CONNECT KARO 2019
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Connect Karo brings together international, national and local experts in the fields of sustainable transport, urban development, renewable energy and climate action on to a common platform to facilitate conversations, collaborations and partnerships to promote a sustainable growth agenda. This year witnessed the 7th edition of the Connect Karo event focussed on “Urban Transitions: Preparing for the Next Decade”. The workshop deliberations focused on a variety of issues relating to urbanization, innovation, state action plans, affordable housing, zero carbon building, air pollution, green infrastructure and transport.

The presence of the Hon’ble Vice President of India, Shri Venkaiah M Naidu added renewed vigor to the proceedings of the 2019 edition. I take this opportunity to acknowledge and appreciate the presence of eminent speakers and participants which included members of the diplomatic corps from various countries; national ministers and representatives from over a hundred corporations and institutions. The distinguished participants ensured that the workshop was steered in the direction of enhanced strategic partnerships and knowledge sharing.

Jamshyd Godrej
Chairman, WRI India
The inaugural address by the Hon'ble Vice President of India, Shri Venkaiah Naidu, emphasised the need to preserve nature and for collective action to fight the complex challenges of sustainable development. Another important plenary address, by Shri Suresh Prabhu, the Minister of Industry and Commerce, highlighted the need for action at the local and global levels to tackle climate change. Panellists and speakers from various fields – urban design, urban planning, transport, energy, water, and climate change – shared their experiences, insights, and research findings. Compared to the early years, it was encouraging to see an increasing number of entrepreneurs confronting these issues and working on innovative solutions.

**SAFE AND CLEAN MOBILITY** is a critical aspect of city living. And as demand for transport grows in line with expanding cities, investing in electric vehicles, efficient public transport, and enhancing safety measures will minimise the negative externalities associated with urbanisation.
ELECTRIFICATION OF VEHICLES is going to happen in India. ‘How’ and ‘how fast’ are the critical questions. The Hon’ble Vice President of India launched the Electric Mobility Forum to facilitate stakeholder dialogue on the subject and help accelerate India’s transition to electric vehicles.

Jennifer Layke, Global Director of WRI’s Energy Program, spoke about India’s transition to clean energy and the challenges ahead. India is a large country and building the ecosystem for electric vehicles will take time as it involves multiple components – charging stations, battery life and efficiency, cost and financing. These are critical factors which need to be addressed. The lifecycle costs of some of these things will only be learnt once we have driven some vehicles to the end of their lives.

A colleague from WRI China, Daizong Liu, outlined how the Chinese government is running a competition for electric bus manufacturers to showcase battery performance in challenging conditions like climbing a steep slope, at 40 degree centigrade, at -20 degree centigrade and other scenarios.

BUSKARO is another forum, set up by WRI India in 2010, is an effort to focus on bus-based transport. Many urban areas depend on buses for transport. An integrated long-term planning approach, development of a dedicated funding mechanism, and involvement of the private sector will get us solutions.

We have co-created a platform on last-mile connectivity with Toyota Mobility Foundation and are using the competition or challenge approach to bring enterprises and start-ups to add choices available to passengers at metro-rail stations. By opening data for public transport companies, we ran a data hackathon in Kochi to enable solutions towards providing journey planning information. Two winners are now advancing interesting ideas in the city.

DESIGNING SAFER CITIES making them safer for children, and reducing the number of road crashes, are critical aspects of sustainable growth. We facilitate the adoption of the principles of Vision Zero. The missing link in enhancing road safety lies in bringing the initiatives from the national level to the local city level. Haryana became the first Indian state to adopt the Vision Zero approach towards road safety. And WRI India and partners are working in the 10 most vulnerable districts in the state to reduce accidents. The program is now being rolled out in the states of Punjab and Maharashtra as well.

On the global calls for action on Zero Carbon Buildings (ZCBs), Indian cities must ramp up their preparedness while ensuring that the costs of ZCBs are not transferred to the poor. WRI India is working with the Kochi Municipal Corporation to develop India’s first roadmap for the buildings in Kochi to become “zero” carbon.

AIR POLLUTION AND CLIMATE CHANGE impact, as a result of rapid urbanisation is staring at us from all quarters. What can be done? Government investment in building the science behind accurate monitoring and measurement, and as a consequence, creation of accurate data will help authorities take informed decisions.

Mexico City is one of the leaders in fighting air pollution amongst developing countries. Dr. Beatriz Cardenas, WRI Mexico, shared that in the last 30 years they have systematically addressed this issue by changing industry, pollution and vehicle fuel standards, and encouraging walking and cycling. The PM 2.5 levels have been reduced to 90-100 from 400-500 levels. Waste burning, construction dust, vehicular fumes are just some of the issues that can be solved at a localised level with a combination of tactical measures and behavioural science.

Heat is becoming a big issue. In fact, it is one of the biggest killers and we need to prepare the community to respond to this risk. Forests should be seen not only from the biodiversity lens, but also as a means to protect water. Protecting water and growing trees are critical to our survival as a race.
CITIES4FOREST was a new theme at CK2019. The session discussed the challenges and opportunities that urban and peri-urban areas are facing in India which is a barrier to developing a strong bond between forests and its population in inner, nearby and faraway forests. More and more people in cities are vulnerable to climate change with increased risk of flood, landslides, water shortage, deteriorating air quality and urban heat islands. Panellists agreed that forests and tree cover provide multiple regulatory, cultural and provisioning services for cities and its population. These include improved air and water quality, recreation and health benefits, improved biodiversity, carbon capture and provisioning of food, fuelwood and medicines.

There is a need to create greater awareness among the urban population on the services that forests and trees provide. The panellists discussed innovative citizen science approaches, landscape restoration planning for inner, nearby and faraway forests, and the need for thinking about green and grey infrastructure to make cities more resilient. It was emphasised that synergistic rural, urban and peri urban development through a landscape approach could support in achieving India’s national commitments and the Sustainable Development Goals (SDGs).

WRI, and its sister organizations around the world, including WRI India, recently launched Cities4Forests, a new voluntary coalition of 52 cities involving mayors’ offices and supported by other subnational agencies such as public water utilities and offices of sustainability, from around the world. Cities4Forests seeks to catalyse political, social, and economic support among city governments and urban residents to integrate forests into city development plans and programs. The Cities4Forest alliance provides an opportunity to protect, maintain, and increase forest and tree cover in peri-urban and urban areas and to inspire a movement around the restoration for inner, nearby and faraway forests.

The session on ADVANCING CLIMATE ACTION in states and cities brought together representatives of several state governments, central ministries, and civil society organizations, to learn from each other about data, tools, and best practices on climate action. We are working with several states on the Data Portal for Cities, an initiative by the Global Covenant of Mayors that supports city-level greenhouse gas inventories and climate action plans. States like Madhya Pradesh and Uttarakhand have demonstrated how to mainstream climate adaptation into development programmes, which is documented in our new working paper. As states embark on the process of revising their State Action Plans on Climate Change, such experience sharing can help them implement climate action across sectors and scales as well as contribute to India’s nationally determined contribution (NDC) goals.

ADAPTATION AND CITIES was a seminal theme at CK2019. The session, in partnership with the Global Commission on Adaptation, served as a platform to garner feedback on the UN Climate Summit paper and reflect on its strategic importance for policy-makers, academics, practitioners, and local champions. The focus is on a vision for scaling transformative adaptation solutions and prioritising adaptation from the local to the global level.

We also held a valuable panel discussion on inclusion and equity in the transition to zero carbon buildings in India.

A GROWING ECOSYSTEM OF TECH START-UPS made its impact felt in one of our sessions where technology like artificial intelligence and robotics, along with behavioural science, is doing its bit in accelerating innovation in water, energy and waste sectors. Low carbon technology can drive the growth of zero carbon buildings and low carbon cities. Leveraging private capital for sustainable development in cities will undoubtedly be a game changer.
‘ENGAGE’ was a new conversational platform introduced this year. We invited achievers in the space to share their life stories to inspire all of us. They ranged from a woman para athlete who has set new records in numerous sports to an environmentalist who transformed a stone quarry into a city forest over a decade.

At WRI India, we believe that active and empowered communities can drive sustainable and equitable development. It was heartening for me to see the enthused participation in packed rooms across multiple sessions. Over the years, our numbers have doubled, and we are seeing a steady rise in the number of participants. In a conference-busy world, this is a testament to our growing presence.

A big thank you to all the participants who came together at Connect Karo 2019, and to our young team that worked in tandem to bring the event to life. I believe that our collective efforts will help chart a future that is equitable and sustainable.
INAUGURAL SESSION

The inaugural address by the Honourable Vice President of India, Shri Venkaiah M Naidu, touched upon the various challenges that the country faces in the wake of rapid urbanisation such as weather irregularity, poor air quality, dependence on non-renewable energy sources, and food shortages, amongst others.

Shri Naidu commenced his address by acknowledging the disastrous impacts of climate change and weather irregularities the world is facing, including India. He stated that climate change would impact more people in India than anywhere in the world due to our enormous population, and vast coastline, and implored that thought leaders should facilitate solutions to manage the surging population since it would lead to higher consumption of limited resources.

The Vice President stressed the importance of changing behaviour and mindsets for any welfare program to become successful. He postulated that “while civic sense can’t be brought upon by mere legislation alone, we have to attempt to change the behaviour of the people and educate them about climate change and carbon emissions”.

