging from shifts in economic activities. Share time, space and assets with smart solutions. Market your city.

Integrated Long Term Planning Discussion

The fast pace of population growth outpaces infrastructure provision. There is the challenge of climate change. Identity must be addressed, which can take various forms. There is a need for architectural identity. As well as long term plans there is a need for quick wins – use technology. Look at consumption patterns and resource efficiency. Be inclusive; use PPPs. There is pressure to create land for new development. Don't only set targets but plan steps to get there. Excite people more – say why this is good for them. Get people behind projects.

City Governance Discussion

Must connect with increasingly demanding citizens. Manage trade-offs between short and long term objectives. Manage conflicts across jurisdictions. The solution is communication – create vehicles for delivery.

Intelligent Cities Discussion

The mega-trend is strong population growth. The issue is how to capture data, integrate it and feed it back? How to get people involved? Many technologies are available – design special cells in the city. The challenge is the need for leadership to co-ordinate technology. Must invest in databases (big data).

Safe and Liveable Cities Forum

Khoo Boon Hui, Commissioner of Police, Singapore

Technology is the enabler for a safe and liveable city. Singapore is a safe city by any measure – TripAdvisor rates Singapore second safest, behind Tokyo. Safety and liveability play a major role in determining repeat visits. There is a push for more public surveillance after the Boston bombing. How many cities are prepared for such events?

Ayesha Khanna, Hybrid Reality Institute, Singapore

Security is being free of crime but the nature of crime is changing. Information technology is ubiquitous, intelligent, cheaper, invisible. Technologies can now speak to each other. It is now much easier to store large amounts of data. DNA, like computer code, can be hacked. The US President shakes hands with people, his DNA is left behind, it can be sequenced and 3D printed. A 3D printed gun can be downloaded from the internet. Hackers have withdrawn over \$40 million in 70 countries in a single event. Power, water and nuclear systems are constantly under attack. Iran's nuclear industry was attacked. There is a Dark Web, Google for criminals - Grams Darknet Search Engine. (If good drugs are provided, it moves higher up the search list). As cities grow bigger, people become more vulnerable. The response is to amplify security forces with sensors, robots and big data. Government and not only people are using these techniques. Mexico City used advanced technologies, resulting in a 22% reduction in crime. Domain Awareness System to integrate platforms eg. security cameras with facial and number plate recognition to determine where a car has been for the last few days. Predictive Policing to predict and prevent crime. Computers can make mistakes but if they had more information would they do a better job? There may be privacy issues. Drones will be used more in police work. Smart phones will track you, tell you when to take your pills, get your car from an expired meter, etc. We need protection from hackers – it is now possible to eavesdrop on conversations. How do you integrate information in an anonymous world? Crime has become highly complex and sophisticated.

Koh Hong-Eng, Society for the Policing of Cyberspace, Canada

Technology won the 34th America's Cup. The US lost the first eight races because they didn't know what they didn't know. It took eight races to find out. Many places on the boat and every crew member had sensors. 30,000 pieces of information came in every second (technology now allows one million – big data). The boat was modified every night.

What is big data? – volume, velocity, etc.

Crime Sourcing – protest groups can pinpoint the location of police, take out security cameras and tell people where to gather. Fortunately criminals identify themselves – with selfies. Human error the weakest link. What makes a city unsafe? The answer is threats, terrorism, crime, accidents and civil disorder. There is a continuum: prevention – detection – response – recovery. Response gets the most emphasis; recovery the least. The focus should be on people, not technology. Community policing is important – police should interact with people and use social media. Argentina has a non-emergency call centre to better understand community sentiment, for early identification of suspicious activity. In Finland there is 360° policing; the EU has eCall, intended to bring rapid assistance. M2M – machine to machine,

where cars notify each other when accidents are likely. Every city and its parts are different, police should know the differences. The trend is to all-hazards information centres at the city level. There is an international standard for a Crisis Information Centre, which has been adopted by Australia and other countries.

Frank Paauw, Commissioner of Police, Rotterdam

Netherlands, Singapore and China are in the top ten crime reduction countries. Safety and security are not a monopoly of governments. Rotterdam seeks cooperation with science, industry and citizens in combatting crime, traffic congestion and demonstrations. “Tec4se” was created - an innovative control room for police and fire fighters. It integrates information for emergency services to break down silos and improve safety. It bridges the gap between agencies by sharing information. Processes have to be embedded, in real time. It employs different user devices, with all involved given feedback. People must be properly educated and trained; culture is important – learn by doing and accept that mistakes will be made. Leadership is required – deeds, not words.

Kelvin Wong, Economic Development Board, Singapore

The megatrend is urbanisation. There is a need for expensive government projects (\$120 billion in Asia alone) to create safe cities in Asia. There is a need for PPPs, for example on membrane studies to purify water for drinking. New accommodations are required.

2 June 2014 - Shaping our Cities, Water and Environment for a Liveable Future

Tommy Koh, Ministry of Foreign Affairs, Singapore

Since 2012, 100 million people have moved to cities. Now over 50% of the world's population live in cities. By 2050 it will be over 70%. Infrastructure is falling behind. 2.5 billion people have no access to a toilet; 1 billion (out of 7 billion) people are still without safe drinking water.

To avoid an increase of more than 2° in global temperatures, there must be zero emissions from burning fossil fuels in the second half of this century. It is not a case of green or growth but green growth. Climate change unchecked will reduce GDP by 2.5% by 2030. Tolerance of emissions is reducing. Reduced company and payroll taxes will be balanced by property, consumption and green taxes – to reduce taxes on labour to encourage jobs, while increasing taxes on consuming resources and polluting. Time is not neutral. It will be more expensive if we delay. Small cities should concentrate on quality of life and education eg. Bilbao.

Khaw Boon Wan, Minister for National Development, Singapore

Singapore is a work in progress – what are the challenges? There are few homeless; housing is high density and has gone green. Singapore has additional challenges as a city-state:

- all functions must be accommodated in a small area of 700sqk;
- without a hinterland, global impacts are more acute;
- if the city fails, the country fails, because there is only one city.

Detroit failed but the US has other cities. Singapore doesn't waste resources and it saves for a rainy day. It keeps markets open for free trade. It invests in education and skills training. It keeps politics honest and cannot offer more with lower taxes.

Jean-Louis Chaussade, Suez Environment, France

Cities always depend on water. Bigger cities create more stress on water resources. Climate change makes matters worse. Technology will be important for large capital investments; bigger the city, bigger the investment. There are new and smarter technologies. Smart cities will be green. People want more dialogue, transparency and options, in real time. A green city has a long term view with immediate problem solving.

General Discussion

City expansion will require PPPs. If projects are bankable, there is no shortage of finance. Financial regulation is important. There is a need for regional cooperation eg. with inter-city high speed rail. Cities must plan for their poor – provide opportunities, not just services. 92% of water supplies are by public bodies world-wide, however without technology from the private sector, it is hard to solve problems. Women and the aged are a resource. In some countries, fuel subsidies exceed education spending.

Helen Clark, UNDP

Cities will make a major contribution to sustainable development and need leaders who can see the big picture – to progress while maintaining environmental standards eg. by solving traffic problems with clean technology. Integrity of city leaders is important ie. no corruption.

Singapore is a shining example. Governance must be open and accountable. Cities can step up but must be given the freedom to act by government. Cities must have general competence powers.

Rashid Ahmed bin Fahad, Minister for Environment and Water, UAE

Environmental sustainability is the goal for the UAE because of the harsh climate and water shortage. How to make the country more sustainable in water and energy? 50% of energy requirements are generated on-site by solar. 30% of building materials are obtained from recycling. A €100 million research fund has been established for sustainability.