While discussing the growing problems of air pollution, he proposed that all cities must aim to be smart cities and should increase focus on cycling, pedestrian infrastructure, urban agriculture, and afforestation. He further postulated that with a push towards new mobility systems, including electric mobility and inland
water transport systems, will help in the reduction of congestion, air pollution and reducing the need for parking space. He also emphasised that air quality is becoming a matter of grave concern, and that there is a need to systematically identify the sources of the problem and deal with them as poor air quality adversely impacts the health and well-being of city residents, especially children.

Mr. Naidu stated that renewable energy is of utmost importance to the country and the government is working towards increasing the share of the electricity generated from cleaner sources like wind and solar. He further added that as part of the 2015 Paris Agreement, India made an ambitious commitment that by 2030 about 40 percent of the nation’s installed energy capacity would be from non-fossil fuel sources. The current government’s commitment towards renewable energy sources has led to the setting up of the International Solar Alliance, the first treaty-based international inter-governmental organization, headquartered in India. This move towards renewable energy sources is also contributing to the overall GDP by creating new jobs while simultaneously trying to find solutions for the complex problems of clean energy.

Another issue adversely impacting the lives of people is hidden hunger, which pertains to the deficiency of vitamin, protein, and other nutrients. While lauding the critical role of farming and agriculture, he pointed out that the focus on food security initiatives need to be swiftly scaled up. He stated that there is an urgent need for improving agricultural infrastructure such as markets, and storages facilities to enhance the livelihoods of Indian farmers. There is also a need to incorporate better cropping practices and reduce waste in the movement of food from farm to fork, which will result in using land resources efficiently, as we must produce more from the same limited land resources. Furthermore, he opined that the units of measurement should be units of nutrition produced per hectare instead of tons produced per hectare. In order to enhance land productivity, India has committed restoring 13 million hectares of degraded land by 2020 and an additional 8 million hectares by 2030. India has also committed to sequester 2.5 – 3 billion tons of carbon dioxide equivalent by increasing tree cover.

According to Shri Naidu, innovative solutions are needed for many of the challenges the country faces today and business-as-usual will not work. In order to encourage innovation and young innovators, the government has created platforms such as Stand-Up India, Start-Up India, Digital India, and others. Along with innovative solutions, the delivery of the services also must be improved along with the
transition towards digitisation to reduce corrupt practices. The government has also taken up a global housing construction technology challenge, to get the best technologies around the world, that are clean, cheap and allow quicker construction, to address the commitment to Housing for All.

Apart from the public-private binary, the Vice President suggested that the country should strive to build a public-private partnership to understand the aspirations of the citizens and provide quicker solutions to the challenges. He stated that he is “hopeful and confident that with a wise and stable approach, we can support our burgeoning urban and rural population – to live well and with dignity, with access to safe and affordable living spaces, clean air, water, healthy and nutritious food, well-networked and equitable transport. We will also strive to make India pollution free again.”

In his closing remarks, he said that even though climate change is threatening us, it has also brought together various stakeholders such as state and central governments, academicians, media, political thought leaders and others on a common platform with common goals. His parting advice to everyone was that we must not only “Connect Karo” but “Correct Karo” – first correct ourselves, correct the systems and behaviours and then collectively correct the country’s development strategies.

After the address, Mr. Naidu launched the Electric Mobility Forum and an open data tool, the India Climate Explorer, which is a one-stop open-access data visualization portal representing the nation’s progress on climate policy.

Speakers
• Hon’ble Shri Venkaiah Naidu, Vice President of India
• Jamshyd Godrej, Chairman And Managing Director, Godrej & Boyce Mfg Co. Ltd.
• Dr. OP Agarwal, CEO, WRI India
• Jennifer Layke, Global Director, Energy, WRI
• Madhav Pai, Director, WRI India
ELECTRIC MOBILITY FORUM
Accelerating EV Adoption

CONTEXT

The Electric Mobility Forum (EMF) was launched by the Honourable Vice President of India, Shri M Venkaiah Naidu at the inaugural session. The first national level convening of EMF was held at CK. The forum had three goals – convening and mentoring stakeholders and scaling revolutionary ideas on the ground. The bigger goal is to accelerate the country’s transition towards electric vehicles.

The session was attended by over 100 diverse stakeholders: from the public sector – ministries, state governments; the private sector – fleet operators, infrastructure companies, vehicle manufacturers, technologists, academia, philanthropic groups, and civil society organizations from India and abroad. The participants collectively deliberated on electrification opportunities in urban transport, policies around promoting electric mobility, the current status of EV operations in India and planning for an EV future.

All the participants acknowledged that electric mobility has multiple environmental and economic benefits for India. Following this, the participants discussed how these benefits can be realised.

Participants reflected that the key factors for growing the share of EVs are favourable government policies, new financial mechanisms, mandatory manufacture of electric vehicles, balancing subsidies with demand side incentives like congestion pricing, low-emissions zones, and other non-fiscal interventions, demand creation, judiciously using existing infrastructure and a deep understanding of the mobility patterns in cities. These include travel behaviours, mode choice, trip distances in cities, changes in vehicle sales, private versus shared rides, to name a few. Adequate knowledge in this regard will allow for designing technologies – vehicle, charging and batteries – that match the needs at the local level.
During the discussion, manufacturers and fleet operators elaborated on the importance of complementing financing mechanisms for procuring new vehicles and retrofitting conventional vehicles, and setting up charging and swapping infrastructure on the ground. The need for a cohesive institutional apparatus was also emphasised. A world café format discussion focusing on two-wheelers, auto rickshaws, car/taxi, buses, and delivery vehicles was organised. For each mode, the participants discussed the current status and barriers, and brainstormed upon possible solutions. Some of the key possible solutions suggested by the participants for each modes were:

Vehicle aggregators providing E-bike taxi services or rent-a-bike services, logistics and delivery segments that could be game changers, regulatory reforms for E-2 wheeler taxi and renting, to relax regulations on vehicle registration for these purposes. Other solutions presented were the use of battery lease and swapping, promoting the indigenous component and battery manufacturing advancing to lithium-ion battery.

Stakeholders reasoned that a regulatory framework is needed for e-rickshaws. This will allow e-ricks to be easily financed and get more of them to begin using lithium-ion batteries. A fair percentage of big manufacturers should be incentivised to come up with more models and retro fit kits. Participants also suggested that battery swapping option should be more actively pursued as it seems to be working better. Additionally, re-energising infrastructure should be inter-operable. Enough charging points should be constructed across the city so that vehicle owners and drivers don’t have to resort to illegal ways of charging. Another use case for three-wheelers could be the municipal government which could deploy electric autos for logistics and trash collection.

Maximum asset utilization for 4-wheelers were discussed – through policy and shared mobility, long-term holistic policies to make investments viable, giving preferential benefits - disincentives and incentives-priority - e.g. free parking. Other incentives could be by way of insurance and easy finance options. In terms of infrastructure, interoperability with charging systems, night charging facilities (i.e. at bus stations and other identified zones), and creating more electric infrastructure which will make electric visible for customers and developing a confidence in them to adopt the new mode will be important. Other options will be to introduce carbon taxation (i.e. GST to carbon taxation) – transparent, fair and long-term policy which will also push for a level playing field, cap the registrations (demand side) and mandate production of EVs (supply side), with a supply side incentive from the government.

Participants suggested that there should be a mandate for STUs to increase their fleet of buses by a certain percentage over a time period (Central Government to State Government). There should be an increased R&D investment on technology; the government should assist in establishing relationships for technology transfer from international champions and promote industry-academia collaboration. FAME 2 can develop
an EV portal where all information is available for consumers. The task force at NITI Aayog can form the standards for procurement – new standards have to formulated where BIS can play an important role.

Participants suggested that the government can impose regulations to accelerate the electrification of the freight segment in intra-city operations. For visibility, the government should introduce e-vehicles in the postal department or other departments for the delivery of goods/parcel/letters. It can also create e-freight hubs with a charging facility in major cities, where big ICE freight vehicles can deliver the goods. From there, small electric freight vehicles can pick the goods and deliver at intra-city locations. Another idea was to create a shared model, similar to Uber/Ola type, for e-variant of light freight vehicles. Availability of charging infrastructure for private freight vehicle operators can be ensured. The government should offer a subsidy to address the high cost issue. Supply-side incentives to support the electrification of freight segment are another option. Innovative financing strategy/solutions were suggested to include the private freight operators to buy the e-variant of a vehicle.

KEY TAKEAWAYS

Understand the Country’s Unique Mobility Patterns
Indian cities are some of the densest urban agglomerations in the world. On average, nearly 40% of the trips are less than 5 kilometers. With such short trips, EVs don’t need to have large batteries, which are expensive and carry surplus weight that reduces vehicle efficiency and increases the operational costs for drivers. Instead, with smaller batteries and shorter trips, public and private actors could focus on creating a dense network of charging and swapping stations and building a reliable EV ecosystem. A bottom-up understanding of mobility patterns can help in choosing vehicle and battery technologies that meet people’s needs on the ground in a resource-efficient manner with the same or better convenience offered by conventional vehicles.

Establish New Finance Models
High capital costs of vehicle and charging infrastructure have contributed to slow uptake of electric vehicles in India. And with few EVs and infrastructure in place, the country lacks performance benchmarks to help investors understand the risks and opportunities from use cases and hedge against potential failures of new technology – i.e. if a vehicle’s battery doesn’t deliver its promised mileage, for example, or if the life cycle of an electric bus ends sooner than anticipated. In addition, advancements in technologies, like for batteries, could render existing assets less valuable compared to new ones, putting long-term investments at risk. Limiting these financial risks will take a joint effort by both the public and private finance sectors to create new models of financing EVs, including models that diversify the ownership of vehicle batteries such as through battery leasing, which separates the battery and vehicle costs. Other options include increasing loan tenure and reducing interest rates for EVs, as one public bank in India recently did.