Kristen Brosbol, Minister for Environment, Denmark

Denmark has the world's happiest people. It didn't happen overnight. There were problems in the 1970s – dead fish in polluted waters, the energy crisis. The country decided to invest in a sustainable future – it started with environmental protection, then it adopted incentives eg. water pricing. This made it easy for people to act sustainably. Water programs were not effective until different taps were adopted. If access to nature is provided, people will protect it. Increased rainfall is used to create water parks. Green markets are stabilised with regulations.

Chen Lei, Minister for Water Resources, China

Water issues are becoming increasingly erratic. It is importance to establish clear goals. Demand management of water is required, also political commitment to concrete actions. Technical innovations can be applied with international co-operation. Water safety and sustainable development should be promoted.

Greg Clark, Minister of State for Cities and Constitution, UK

There has been a shift in thinking about cities – from problems to opportunities. Build on a city's strengths and differences. Reputation is an asset; don't be imprisoned by the past. Cities are dynamic – the bigger the city the more dynamic. A new image can be created. Cities should recognise new boundaries. Consolidate for success; councils should come together for a single city view. Collaboration is needed eg. for high speed rail links. City leaders can make a difference – being assertive requires projects. Cities are motors of growth. A strong regulatory framework is required for stable investment. Big companies will lead, others will have to be regulated.

World City Prize: City of Suzhou, Jiangsu Province, China

He Zhou Naixing, Mayor of Suzhou

Suzhou has strong economic growth and is a nationally recognised garden city. It doesn't feel like 10 million people because it is broken up by parks and waterways. Advanced planning for the Jinji CBD and lakes was the key to success. The Pingting Historical precinct is UNESCO recognised. Stone Lake showcases urban development in nature. Community consultation was considered very important – a hotline was established; they started with youth; waste incinerators were voted upon. Growth paid for improved water quality and a high standard of public spaces.

World Water Prize: Orange County, California, US

Cathy Green, Orange County Water District (OCWD)

Orange County obtains 70% of its water supply from ground water. Early development used water from the Santa Anna River for agriculture. The OCWD was formed in 1933 after floods. Urbanisation occurred following WWII. As the number of wells increased, salt water moved inland. The river was diverted for flood control and water supply. Management was by common pooling – water saved in good years was released in bad years. This was not sufficient – OCWD moved to injection wells with treated wastewater; reverse osmosis was used. Public trust was considered very important; an annual drinking water festival is held, with activities for children. Habitat restoration has returned an endangered songbird. The OCWD is now looking at desalination to augment supplies.

Runner Up World City Prize: Medellin, Columbia

Anibal Gaviria Correa, Mayor of Medellin

Medellin is Columbia's second largest city, with rapid growth and the highest crime rate in the world in the 1990s. It was number 35 last year and is expected to be in 50s this year. Crime reduction was achieved by promoting five values: non-violence, participation, resilience, inclusion and transparency. Projects included: escalators and cable cars to residential slum areas; public bikes; community hubs; green belts; a river environmental hub - for river recovery; a House of Memory - remembering is not repeating; creation of innovation districts; community policing; day-care centres in poor areas; good architecture; libraries and music hubs to facilitate socialising; trams are under consideration.

Land use plans are revised every 12 years. There is urban growth but also social growth. Everyone participates. There is focused investment in education and innovative projects within public spaces, where everyone is equal. Public spaces are innovative spaces. What Medellin is doing shows you can get out of poverty and violence without high budgets – by spending only about \$1,000 per person pa. The big challenge for cities is inequality. The hardest job was aligning people with the vision and building trust – not easy when institutions are absent or run down. The Mayor was previously the Governor, demonstrating that continuity is important. Now people change but projects continue.

3 June 2014 – The Next Decade: Critical Challenges and Opportunities

Peter Ho, Chairman, Urban Redevelopment Authority, Singapore

Not just vision and adoption of technology but good governance is required for effective implementation. Be prepared to experiment and innovate. Key challenges we need to focus on:

- tapering growth rates in advanced G7 countries;
- the rise of Asia;
- global supply chains - increasingly interdependent economies that are more volatile;
- looking out for game changers eg. NW Passage;
- technology eliminating jobs eg. driverless trains, trucks. Technology is changing the nature of work;
- increased life expectancy.