Treat Used Batteries as Valuable Assets
There are two reasons why stakeholders in India should pay special attention to batteries. For one, batteries retired from EVs can be used as stationery storage devices to store renewable energy, such as solar. Renewables currently account for roughly 34% of India’s energy mix. Creating easy and affordable ways to use batteries in their secondary life could help grow the share of renewables by increasing storage capacity and mitigating the intermittent nature of some renewables. Another important role of retired batteries is as a source for mining raw materials for locally manufacturing new batteries for EVs. India doesn’t have the lithium and cobalt reserves to make lithium-ion batteries. Battery recycling is one possibility that could create an additional stream of raw materials to create new batteries locally aside from international procurement. While concern about domestic supply of raw materials is understandable, it shouldn’t be treated as a roadblock to EVs. Instead, new solutions should be derived rapidly.
QUOTES

“India is going to be flooded with indigenous EV technologies in the next ten years. Many youngsters are working on electric techniques.”

Dr. Prabhjot Kaur, CEO of Center for Battery Engineering and EVs (CBEEV), IIT Madras

“Policy incentives should be designed so that electric buses perform to our economics and convenience.”

Mr. Ravi Pandit, Chairman, KPIT

“Beyond global interests, for our country, electric mobility is a double bonanza for India. It’s not only green but also economically beneficial.”

Mr. Prasanna Patwardhan, Chairman and Managing Director, Purple Mobility

“We don’t just hand the vehicle and a key to the customer. We go to their home, assess the space and install a home charging system. We create an ecosystem for them.”

Mr Ravneet Phokela, Chief Business Officer at Ather Energy, Bengaluru

“Local set of factors such as the environmental crises of the city are informing Delhi’s EV policy draft.”

Mr Jasmine Shah, VP, Delhi Dialogue and Development Commission, Government of Delhi

SPEAKERS

- Dr. OP Agarwal, CEO WRI India
- Ravi Pandit, Chairman KPIT
- Vikash Mishra, EMI
- Dr Prabhjot Kaur, CEO, Center for Battery Engineering and EVs (CBEEV), IIT Madras
- Dr Sajid Mubashir, DST & Member R&D at NAB and Dept of Heavy Industry (DHI)
- KR Jyothilal IAS, Principal Secretary Transport, Govt of Kerala
- Jasmine Shah, Vice Chairperson, Dialogue and Development Commission, Delhi Government
- Vijay Jaiswal, Director-Automotive, Government of Telangana
- Daizong Liu, Program Director, China Sustainable, WRI China
- Amit Bhatt, Director, Integrated Transport, WRI India
- Ravneet S Phokela, Chief Business Officer, Ather Energy
- Mahesh Babu, CEO, Mahindra Electric Mobility Limited
VISION ZERO
Scaling Road Safety in India

CONTEXT
The session on scaling road safety focused on the globally accepted concept of Vision Zero which aims to bring fatalities due to road crashes down to zero and how it has been adopted in India through state-wide initiatives in Haryana and Punjab led by WRI India. Anirudh Dasgupta, Global Director, WRI Ross Centre for Sustainable Cities, elaborated on the safe systems principles and importance of a forgiving infrastructure. He also shared that the concept has been adopted by India with contextualized priorities focusing on speed management, road and street design, and improved mobility.

KEY TAKEAWAYS
Significance of Safe Systems Approach
Experts emphasized that humans will make mistakes on roads, but they should not have to pay for it with their lives. Foundation of forgiving infrastructure rests on this rationale. Infrastructural systems in place should be equipped to minimize post crash damage.

Need of political will to drive road safety
This was attributed as the single biggest factor to scale up road safety initiatives in India as well as to enhance impact of current action plans. Resource mobilization is merely an issue of working through institutional mechanisms given that need for road safety has wider realization now.

Research and evidence-based approach
There is a need of traffic research forums and collaboration with students, scholars, professionals to shift to evidence based model to tackle road safety on Indian roads. Microanalysis tailored to local scenarios will help in solving problems in a focused manner.

Need of strict law enforcement
With strict enforcement supporting road safety action plans, impact is bound to increase exponentially.

“India loses 405 lives everyday and 16 lives every hour due to road traffic crashes. ‘Haryana Vision Zero’ program in its first year saved 230 lives, which is equivalent to economic savings of roughly INR 276 crores for the state of Haryana. In Indian cities there is a need to bring road safety initiatives from the national level to the city level for their impact to reach full potential.”

- Sarika Panda
Chandigarh is the only city in India where people get arrested for trivial traffic violations. People can also share pictures of offenders to help traffic police book tickets through the Traffic Sentinel Application among other innovative campaigns.

**Wider realization for need of road safety**
There is well perceived increase in demand of road safety and a visible change in trend with sustainable transport, parking issues and technological interventions coming to the forefront of discussions. Behavioral change and capacity of stakeholders are a must although infrastructure improvement will remain India’s best chance to decrease road crash fatalities.

**QUOTES**

“The concept of Vision Zero and Forgiving Infrastructure has been adopted in India with contextualized priorities focused on speed management, street design and improved mobility.”

*Aniruddha Dasgupta, Global Director, WRI Ross Center for Sustainable Cities*

“In Indian cities there is a need to bring road safety initiatives from national level to a local city level for their impact to reach full potential.”

*Sarika Panda, Head - Head, Integrated Transport & Road Safety, WRI India*

“For advancing road safety in India resource mobilization is a must and, in most cases, it is largely matter of working through institutional mechanisms in a systematic manner”

*Dr. Sharad Chauhan, Additional Director General of Police, Traffic, Punjab*

“Road safety has never been seen with the seriousness it demands. Historically police have been trained to pay attention to other grievous issues like murder.”

*Nishu Singhal, Founder, MUSKAAN Foundation*
“More emphasis on resolving parking issues and technology integration is the need of the hour to solve most sustainable transport issues.”

*Raghav Chandra, Ex Chairman, Indian National Highways Authority of India*

“There is need to conduct crash investigation rationally as conventionally traffic police is trained to find human errors post a road crash.”

*Prerana Arora, Chief Executive Officer, Peoples Trust, Jaipur*

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**SPEAKERS**

- Dr. Ani Dasgupta, Global Director of WRI Ross Center for Sustainable Cities
- Sarika Panda, Head, Integrated Transport & Road Safety, WRI India
- Binoy Mascarenhas – Manager, Urban Transport and Road Safety (Moderator)
- Shashank Anand, Senior Superintendent of Police, Security and Traffic, Chandigarh
- Dr. Sharad Chauhan, Additional Director General of Police, Traffic, Punjab
- Raghav Chandra, Ex-Chairman, Indian National Highways Authority of India
- Harbahajan Singh, Director, General and Corporate Affairs, Honda Motorcycle and Scooter Pvt. Ltd India
- Prerana Arora, Chief Executive Officer, Peoples Trust, Jaipur
- Deepak Ohlyan, Vice President, Dell Global Facilities
- Nishu Singhal, Founder, MUSKAAN Foundation
(CONTEXT)

India’s urban population is expected to double in the next thirty years, but 75% of the infrastructure required to serve this population is yet to be built. Municipal finances in India remain constrained and city officials across the country are having to find alternative, innovative ways to stretch their limited budgets to meet infrastructure and service provision needs. With development happening on the peripheries of cities, services are being self-provisioned- an added burden on households, while also bearing indirect costs to the community, society and the environment. These can take the form of ecological degradation, resource depletion, human stress, ill-health from pollutants and lost hours of productivity – all of vital consideration to the economics of urban sustainability.

To aid bodies managing these urban issues, there is a growing ecosystem of domestic startups that are developing solutions aimed at managing urban water, waste, energy and mobility. Solutions these companies offer range from supply-side efficiencies such as better materials or efficient equipment, to demand-side management like monitoring and IT-enabled solutions.

The innovation session convened stakeholders from the government, business and entrepreneurs to discuss the use of technology and innovation to accelerate sustainability, resource efficiency, and service delivery in cities, particularly through new technologies like Artificial Intelligence and Internet of Things, and alternative methods to overcome public process hurdles towards accessing markets and scaling.

**KEY TAKEAWAYS**

**Role of the government**
The government plays a foundational role in enriching the innovation ecosystem and suggested flipping the pyramid and having local bodies lead the way with the state and central bodies supporting initiatives as most of the work and innovation happens at the city level.

**Formalise links between different stakeholders**
We need to formalise the links between government, academia, citizens and industry. For these innovations to have a catalysing impact on an economy, it is necessary that they be successfully commercialised. Currently, to make the journey from mind to marketplace, startups face considerable hurdles largely in the form of access to consumers, access to finance and access to government. To address this we must convert cities into test beds and living labs and stop working in silos.
Entrepreneur learnings
In the session, successful social entrepreneurs in the areas of energy – Arjun Gupta from Smart Joules; waste management – Rajneesh Prasad from Revy Environmental Solutions; and mobility – Padmanabhan Balakrishnan from Vogo Bikes shed light on learnings along their journey of growth and advised entrepreneurs as to the nuances of raising funding and working with the government. This discussion threw light on different issues faced by entrepreneurs including a) rigid permit and licensing systems faced in initial stages, b) priority areas (like energy efficiency) getting more eyeballs, c) taxes that are a hurdle for young companies.

QUOTES
“Many people feel that the government poses a challenge. We tend to miss important things – Globally innovations are driven by government systems. We must flip the way we work - i.e. from centre to local – to actually – local to centre”.