How can cities provide new jobs? Seize new growth opportunities; reinvent themselves eg. Malmo – from an industrial city to a knowledge city. Cities must have social resilience, be equitable and inclusive. The widening income gap, declining fertility, aging populations and rising life expectancy are producing divided societies. There is loss of the familiar – physical markers, language.

How to distribute the benefits of growth? Inclusionary social policies and cultural conservation are required; there is a need to look after migrants. Stay resilient to climate change and unforeseen events eg. SARS in Hong Kong, floods in Singapore. Design for more water storage – Singapore has converted its rivers from salt water to fresh, with an ocean barrage.

How to future proof cities? – have advanced disaster plans and use management simulations. The best cities are those that can find solutions and practice good governance.

Mark Chandler, Office of Mayor, San Francisco, US

San Francisco is a city of one million people and a test-bed for new ideas; no city in the US is more vibrant. Unemployment is 4%, lowest in the US. It creates more jobs than any other city. It is the centre of innovation technology, biotechnology and green jobs. Young people want information and data to be freely available eg. is my roof good for solar power generation? The city has held “hackathons”- to create new apps that harness data.

On sustainability there has been no lead from the US government so the city has taken up the challenge:

- installed electric car chargers;
- banned plastic bags;
- listened to the young – torn down freeways, built pocket parks;
- adopted efficient building codes;
- implemented an emissions trading scheme.

But problems have emerged:

- cost of housing unaffordable;
- loss of middle class;

- losing regulation control over taxis, accommodation, parking – where apps match sellers and buyers eg. Uber (taxis), AirBnB (accommodation).

Dr Andrew Steer, President, World Resources Institute

By 2050, China will have 220 cities over 1 million, Europe only 35. 30% of the required infrastructure has not yet been built; there is the opportunity to do it right. The urban area will be three times what it is today by 2050. If you focus on a green, clean, smart city you will achieve jobs and high liveability. There are huge benefits on reducing air pollution and reducing congestion – increased dynamism. Focus on a dense, connected city. If changes are not made now, the pattern will be locked in for 200 years. If the correct approach is taken, cities will be competitive, grow faster and achieve an improved quality of life. Get citizens involved in visionary plans and focus on implementation.

Gianfranco Casati, CEO, Accenture, France

A digital city will provide new services and help achieve goals eg. eHealth and real-time traffic information. Don't tax good things eg. jobs; tax bad things eg. congestion, pollution.

Laura Ipson, Vice-president, Worldwide Public Sector, Microsoft Corp, US

Technology must take a people-centred approach. Solutions must be compelling. The future is open data with clouds. Technology shouldn't displace jobs; it should create jobs eg. how to use technology better. What data is open, what is closed? Provide data to generate solutions. Encourage people to take photos of broken assets and report them eg. blocked drains, equipment that needs servicing, etc.

Professor Geoffrey West, Santa Fe Institute, US

Cities are not isolated; they are part of global systems and we need to know how they interact. Cities do show universality in crime, patents, GDP, diseases, social networks, job creation, etc. If a city doubles in size, most things increase around 15% and there is an infrastructure saving of about 15%. Unbounded growth requires accelerating cycles of innovation to avoid collapse. A strategy for long term resilience is needed. How do you cope with people who move? Many things are affected by migration – employment, transport, health, etc. When something changes, need to know the science. Interconnectedness explains growth in San Francisco – it is influenced by what is happening across the Bay, in Berkley, Silicon Valley, etc. A major program is needed to understand the dynamics, to engage with politicians, scientists, etc. What is the major challenge? 55.0% say sustainability, 24.4% say effective governance. By the end of 2014, 100 cities will have committed to lowering carbon; the goal is to have 500 cities committed by the end of 2015.

How to reduce inequality? – difficult, often beyond local government.

- provide affordable (middle class) housing;
- encourage a skilled workforce – create portals for education;
- develop PPPs;
- ensure minimum wages.