Kunal Kumar, Mission Director, Smart Cities Mission

“Long-term design and convenience are key to sustaining an enterprise that is looking to address climate change in an impactful manner”.

Mridula Ramesh, Founder, Sundaram Climate Institute

“WRI is helping to create a ‘people-focused approach’ to define the need for entrepreneur solutions”.

Prasanna Ganesh, Toyota Mobility Foundation

SPEAKERS
• BP Nigam, Delhi Transport Corporation
• Kunal Kumar, Smart Cities Mission
• Saurabh Kumar, EESL
• Rajiv Ranjan Mishra, NCMG
• Yaduvendra Mathur, Niti Aayog
• Rajnish Prasad, Revy Environmental Solutions
• Madhav Pai, Director, WRI India
• Mridula Ramesh, Sundaram Climate Institute
• Viveknanda Hallekere, Bounce
• Prasanna Ganesh, Toyota Mobility Foundation
• Arjun Gupta, Smart Joules
• Ravi Pandit, KPIT
AIR QUALITY ANALYTICS
Motivating, Sustaining, and Scaling Air Quality Management

CONTEXT
The awareness about air pollution is at an all-time high now, and the demand for clean air has reached a crescendo. But what can be done about the looming air crisis? How can the air be cleaned, who can do it, what kind of efforts and funds are needed, and who can invest in the whole movement... these are some of the key questions before us.

An Air Quality Analytics workshop, organised by WRI India, during its annual event Connect Karo on March 28, 2019, addressed these and many other issues. We invited stakeholders working in different domains to discuss the links between data, policy, and investment in clean air. The agenda was to specifically understand what kinds of data were needed to enable closer awareness of sources, creation and use of policy instruments to link public investments and efforts to clean air goals, and to track the "clean air returns" on investments.

There were city administrative officers, scientists, epidemiologists, physicians, non-government organizations, philanthropists, economists and international city air pollution managers at the workshop.

"Demanding clean air is important, but it's like asking for equality. What is critical is how the air will be cleaned and how public investments can be made to address the problem. We also need to understand sources contributing to air pollution"
- Dr Jessica Seddon

The workshop was divided into two sessions:
The first session focused on the role that quantification of air quality impacts plays in motivating and enabling investment in clean air. What kind of "proof of impact" do impact investors, policymakers, philanthropists, and civil society members require to be satisfied with their effort and seek to scale up investments in clean air? What would be the minimum acceptable evidence to justify increased investment? From a scientific perspective, what is the kind of evidence that could reasonably be made available to help attract further investment in clean air? Our goal in this session was to identify a feasible agenda for creating the kinds of feedback loops that motivate and direct effective finance for clean air.
The second session focused on advancing the evidence base for assessing the public health impact of air pollution. Concerns about the health impacts of pollution play an important role in driving demand for clean air, but we need to have an accurate and granular understanding of exposure patterns in order to respond effectively and efficiently to reduce these threats. This session combined presentations on current possibilities and data gaps in monitoring air pollution health impacts, followed by a discussion on possible innovations in research, design and environmental monitoring that could help advance the evidence base required. We focused in particular on the possibility of collaboration between the scientific community, civil society, and social entrepreneurs in generating data that advance our scientific understanding of air pollution and its health impacts.

**KEY TAKEAWAYS**

**Information is an infrastructure**
Complete data/information is the key, whether for public dialogue, policy formation, policy instruments and public investment processes, or for assessing return on investment and course correction,

**Some specific ways in which different kinds of data on air quality can help:**
* More comprehensive and common database on air quality measurements will create a point of agreement – the analysis and interpretation may vary, but there will be one set of grounding facts that allows the conversation to start.
* Source attribution is essential for directing action, and for assessing the benefits of action. But it must be explained well, and differences between studies must be clearly communicated. Sometimes, the differences between findings could also be reduced with additional investment in monitoring and emission inventories since fewer assumptions will need to be made in analyses.
* Public awareness of the full range of contributors to air pollution is important for building support for actions to reduce emissions that might not be obvious. Investing in solid waste segregation, for example, is an important air quality measure – but few are aware of this as an air quality strategy.

**Limited ‘impact Investment’ in the movement**
There is limited impact investment in clean air at the moment, though there is impact investor interest in sectors related to emission reduction. Part of the challenge is to generate clear evidence on clean air returns from a particular intervention. If this were in place, social impact bonds or blended finance may be a good option.
**QUOTES**

"Most people get their information from print media. For public advocacy and outreach around air quality to be effective, data needs to be regular, rigorous, and in a format that print media can easily use. Without these features, data won’t play the role we’d like it to."

*Varsha Joshi, Commissioner, North Delhi Municipal Corporation*

"Air quality monitoring alone isn’t enough. The discussion needs to be expanded beyond particulate matter. We need to also consider pollutants such as ozone, benzene and nitrogen oxides. Quality of AQ data needs to be addressed."

"Staff at pollution control boards manage a variety of sectors and there aren’t enough people to focus on air pollution in detail. Need trained manpower at pollution control boards."

*Dr B Sengupta*

"There is no dearth of evidence on the health impacts of air pollution in India. But we don’t have long-term studies. Also, we need more consistent and robust data on air quality."

*Dr Sagnik Dey, IIT Delhi*

"We need long term data sets to connect the dots on air quality and health."

"We need to improve health data in India. This could be achieved by making medical data electronic instead of recorded on paper data."

*Dr Pallavi Pant, HEI*

**SPEAKERS**

- Dr. Jessica Seddon, Director of Integrated Urban Strategy at WRI Ross Center for Sustainable Cities.
- Varsha Joshi, Commissioner, North Delhi Municipal Corporation
- Dr. Beatriz Cardenas, Air Quality Manager at WRI Mexico, Ex General Director of Air Quality Management in Mexico City’s Secretary of Environment
- Kartik Desai, Principal at Asha Impact
- Professor Sachin Ghude, Indian Institute of Tropical Meteorology, Pune
- Bharath Visweswariah, Director Investments at Omidyar Network Fund Inc.
- Joy Devgourev Sharma, Director GoMassive Earth Network
- Dr. B Sengupta, Independent Consultant, Ex-Member Secretary CPCB
- Dr. Ajay Nagpure, Head Air Quality, WRI India
- Dr. Mukesh Sharma, Professor, Department of Civil Engineering, Indian Institute of Technology Kanpur
- Dr. Sagnik Dey, Associate Professor Centre for Atmospheric Sciences Indian Institute of Technology Delhi
- Dr. Pallavi Pant, Staff Scientist, Health Effects Institute
- Dr. Arun Sharma, Department of Community Medicine at University College of Medical Sciences, University of Delhi
- Vivek Singh, CTO, Skymet Weather Services Pvt Ltd
- Dr. Laveesh Bhandari, Director, Indicus Foundation
- Dr. H.S. Sudhira, Director, Gubbi Labs
- Ronak Sutaria, Founder, Respirer Living Sciences Pvt. Ltd.
PLENARY

Shri Suresh Prabhu, Minister of Commerce and Industry

The plenary aimed at addressing the current and future perspectives on issues of climate change, electric mobility, energy access, water, and other environmental issues.

The minister said that the huge canvas of issues that need to be addressed cannot be dealt with in silos, as all impact the larger sustainability issue.

Shri Prabhu opined that the issue of population appears to have been missed out. We not only need to manage the supply aspect of resources but we need to take cognizance of the demand side as well. One of the solutions to addressing the key challenges of sustainability is population control as the biggest demand-side management tool. Controlling the population will lead to decreasing the demand for the resources. He emphasised that every human being on the planet has some sort of carbon footprint, however, people with higher access to the resources are using them disproportionately and therefore contributing to climate change in a larger way when compared to the poor.

He stated that the worst sufferers of climate change will be low income populations. Therefore, a global agreement on these challenges is the need of the hour. The Paris Agreement has become a non-starter as he believes that global action to combat climate change has fizzled out. Local action needs to be supplemented with global action to see fruitful changes for the environmental problems. He stated that India is doing everything that is necessary to reduce the carbon emissions such as working on 100 GW of solar energy, 70 GW of wind energy, and on efficient use of electricity.

He emphasised that electric mobility is a big opportunity for India and needs to be tapped in order to solve the problem of emissions. The increase in vehicles has also led to environmental degradation. Therefore, the transition to electric mobility will substantially aid in improving air quality.

Shri Prabhu shared that the need for smart cities will increase rapidly as the human population migrates towards the cities. There is a need to not only make the greenfield cities smart but also the existing cities need to be remodelled to reduce emissions and resource utilisation.

He concluded the session by stating that the theme of Connect Karo focuses on connecting with the right issues and connecting key stakeholders to find solutions on local and global issues.
ACCELERATING INNOVATION IN SMART CITIES

CONTEXT

The Smart Cities Mission has a goal to improve the quality of life and attract people and investments to a city, and to set in motion a virtuous cycle of growth and development. Through the Smart Cities Mission, the Indian government is looking to support city developments powered by technology that will help boost efficiency and effectiveness in governance, infrastructure and service provisioning. Matching financial assistance from the central government, the hundred cities under the mission will be pursuing strategic and priority development within “institutional, physical, social and economic infrastructure”.

One of the key features of Smart Cities, as described by the mission, is the application of smart solutions to infrastructure and services to make them better, more resource efficient, less vulnerable to disaster, cheaper, etc. To aid this, this session saw TheCityFix Labs cohort of startups with vetted solutions in water, waste and energy management, pitch to the CEOs of a few Smart Cities for opportunities to pilot.