Current city development is car-based and energy inefficient – it benefits the rich. There must be a change in the way of doing things.

Future Mobility

Len Brown, Mayor of Auckland, NZ

Auckland has a 30 year plan with integrated transport. Recently eight councils were merged into one, with 1.5 million population. 50% of NZ's growth will be in Auckland. Walking and cycling are part of the plan, using technology. City rail is a focus, with new trains and a tunnel. WiFi is currently available at stations, soon on trains. There is integrated ticketing with a "Hop Card"; also smart carparking buildings. Both public transport and parking have real-time apps. A "Hackal" was held, where 10 billion pieces of data were provided – the event produced 35 apps, not only when buses and trains were arriving but also where bars and cafes were near stops if you had to wait.

Dr Joseph Runzo-Inada, Policy Advisor, City of Toyama, Japan

Toyama is a city of 420,000 people, stretching 34km between the sea and mountains. It is a compact city dealing with a declining and aging population. It has a new LRT system and is encouraging development along transit lines. It is moving from radial to looped transport routes. It has a smart bicycle system, with stands at hotels. PPPs are used, linking the city with a large IT company, a university and the rail operator. It has site specific apps, as well as general city-wide apps. It emphasises a compact environmental city.

Ronan Stephan, Chief Innovation Officer, Alstom S.A., France

We are reaching the limits of the system we are living in. Climate change is coming; we cannot supply the energy needs with traditional supplies. The world is getting more complex – we need to combine smart things with smart systems. Ensure fluidity through smart mobility – mobile GPS in buses and trains. Aim for integration in the urban landscape eg. LRT tracks in green areas (grass).

Ian Woodroffe, Vice President, Security and Transportation, Thales Solutions Asia

Increasing urbanisation results in increasing freight movements. We need to find a smart way to connect road usage management, as done in Brisbane, with public transport models to increase efficiency eg. integrated control systems to co-ordinate signals and ensure buses meet trains. This can be further integrated with airports. This approach can be developed into an urban payment system, incorporating loyalty rewards. The future is big data – the interconnected city. With Twitter and machine learning, statistical information is built up over years to produce greater efficiency and fewer empty seats.

Professor Carlo Ratti, Director, MIT SENSEable City Lab, US

We can now share data on taxi pick-up and drop-off and could service New York with half the number of taxis. Vehicles with sensors are becoming more intelligent. With driverless cars we could dispense with traffic lights and reduce queuing. There is increasingly a blurring of public and private transport. We could get by with 20% of our vehicles if we had autonomous mobility on demand.

Emerging technologies will make the greatest differences, particularly apps for phones – these could combine many interests, such as health and mobility eg. elderly could find someone to travel with. Charging moving electric vehicles over pads instead of at charging points is being developed. There is a need for distributed renewable energy storage. The focus has previously been on integration, we now need to analyse data and see what it is telling us. Make data available to all and respond to feedback.

Building Resilient Cities

Dr Kevin Austin, Director of Initiatives, G40 Cities

G40 cities are taking 1024 adaption actions in response to climate change eg:

- vulnerability mapping;
- flood defences;
- city cooling;
- permeable paving.

How is information distributed? Face to face contact with everyone is not possible; take advantage of the digital age eg. Facebook. In Brazil summer rains are a problem; use big data for comprehensive risk assessment. The more sharing, the more resilience. Cities are taking the lead in climate change. Mayors must be interested in learning from others. Governments need to establish Greenhouse targets, provide incentives and support cities with funding.

Dr Anne Skovbro, Director Finance, City of Copenhagen, Denmark

Environmental resilience is part of sustainability solutions. There is room for growth but it must be sustainable growth. Copenhagen changed from an industrial city to a knowledge city, growing population and jobs by lowering carbon emissions with a strong carbon approach, particularly with water ie. sewage clean-up. The city is aiming to be carbon-neutral by 2025, with emissions reduced 40% from 2012 levels by retrofitting buildings, promoting wind-power, encouraging use of bicycles and public transport, using district heating and cooling, using harbour water for cooling buildings. Internal combustion engines will not be banned. It is cheaper to build bikeways than freeways.