KEY TAKEAWAYS

Application in Smart Cities

Smart Cities representatives from Chennai, Bhopal, Amaravati, Thane and Kochi and a representative from Niti Aayog’s Atal Innovation Mission were present as jury members and elaborated on how startups should focus on smart cities. To start with, they may focus on command and control centers of Smart Cities. The fact is that every building has a building management system and needs assets management. Startups can create a sharing mechanism wherein electronic information is shared with local authorities which will feed into the central system.

SPIRIT program

Mudit Narain, Atal Innovation Mission, shared with the startups the role of government, the procurement issues and the new SPIRIT program which focuses on identifying rules to engage with Smart Cities and work within the system. The SPIRIT program aims to identify some start ups through challenges and connect them with city incubator partners, tap into India’s large network, and then contextualize for that city for a more accelerated procurement method.
Startup Association

It is prudent to consider founding a startup association through which entrepreneurs could present and lobby startup issues and interests with the government more effectively.

QUOTES

"Higher and middle levels of government today recognize the key role that startups can play to provide innovations to urban services."

*Mudit Narain, Atal Innovation Mission, Niti Aayog*

"Work with MoUD to think systematically – Detailed project planning is key, try with one city and come up with a suitable business model."

*Raj Cherubal, CEO, Chennai Smart City Limited*

SPEAKERS

- Mudit Narain, Atal Innovation Mission
- Sameer Unhale - Thane
- Raj Cherubal - Chennai
- Sanjay Kumar Singh - Bhopal
- Varun Pawar, Vilcap and Lakeer
- Sanjay Soni, Bhopal
- Sanju Sunny, Amravati
- Jaya Dhindaw, Director, WRI India
UNLOCKING FINANCE FOR SUSTAINABLE INFRASTRUCTURE IN INDIAN CITIES

CONTEXT

The private sector’s support has been vital when it comes to investing in the success of individual startups. Responding to relaxation in government regulation, tax breaks and the creation of new asset classes, PEVC investment in India is booming, and the number of VCs with active investments in India has been steadily growing since 2013. With Flipkart’s sale to Walmart in 2018, exit values have also skyrocketed, a trend that is expected to continue. In tech startups, total funding doubled from 2017 to 2018, for the period of January to September, with the average deal size going from $3.9 million to a whopping $9.4 million. Private sector involvement in incubation has also grown, with almost half of the active incubators in the country run either by corporate or private organisations.

The panel discussion brought together speakers with varied backgrounds in finance for a technical discussion on infrastructure financing, comparative financial models and how to manage financial and business risks specifically for sustainable technologies, including challenges and opportunities around banking, innovative financing schemes, donors, and venture capitalists. The session guided the startups on different mechanisms to secure funding for their innovations.

KEY TAKEAWAYS

Finance Challenges
Entrepreneurs face challenges like working capital payment cycles and the rigid requirements for RFPs when working with the government; and sometimes entrepreneurs, in areas like waste and water, are working informally and often less savvy when it comes to raising funding. They may face hurdles wherein investors do not understand the technicalities or intricacies of these sectors.
Patient capital
There is a great need for patient capital, and in the Indian market since there is a dearth of patient capital, entrepreneurs may first focus on the private sector and become commercially viable before approaching the government.

Decentralised approach to infrastructure
A decentralised approach to building infrastructure is very important to drive efficiency and cost-effectiveness. The fundamental approach to infrastructure development is fast changing. There are a number of sectors where this decentralised approach may work – urban and rural – microgrids, solar rooftop, mobility and energy efficiency retrofits could bring many potential benefits. Services infrastructure may also benefit from this sort of approach. The EESL model of bulk procurement is a good example.

Government procurement
There is a great need for the transformation of the procurement process to ease the burden on enterprises. The government has to be made privy to issues that start-ups are facing, and lobbying with a collective voice could help in this regard. Moreover, giving start-ups an opportunity to pilot, thus mitigating initial risk, goes a long way in bridging the gap between government and entrepreneurs.

QUOTES
"If you have citizens on your side, the government will have to amend their policy to suit their requirements".
Aditi Gupta, Principal, Asha Impact

"We need a consistent long-term policy focus, For solar, every stakeholder kept chipping away at problems ... banks, developers, to get to a point where solar energy is in a much better stage."
Bhaskar Deol, Mynergy

SPEAKERS
• Bhaskar Deol, Mynergy
• Ravinder Voomidisingh, Caspian
• Aditi Gupta, Asha Impact
• Dr. OP Agarwal, CEO, WRI India
• Kartik Desai, ASHA Impact
• Jaya Dhindaw, Director, WRI India
SAFER BUSES FOR SAFER TRANSIT

CONTEXT

Over the last 4 years, one of the thrust areas under the Bus Karo platform has been the issue of safety in and around public bus services in urban areas.

We believe that making bus travel safer will significantly enhance the image, appeal and ridership of the system, making this mode a preferred choice for commuters.

Our deep working relationships with State Road Transportation Undertakings (SRTUs) and city bus agencies created opportunities to target cost-effective interventions in areas within the agency’s mandate and control. Two such areas were driving behaviour of the fleet’s drivers and vehicle features.

We learnt from our ground experience that many of the service bus fleets use smaller rear-view mirrors that are not compliant with the national regulations. Through field demonstrations and a pilot run, we could demonstrate that this seemingly minor upgrade significantly improves driving experience. With larger mirrors in place, the drivers could expand their field of vision and tackle blind spots around the vehicles more effectively. These efforts helped us earn the support of the technical staff who agreed to undertake replacement and retrofit of larger (regulation-standard) mirrors. The most recent breakthrough has been a successful fund earmark (State Transport Department) for safety initiatives at bus transport agencies in Tamil Nadu, of which a substantial component will be expended on fitment of rear-view mirrors.

The Connect Karo “Safer Buses for Safer Transit” session allowed us to understand the challenge of providing safer bus services from different perspectives.

Binoy Mascarenhas moderated the panel discussion by tabling the ideas around the unique challenges of delivering bus services on Indian city roads and the urgent need for evidence-based action, backed by crash statistics collected first-hand by the agencies. The discussants concurred on the need for greater emphasis on drivers’ health, well-being and training, amenities at the agency properties, and expressed their frustration on the challenges around operating bus services in mixed traffic conditions.

For the group activity, the audience formed teams to work on real crash cases that had occurred in the year. The participants comprised of a diverse group of urban designers, road engineers, public health researchers, bus agency officials, and development sector representatives, and each group shared unique perspectives around interventions that could have possibly avoided the unfortunate event.
KEY TAKEAWAYS

• State Transport Departments and their constituent agencies should develop a comprehensive roadmap to build a robust pipeline of talent across skill levels. These will include safety specialists to address system level issues, drivers sensitized to the complexities of navigating urban roads, public engagement officers who can understand and address the concerns of different user groups, and other similar roles.

• The in-house crash investigation process at the agencies must shift away from the simplistic approach of blaming either of the road users involved in the conflict, towards a forensic style analysis covering all the (human-vehicle-infrastructure) factors and time phases (pre-crash, at the time of crash, post-crash). This will lead to a more accurate understanding of road safety issues and possible solutions.

• Cities/Unified Metropolitan Transport Authority (UMTAs) to develop methodologies for coordinating efforts across stakeholders – bus service operators, traffic police, municipalities – to improve provision and quality of pedestrian and NMT infrastructure for buses.

QUOTES

"Migrant youth who are usually more experienced with heavy machinery – tractors and trucks – find navigating the mixed traffic conditions on the Delhi-NCR roads a huge challenge. Training for these drivers is essential."

B. P. Nigam, General Manager, Delhi Transport Corporation (DTC)

"Unfortunately, Indian law does not allow for crash investigations without assigning blame to human action. Our crash investigation methodology tries to apportion the blame after looking at a number of factors, and trying to understand what was happening pre, during, and post-crash from the point of view of each user involved."

Ravishankar Rajaraman, Technical Director, JP Research India Pvt. Ltd

SPEAKERS

• BP Nigam, Delhi Transport Corporation
• Ravishankar Rajaraman, JP Research India Pvt Ltd
• Prasanna Patwardhan, private bus service entrepreneur – BOCI
• Lakshmi Nair, Public Safety Mission Program Manager, UL
Catalysing Innovation in

AFFORDABLE HOUSING SOLUTIONS

CONTEXT

The Ministry of Housing and Urban Affairs is currently implementing the ‘Global Housing Technology Challenge – India’, a unique platform through which it intends to bolster technology transition in the construction industry and facilitate affordable and quality urban housing in India, primarily under the Pradhan Mantri Awas Yojana (Urban). WRI India is the Primary Knowledge Partner for the Challenge, a key component of which is the ‘Affordable Sustainable Housing Accelerators – India’ (ASHA – India) initiative, designed to catalyse domestic research and entrepreneurship in the housing and construction sectors. ASHA – India will offer a select cohort of emerging indigenous technologies tailored acceleration and incubation support, and encourage their entry and scaling in the mainstream market.

The ASHA – India cohort for 2019 was to be announced just after Connect Karo 2019, and the session sought strategic inputs towards optimal alignment between existing research and entrepreneurial efforts, and the larger housing and construction markets which remain infamously risk averse as well as bound by stringent regulatory frameworks. The inputs were further relayed to the Ministry of Housing and Urban Affairs, to help finetune the ASHA – India framework.

KEY TAKEAWAYS

Better Stakeholder Engagement

The construction and housing markets rely on localized networks of actors, implementers, and suppliers. The successful uptake of any disruptive innovation will thus depend on the innovators’ ability to successfully engage on-the-ground stakeholders and create mutually beneficial propositions.
Improve Market Linkages
Existing support avenues for innovations in the housing sector were characterised as technology focused. ASHA – India can complement these by leveraging the platform of the Ministry of Housing and Urban Affairs towards improving market linkages that can enable innovations to enter and scale the sector, and advancing the innovators’ understanding of the sectoral ecosystem, especially its demand-supply dynamics.