Dr Peter Williams, Chief technology Officer, Big Green Innovations, IBM

Part of resilience is identifying failure chains eg. tree removal can induce flooding some distance away; a falling tree on power lines can cause regional disruption. Where are you now, where do you want to be? Track progress. Big data means less information about individuals – the interest is in the message, not who sent it. Must be honest with people for big data to be accepted.

Rob Steele, Secretary-General, International Organisation for Standardisation (ISO)

There are indicators for sustainable cities in international standards, now being used by 250 global cities. It is helpful to have standards and build on them. LG standards have just been released. The more cities adopt international standards, the better – it is easier to innovate with common platforms. Infrastructures of existing cities is expiring: if sewerage needs replacing, do you go for a centralised or community systems? – this is part of the planning

process. Which comes first, demand or provision? – need to be pragmatic. With big data, strip out individual identifiers. A scorecard approach would help understand insurance risks.

Liveable and Sustainable Cities: Fast Forward

Burhan Gafoor, Chief Negotiator for Climate Change, Singapore

The common message is that sustainability is a necessity, not an option. A sustainable city is a smart city, putting liveability first. Infrastructure, both hard and soft, is about partnerships. Plans must be people centred and include the disadvantaged. Governance, leadership and politics are important. The planet cannot be sustainable if cities are not sustainable.

Clover Moore, Lord Mayor of Sydney, Australia

Sydney is one of the world's most liveable cities but has lagged behind in many areas including transport and climate change. It has a strategy to be green, global and connected. It has a target to reduce greenhouse emissions 50% by 2030. It has trialled LED lights and has a goal to reduce energy consumption by 50%. Solar power is promoted and even the city's most historic building, the Town Hall, has PV panels. It has a Better Building Partnership with commercial building owners and has achieved a 31% energy reduction so far, on track to achieve the target 50% reduction. The city has increased tree plantings, public art and a bicycle network. Bike-riding has increased 300% in recent years. Industrial areas have been converted and greater densities achieved. There is mandatory competitive tender for architects for major commercial buildings. Sustainability has been embraced by the business community. The city's long term plan has been developed with the community and will endure no matter who is in power.

Dr Roland Bush, CEO, infrastructure and Cities, Siemens AG

Cities are the most efficient way of providing infrastructure. Current infrastructure is not used efficiently; the level of automation is low. Motor traffic could be reduced 20 to 30% if we moved to driverless cars. Buildings can be run more efficiently, saving 20 to 30% of energy used. There are so many smart technologies, where do you start? – with field studies to create data, then make more of the data depending on the problem to be solved. Smart buildings are better if connected, same with public transport.

Jeremy Bentham, Vice President, Royal Dutch Shell

How to make infrastructure resilient? – advanced planning can reduce water and energy demands. Adopt integrated planning for flexibility. Small scale is more flexible. Responsibility of citizens in a smart city is to embrace diversity and tolerate alternative lifestyles.

Dr Michael Dixon, General Manager, Smarter Cities, IBM

Cities haven't changed much in 5,000 years. In last five years there has been a rise in smart cities, which is a game-changer. Infrastructure is the focus for new projects. For the provision of information services, social media is important; people have a voice. For personal services, people use information services. Cities are developing an identity, with something that really matters. Projects need a financial underpinning because money is short. What is the underlying problem for most cities? – family breakdown. Technology comes and goes; leaders are important. Collaboration in and between cities is unprecedented in history.

4 June 2014 China, Latin America and South-East Asia in Focus

Pei Lin, Deputy Director, National Development Commission, China

Chinese urbanisation was 20% in 1978 and 52% in 2012. The urban population increased by 500 million. Only 20% of migrants have families. 260 million do not have access to services. Energy intensity is high; water, air and soil pollution is unsustainable. A new urbanisation pattern is required to be more efficient, inclusive and sustainable. A reform agenda has been developed - land, finance and social reforms. Critical to success is a move away from central control to LG control. This requires a mindset change.