Identify Potential Green Shoots
Innovators should also be made aware of potential green shoots in other segments and sectors in order to offer alternative pathways towards product and market development. This can be manifested in various ways, such as shifts to process-based solutions, rather than product-based ones, building solutions for fast-growing markets like the rental sector, and adoption of confidence-building communication strategies over finance-centric ones.

QUOTES

“To make innovations successful in this sector, sharing of risks and opportunities among all stakeholders needs to be encouraged, and facilitatory frameworks and enabling contexts need to be provided.”

Tanmay Tathagat, Director, Environmental Design Solutions (Moderator)

“We need to identify and acknowledge green shots from other segments, and adapt best learnings from them for the success of ASHA – India.”

Mahesh Khalap, Senior Director Alternative Assets, JLL

“As a mentor, the good news is that most start-ups in the sector are surviving, and the bad news is that they are still stuck there. ASHA – India should expand the innovators’ network beyond technologists to other stakeholders who can offer them strategic market insights.”

Dr. Prof. Koshy Varghese, IIT Madras

“Instead of attempting to capture the market, innovators should build confidence within their local contexts by working upwards from small projects best suited to their solution’s USP.”

S. J. Vijay, Chairman, Salmon Leap & Director, hoMMission India
“Delivery of innovations needs to be matched with the disaggregation of demand & supply, implementers, customers and vendors present in the market.”

_Zeenat Niazi, Vice President, Development Alternatives_

“Demand and scale are non-synonymous and deeply affected by granular concerns such as local networks of stakeholders. ASHA – India should help innovators move beyond an ‘en masse’ approach to the market, towards a more nuanced and localized understanding.”

_Dr. Prof. Smita Srinivas, Hon. Prof., University College London (UCL) and Visiting Prof., The Open University_

"Beneficiaries tend to prefer conventional housing solutions on aspirational grounds as higher income groups appear to opt for the same. Given this, innovations need to be articulated carefully – they need not be price sensitive, but may focus on ease and adaptability too."

_Dhaval Monani, CEO, First Home Realty Solutions_

“Innovations need to meet and articulate the functional needs of their target audiences. If innovators can better understand beneficiaries and their requirements, their solutions are bound to succeed.”

_Dr. Prof. Subrata Chattopadhyay, former Head, Department of Architecture and Regional Planning, IIT Kharagpur_

“Innovators need the right champions who can help them navigate the housing market. The Ministry of Housing and Urban Affairs is best placed to play this role, meaningfully.”

_Suneel Padale, Senior Director, Habitat for Humanity_
Pradhan Mantri Awas Yojana’s policy provisions for securing Housing for All by 2022 outlines the need for private participation in fulfilling the need for affordable housing. Despite outlining multiple PPP models for incentivising private players, the domain has seen a slow uptake and limited interest in the last few years. The panel discussion was put together to initiate a dialogue on recommendations which could further PPPs in affordable housing. It opened with debates between need and demand in the segment, while simultaneously calling for bringing the focus back to the EWS and LIG categories, which were said to make up nearly 95 percent of the current identified gap. Land and locational factors were identified as a key hurdle for generating interest for private developers and for housing to remain in the affordable bracket. Peripheral locations allotted for developing affordable housing units, which were neither adequately serviced nor connected to livelihood and transport provisions, would be a burden on the developer as well as the end beneficiary. The need for green and sustainable building design was highlighted as a crucial yet under-acknowledged component alongside affordability and adequacy factors for building housing stock.

Some of the private developers on the panel shared their experiences of building affordable housing and pointed out that the incentives and rewards for investing in the segment haven’t been evenly distributed in the models suggested under PMAY. However, their key concerns were regarding the lack of government support, process inefficiencies, and losses accrued due to unsold stock across cities which failed to attract any takers. Voices across the panel argued for the need to address the relationship between the private and public domains within the PPP setups. Industry experts pointed out that the current status quo in PPPs presented a lopsided view of partnership, where the State came on board as the regulating agency, the approver, and the power wielding authority, rather than a partner for the private developer to mitigate investment risks.
KEY TAKEAWAYS

Improving public-private partnership and ease of business
It was argued that there is a need to redress the existing relationship between public authorities and private developers in the PPP setup in order to make it more equitable. Operationalising the ‘infrastructure status’ given to affordable housing could fast track operational procedures. Ensuring ease of business in construction industry, and enhancing existing incentives and provisions for credit finance to private enterprise could further cushion risk.

Identifying credible price points and targeting interest groups
Structuring a product mix which has units under Rs 6 lakhs and under Rs 3 lakhs remains essential for making the housing segment truly accessible for EWS and LIG category. Ways to improve the affordability factor and match need to demand were discussed on the panel. Looking at a diverse cross-section of players and intermediaries in the private segment for possible tie-ups, such as local building contractors who might work at lower profit margins, and access to lower lending rates could aid in hitting credible price points.

Ensuring land availability and locational context for building affordable housing
Incorporating affordable housing provisioning within city planning priorities was suggested as a way of opening available land parcels in the city for LIG and EWS housing, which could have more synergy with their current livelihood requirements.

Decentralising operational models and decision making for PPP set-up
Local capacity building at the municipal level and at the decentralized state level; and steering of the PMAY policy at large could decongest bottlenecks and improve the pace on matters of on-ground implementation.

QUOTES

“Housing for All 2022 is a gigantic task, and we cannot look at just PPPs to achieve this. We need to look at the interplay of all policies and programs and ensure overall sustainability.”
Dr. Manika Negi

“We need to rethink the models for building housing. Houses are not just houses but also livelihoods.”
Raghav Garg
“PPP has good models but ‘partnership’ is principally an equal relation. Currently public undertakings are only acting as regulators or approvers. There is a need to improve and equalise this relationship.”

*S. Mehrotra*

“If PPP can work in infrastructure development and transport, then why not in affordable housing? Maybe we need to rethink which segment of private sector we are looking at? Should we go to the smaller contractors and builders rather than big developers for partnerships?”

*SJ Vijay*

“In PPP you have to share the risk and rewards. Incentives, responsibilities and rewards for the private sector need to be structured better.”

*Dhawal Monani*

“Making land available and targeting the right segment is crucial. More than 95% of the honest interest segment for this housing demand is made up by the EWS and LIG category. Peripheral locations don’t work for them.”

*Gaurav Wahi*

“We need to think of affordability alongside sustainability in building design and construction technology.”

*P. Godrej*

“While faster, greener and more economical housing are the cornerstones for affordable housing, we need to think of diversity of options in front rental to buy back in order to have a wider product mix.”

*O.P. Agrawal*

**SPEAKERS**

- Dr. Jessica Seddon, Director of Integrated Urban Strategy at WRI Ross Center for Sustainable Cities.
- Dr. OP Agrawal, CEO, WRI India (Moderator)
- P. Godrej, Chairman, WRI
- Saurabh Mehrotra, National Director, Knight Frank
- Gaurav Wahi, Head Operation - Consulting Practice, Anarock Property Consultants Private Limited
- Raghav Garg, Member, Haryana Housing Board and Garg Properties
- Dhaval Monani, CEO, First Home Realty Solutions
- Dr. Manika Negi, GM- Design and Development Wing, HUDCO
- S. J. Vijay, Chairman, Salmon Leap & Director, hoMMission India
Launching at this year’s Connect Karo was a talk series ‘Engage – Connecting Big Ideas to Action’ where inspiring individuals came forward and shared their insights, future ideas and achievements that takes our mission to create a sustainable and liveable planet forward.

We are glad to have invited speakers who have acted on their ideas and who joined us to share their story. The themes for this year were Community building, inclusion, and people for sustainability. An evening of inspiring stories!
Deepa Malik
Deepa Malik is the first Indian woman to win a medal at the Paralympic Games. She won a silver medal at the 2016 Summer Paralympics in the shot put. She has also won a gold in F-53/54 javelin event at the para athletic grand Prix held in Dubai in 2018. She is unstoppable and inspiring. She is differently-abled and gifted. She is currently the world number one in the F-53 category. She has won accolades for her participation in various adventure sports. She has undertaken an 8-day, 1700-km drive in sub-zero temperatures which included a climb to 18000 feet.

Vijay Dhasmana
Vijay is an ecologist and is credited with reviving an urban forest in Gurugram called Aravali Bio Diversity Park. In 2010, a group of concerned and passionate citizens called ‘iamgurgaon’, took up the initiative of ecological restoration of the Aravali Biodiversity Park, Gurgaon. They hired ecological restoration practitioner Vijay Dhasmana to restore the damaged landscape in 2011. Thereafter, the Vision was revised to bring back the original Aravali forest vegetation of the region. Seedlings of about 200 native plant species were raised from seeds collected from remnant natural forests and vegetated areas. The Park also maintains a variety of habitats including grasslands and a seasonal pond near an old quarry site.

Vinita Singh
Vinita is the Managing Trustee at We the People - a citizens’ network, a part time development consultant and a full time active citizen. She is a deep believer in democracy and the humanist values embedded in our Constitution. Her main focus, over the last 20 years, has been to build people’s capacities to uphold rights and practice responsibilities within our democratic and constitutional framework. Vinita has an education in management from the SP Jain Institute in Mumbai and in social policy from the London School of Economics.
The plenary was aimed at answering pertinent questions around urban innovation, which would be a key catalyst in achieving the ambitious SDG targets. The panellists deliberated around the role that needs to be played by the private sector, private-public partnerships, government agencies, international institutions, and multilateral associations in order to make urban transformation more inclusive, sustainable and equitable – reaching the under-served citizens of the country.