Amy Leung, Chair, Urban Development and Watre Division, Asian Development Bank

By 2020, 13 of the world's megacities (10+ million) will be in the Asia-Pacific region. ADB has developed Green Cities Initiatives, putting people first, to move from problems to a liveable future for our grand-children. They include social inclusivity, to get cities where they want to be. Elements include:

- a vision and action plans, with investment programs;
- urban management partnerships – for cities to share experiences;
- leaders as champions;
- quality of air, water and land;
- how to move from silos to joining forces.

Ridwan Kamil, architect, Mayor of Bandung, Indonesia

Bandung has 2.4 million people. It is the third largest city in the country, with 9% economic growth. It has a young population (60% are under 40), a knowledge-based economy and low debt. It was voted the country's No. 1 culinary destination, with 6 million tourists annually. Only 20% of the population use public transport. The city is facilitating:

- free movies in the slums every Saturday night;
- neighbourhood creative centres;
- urban farming on rooftops;
- increased bike use (Mayor uses a bike);
- free buses for tourists (with artistic decoration);
- Skybridges (cable cars), metro rail, pedestrian skyways;
- health cards; citizen complaint reporting;
- transparency in governance (Mayor's diary public);
- use of social media – YouTube, Twitter, Facebook;
- new centres for technology businesses.

Mayors need to be proactive to opportunities. Integration of cities will help integration of countries. The young are energetic – Bandung has 2 million Twitter users – sixth in the world. Twitter has a role to play in emergency response. When the city asked for volunteers to assist with flood control, it got 10,000 volunteers in a week for planting trees. Asian youth are the most optimistic in the world.

James Stewart, Chairman, Global Infrastructure, KPMG

\$70 trillion infrastructure investment is needed in SE Asia over the next 20 years. Cities are linked to a country's prosperity. Investment is available but there may not be the ability to pay. Singapore is fortunate in owning land and offering 99-year leases. There are seven ways to pull a city out of decline:

- undertake physical renewal;
- encourage wealth creators;
- promote an identifiable identity;
- improve connections to and within the city;
- cultivate ideas with education and knowledge-based industry;
- support community leaders;
- increase ability to raise funds because LG is getting less from Government.

Employ new taxes - sales (consumption), petrol and property taxes could be ring-fenced to fund infrastructure. Develop effective partnerships between public and private sectors (PPPs). Few projects are self-funding. The public sector must justify input of funds with long-term economic growth. Appraisal mechanisms must reflect actual benefits. Can land value capture be employed to fund transport improvements? – there is the problem of no increase in value until the transport is in place but money is needed early to plan and construct the project. There is no magic solution. How to break down silos? – don't give money to silos; give it to a central place and invite offers for comprehensive projects. Any plan is better than none; leadership is important.

Hamdan Abdul Majeed, Executive Director, Think City, Malaysia

Think City is a project to promote George Town, on Penang Island. George Town is a port city that moved to a free trade zone and is now moving to a knowledge city. In recent years the economy has compounded at 8% pa. Many major industries have located there, including Intel. "We came for low cost labour, we stayed for talent". The city has problems:

- high number of private vehicles – per 1,000 higher than Singapore;
- flooding;
- not pedestrian friendly eg. high kerbs.

The city needs to reinvent itself. The goal is to be in the top 25 world's most liveable cities. It wants to be cleaner, greener, healthier. It has imposed a water surcharge for conservation. It emphasises recycling. It is creating car-free spaces and encouraging biking. It is holding festivals to aid identity and employing public engagement activities. Working partners include Australian AusHeritage, to help preserve historic buildings. It is leveraging on the past – heritage is its edge. The challenge is how to use heritage for the future. It is re-imagining its buildings and providing incentives for reuse. It is using PPPs, particularly where it owns land, in joint ventures, where there is a tendency for the public sector to take more risk. With strong policies, added value is taken by the public sector; where controls are weaker, the private sector gets the added value. The value of land capture is over-estimated; property taxes after construction can be viable.