The panel agreed that MDGs and SDGs missed the relationship between the industry and innovation across sectors. There was a consensus that mainstream economics is not incorporating the enormous changes that must happen for attaining SDGs. There is lot of economic literature on the impact of innovation in the rearranging of market structures to be able to impact public goals. However, the panellists argued that the power to bring about change lies with the chosen politicians in the government and how they want to steer the policies to attain SDGs. It is important that the relevant actors are on the same page to address challenges of innovation and industry.

Further, details around the kind of innovation required were discussed, and that innovation should revolve around public choice and demands. Innovation along with long-term, physical, and spatial planning may be key to creating strategic plans for public agenda and arriving at different models of public-private partnerships.
It was felt that there is a lack of innovation in public service delivery and in the role of local institutions. The example of The Netherlands was cited, which opened up a challenge to private companies to provide solutions towards increasing the uptake of renewable energy. The industrial policies in The Netherlands have changed from protection of the industry, to transforming the industry, along with channelling innovation to focus on the public policy challenges.

**QUOTES**

“Cities are a very special ally of urban innovation. In India, there is such a diversity of regions and circumstances on the path to sustainable development, that will be exciting to observe in years to come.”

*Ambassador Andre Aranha Correa Do Lago, Brazil Ambassador*

“None of the climate outcomes are possible, if city systems don’t work dramatically different.”

*Ani Dasgupta, WRI*

**SPEAKERS**

- Brazilian Ambassador H.E. Andre Aranha Correa do Lago
- Dutch Ambassador H.E. Marten van den Berg
- Ani Dasgupta, Global Director WRI Ross Center for Sustainable Cities
- Smita Srinivas, Honorary Professor Science, Engineering Technology and Public Policy, University College London
SESSIONS

WRI bi-annually organises Bus Karo workshops to engage with State Transport Undertakings and other stakeholders in the public transport domain. The focus of the 14th Bus Karo was on innovations in scaling public transport, with participation from more than 80 representatives from 13 transit agencies, academic institutions, industry, civil society organizations and startups. The session was divided into 4 sub-sessions focused on innovation in scaling public transport, bus reforms at state-level, innovation in bus transport, and electric buses.

The first session focused on the innovations required to scale public transport. Tanushree Deb Barma, IT Director, Bengaluru Metropolitan Transport Corporation, said that as an operator it is important for bus agencies to set a vision for public transport in states and cities and accordingly plan for its implementation. Akshima Ghate, Principal at Rocky Mountain Institute, said that there is a renewed focus on public transport but the importance given to buses is low. The investments towards buses have been non-existent during the past few years but the thrust to adopt electric buses has brought the attention of policy-makers back to buses, which is an excellent opportunity for bus agencies to guide investments towards bus systems. Vivek Chandran, Program Manager, Transport, Shakti Sustainable Energy Foundation, highlighted that improving bus transport not only requires adopting best practices but also institutional reforms. Currently, STUs are neither mandated to increase their services nor are there measures to check the quality of the service provided.

It was deliberated during the interaction that in order to improve bus systems, there is a need for bus agencies to set a vision for their services and then plan for implementing the envisioned systems. It is also important to test new business models which include low interest finance, bus aggregator models, and bulk purchasing to drive down the costs.

The second sub-session focused on reforming bus systems at the state level. Shilpa Kharwal, WRI India, set the context for the session by highlighting that policies and financial mechanisms by the central and state governments in the last decade have led to improvements in public bus systems. However, over the years the demand-supply gap has led to a decline in the mode share of buses. To close this gap, there is a need to adopt a long-term integrated planning approach, establish dedicated funding mechanisms and involve the private sector.

Durgesh Nandini, Delhi Government, shared that rationalizing its routes helped DTC increase the passenger carrying capacity of its existing fleet by 40 percent and connect villages adjoining Delhi with the city centre, thus, increasing access to jobs, education and healthcare. Pravesh Biyani, IIT Delhi, apprised the gathering about Delhi’s Open Data Initiative which was launched to use the services of third parties for transport data analysis. A key outcome of opening data in Delhi has been the integration of information on bus services on platforms like Google which passengers can easily access. Dr. K. Ramamurthy, Karnataka State Road
Transport Corporation, highlighted that by conducting reforms in fleet modernization, infrastructure strengthening, revenue mobilization, system and process improvement, use of information technology, cost minimization and transparency of human resource policies, KSRTC has achieved a profit of Rs. 4 crores despite operating 60 to 70 percent of its services in low-income areas.

The third sub-session emphasised innovation in public bus transportation in India. As part of this session, winners of the Better Bus Challenge, launched at Connect Karo 2018, presented their pilot solutions. The session was initiated by the opening remarks of Mr. Mathew Davies, Managing Director, Sales, FedEx Express India. He shared key insights gleaned from the projects over the years and highlighted the thought process behind the launch of the Better Bus Challenge. Following this, Ms. Krithi Venkat, Urban Transport, WRI India, presented the status of the Better Bus Challenge and set the context for the panel discussion, highlighting the major challenges faced by both entrepreneurs and transit agencies alike in fostering innovation within public bus systems across the country. The panel discussion was moderated by Sreekumar Kumaraswamy, Head, Integrated Transport and Innovation, WRI India. Participants in the panel included Dr. Ramamurthy, Chief Mechanical Engineer, Karnataka State Road Transport Corporation, Mr. Pawan Mulukutka, Head of City Development, BOSCH India, and the winners of the Better Bus Challenge – Mr. Mayur Patil, Founder, Small Spark Concepts Pvt Ltd., Mr. Rushabh Shah, Co-founder, Cityflo, and Mr. Sridhar Ramasubban, Chief Business Officer, Cell Propulsion. All participants agreed that initiatives like the Better Bus Challenge are good platforms for transit agencies to experiment with new and innovative technologies. The merits of transit agencies hosting an innovation cell to benefit from path-breaking ideas were explored. The need to include corporates and impact investments were acknowledged.

The fourth sub-session focused on the assessment of technological choices – bus and charging infrastructure available in the electric bus markets and methods such as total cost analysis as a tool to assess the products as per their technical specifications, operational performance, financial implications, and risks and challenges, before procurement. Based on the experiences of various transit agencies on the panel, the session also focused on discussing the factors that influence route planning for electric buses such as route lengths, terrain, number of stops on the route, vehicle speeds, vehicle loads and the distance the vehicle can travel on a single charge. The panel included Dr. OP Agarwal, CEO, WRI India, Dr. Parveen Kumar, Senior Manager – Electric Vehicles, WRI India, CK Goyal, Associate Vice President, Delhi Integrated Multi-Modal Transit System Limited, GP Pradeep Kumar, ED (Technical), Kerala State Road Transport Corporation, HK Gupta, Chief General Manager, Himachal Road Transport Corporation, Deepak Trivedi, General Manager, Janmarg Ahmedabad, Naga Satyam N, Executive Director, Olectra, Divyaparakash Vyas, Deputy Regional Director South and West Asia, C40 Cities, and Gautam Patel, Associate-CRDF, CEPT University.
KEY TAKEAWAYS

It was argued that to improve bus systems, there is a need for bus agencies to set a vision for their services and then plan for implementing the envisioned systems. It is also important to test new business models, innovative financing mechanisms, bulk purchasing to drive down costs and integration of services provided by the private sector.

There is a great potential that transit agencies can leverage by co-creating solutions aimed at augmenting public transport systems with new mobility enterprises. While transit agencies are experts in operating public bus services, the solutions developed by new mobility innovators have the potential to improve the efficiency of these systems. Open innovation models can facilitate collaborations between the two stakeholders by introducing new technological solutions into transit agencies to improve public bus systems and allowing new mobility innovators a platform to showcase their solutions and gain proof of concept.

The increased impetus given to electric buses through the Faster Adoption and Manufacturing of Electric vehicles (FAME II) Scheme can be used as an opportunity to enhance the bus systems by making e-buses a success. However, before procurement of electric vehicles, route planning should be given priority to ensure the vehicle kilometers travelled is high. The total cost of ownership of electric buses is more sensitive to the total distance travelled than the capital cost of the bus. Additionally, route planning and scheduling play a key role in informing the type of bus and charging technology to be procured.

QUOTES

“The Better Bus Challenge gives opportunities to enterprises to work with bus agencies, which otherwise could not have been possible.”

Dr. Ramamurthy, KSRTC

“The right ingredients have been there for quite some time, but we need to take it forward holistically. There has to be a political will to understand and prioritise the issue at the top level.”

Tanushree Deb Barma, BMTC

SPEAKERS

- Tanushree Deb Barma, IAS, IT Director, Bengaluru Metropolitan Transport Corporation
- Akshima T Ghate, Principal, Rocky Mountain Institute
- Vivek Chandran, Program Manager, Shakti Sustainable Energy Foundation
- Amit Bhatt, WRI India
- Dr. K Ramamurthy, Chief Mechanical Engineer, Karnataka State Road Transport Corporation
- Pravesh Biyani, IIT Delhi
- Durgesh Nandini, Regional Manager West, Delhi Transport Corporation
- Prashanth Bachu, Gear Change
- Mayur Patil, Founder, Small Spark Concepts
- Sridhar Ramasubban, Chief Business Officer, Cell Propulsion
- Pawan Mulukutla, Bosch India
- Gautam Patel, Associate-CRDF, CEPT University
- CK Goyal, Associate Vice President, Delhi Integrated Multi-Modal Transit System Limited
- HK Gupta, Chief General Manager, Himachal Road Transport Corporation
- Deepak Trivedi, General Manager, Janmarg Ahmedabad
- GP Pradeep Kumar, ED (Technical), Kerala State Road Transport Corporation
- Divya Prakash, C40 Cities
“Our analysis shows that India cities are growing outward far more rapidly than upward, which has broader ramifications on sustainability and liveability. How do we reconcile densification with sprawl within the broader context of sustainable urban growth?” quoted Rejeet Mathews, and set the context of the discussion. She added that “In the Indian cities if income goes up by 1 percent, the demand for residential space goes up by 1.3 percent.” This is one of many reasons why urban density in India is becoming less, resulting in the phenomenon of urban sprawls which leads to suburbanization.

The official definition and criteria set for the urban areas in the census of India is not that restrictive and if the criterions defined are applied properly, the actual urban population of the country would have been much higher than what was documented in 2001. One key reason for the reluctance from state governments to recognise census towns and urban sprawls as urban areas, is primarily due to vested interests involved in in being recognised as rural areas. Rural areas are subjected to lower taxes and reduced regulations as compared to the urban centres.
KEY TAKEAWAYS

Limitation of Static Master Plans
It was argued that land and housing markets drive the phenomena of suburbanisation. Other attributes that have contributed to suburbanisation include static master plans which are not linked to market changes, restrictive building bye-laws, and weak regulatory regimes in the peripheries.

Need for unified vision for Urban Development
Mega projects such as the metro-rail were thought to be conceived as civil engineering projects, without being integrated within overall land use of the area. Certain government policies have also had a role in the outward growth of the cities. Economic dynamics of a region are fundamentally linked to income and migrant population, and tied to ecological, cultural, and religious aspects, which are not valued in the current frameworks. Ways to overcome these challenges and manage suburbanisation discussed in the panel included revisiting and integrating planning pedagogy that creates silos, for instance by separating land-use and transportation planning courses. The discussion initiated a rigorous debate on limitations and possibilities within multiple governance models, in order to steer urbanisation in the larger context.

Need for regional planning approach
It is essential to consider macro level scenarios while developing the models of growth dynamics, but a regional planning approach for metropolitan areas accompanied with a governance mechanism to drive such a plan could be thought of as a way forward to manage suburbanisation.

QUOTES
“Our analysis makes it clear how unanticipated urbanisation leads directly to unsustainable habitats. While there is no silver bullet, how can we have directional change in shaping future urbanisation?”
Aniruddha Dasgupta, Global Director, WRI Ross Center For Sustainable Cities

“We need a granular approach to urbanisation. Big cities are growing in a manner different to smaller cities. Governance needs to be sensitive towards these differences to better acknowledge all kinds of urban growth.”
OP Mathur, Senior Fellow at the Institute of Social Sciences, New Delhi
“Weak governance is leading to unsustainable outward growth. We should seriously consider regional planning paradigms to better steer suburbanization.”

**Prof. Srinivas Chary, ASCI**

“Despite being looked after by the same ministry, urban transport and urban planning in India are disconnected. While we’ve had a transport policy, an urbanisation policy is not yet in place. There needs to be greater conversation between the two to ensure sustainable urban growth.”

**Dr. OP Agarwal, CEO, WRI India**

“Urban India is too large and diversified to have a cookie cutter solution. Evidence based planning is a great step ahead and I want to congratulate the WRI India team for its analysis shared today.”

**Chetan Vaidya, Former Director, SPA, New Delhi, Senior Advisor, Kochi Smart City Project supported by GIZ**

“The problem of Indian cities is not density but optimising density. We have to find solutions in the context of the current political economy.”

**Sanjay Shridhar, C40 Regional Director for South and West Asia**

“While geospatial mapping can provide useful real-time information about urban areas. We need to improve technical capacity and reinforce data consistency to use the tool efficiently for managing urban growth.”

**Prof. Amitabh Kundu, Distinguished Fellow, RIS- New Delhi**

“What mix of non-market instruments can we leverage towards the urbanisation and development story?”

**Smita Srinivas, Hon Prof. UCL, Vis Prof. The Open University UK**

SPEAKERS

- Dr. Anirudh Dasgupta, Global Director of WRI Ross Center for Sustainable Cities (Moderator)
- Dr. OP Agarwal, CEO, WRI India
- Prof. Srinivas Chary, ASCI
- Chetan Vaidya, Former Director, SPA, New Delhi, Senior Advisor, Kochi Smart City Project supported by GIZ
- Prof. Amitabh Kundu, Distinguished Fellow, RIS- New Delhi
- O. P. Mathur, Senior Fellow at the Institute of Social Sciences, New Delhi
- Smita Srinivas, Hon Prof. UCL, Vis Prof. The Open University UK
- Sanjay Sridhar, C40 Regional Director for South and West Asia
The session started with a keynote address by Anil Kumar Jain, Additional Secretary, MoEFCC, Government of India, highlighting three key points with respect to climate action: i) the need for and application of data, ii) the role of cities, and iii) the integration of state with city level action planning. Mr. Jain also stressed the role of State Action Plans on Climate Change (SAPCCs) as an integrating measure to holistically capture different aspects and implications of climate change. The keynote address was followed by a presentation by Pier Roberto Remitti, International Urban Cooperation, focusing on the efforts of the Global Covenant of Mayors (GCOM) to help cities reach their climate targets through the common reporting framework.

Following this, Subrata Chakrabarty, WRI India, talked about the Data Portal for Cities project. He explained that the portal supports the central government with NDC implementation and showcases progressive climate actions of cities at the national and international level. The portal aims to cover 40,000 cities across 20 countries, by the end of 2019.

The first panel comprised of state and city government officials, chaired by Dr. JR Bhatt, Advisor, MoEFCC, and co-chaired by Dr. Ritu Kakkar, IFS, Director-General, Environmental Management Policy & Research Institute (EMPRI), Karnataka. It served as a platform for state and city representatives to highlight subnational initiatives and their institutional approaches to combat climate change. The panel identified gaps and challenges that prevent cities and states from being more proactive towards reporting and implementing climate action. While addressing the diversity in our country, Dr. Bhatt recommended nudging behavioural changes at a local level, reporting and communication of good practices at the state level, and, aligning state plans and city ambitions to improve local climate action.

The second panel discussion focused on the role of data in subnational action plans. The panel discussed the challenges of disintegrated data collection processes at the sub-national level and the need for a nodal agency at the state-level to compile data, with an accountable data officer. However, after setting up a collaborative database, states would need ways to use this common resource to make informed decisions. Speaking from his experience in South Asia, Pier Remitti argued that climate change policies are defined by NDCs. These plans do not address the city directly and are centred on planning at the national or sectoral level. On the conceptual perspective, NDCs ignore the potential of urban policies to address climate change. Remitti recommended developing a national framework for reporting climate action along with a legal framework, while citing Vietnam as a case study. Shantanu Gotmare, Global Green Growth Institute, underpinned the need for behavioural changes to enable climate action. The dialogue on Climate Change has to be conducted in a lucid manner in order to encourage mass collective action. Gotmare also spoke about data drivers to understand the political economy of a country and formulating green action as a business case.
The third panel discussion focussed on how tools and analysis can further support action at the state and city levels and by non-state actors. Dr. Daniel Bradley, British High Commission, described how certain Indian states developed an Energy Calculator for 2050 and are using this energy modelling and scenario based tool to plan climate action in different sectors. Ms. Nehmat Kaur, The Climate Group, introduced the audience to the Climate Action Compass, a tool that enables states to assess their initiatives and efforts with India’s national climate goals. Ashwini Hingne, WRI India, presented a quantitative estimate of how voluntary climate action by Indian businesses can contribute to India’s climate goals under the Paris Agreement. She also presented the economic rate of return approach to capture the social benefits of renewable energy. The conclusion of the overall discussion was that the process of climate action can be amplified or enhanced with more participation of subnational and non-state actors and there is a need to look at different aspects of policy making comprehensively and plan it to improve returns at the lowest cost for society.

**KEY TAKEAWAYS**

**Climate action planning must include local data**
For subnational governments to take up effective policy actions and demonstrate declining emissions, they require models, forecasting tools and data to track their GHG emissions. The data collection process must be institutionalised within the existing state, city, municipal, and other governance structures.

**Climate action plans must address cities directly**
Climate action is usually centred on planning at the national or sectoral level. Nationally Determined Contributions (NDCs) tend to ignore the potential of urban policies and city-level action to address climate change. Thus, state action plans should address cities specifically to enable synchronised and efficacious implementation of climate policies and prioritise climate action at the subnational level.

**Climate action must be mapped to developmental goals**
Climate change impacts developmental priorities such as health, agriculture, water, food security, and employment opportunities amongst others. Identifying socioeconomic priority areas within subnational regions will help in aligning climate action plans with development plans. Prioritising specific sectors can help finance climate action within the municipal or local budget.

**Climate action planning must address local capacity building**
Considering every subnational region has its own contextual features, there is a need to understand how local data is collected, analysed and used for climate action planning. Dedicated knowledge centres and climate cells at the subnational level could serve as accurate and updated repositories for information management. This could aid policy makers and stakeholders in prioritising issues as well as assist in decision-making.
“It is difficult to scale down national level data to the desired geographical or local level. Considering each city has its own attributes and differences, there is a need to understand how local data is collected and how it can be brought together.”

Dr. Ritu Kakkar, Environmental Management Policy & Research Institute (EMPRI), Karnataka

“The sense of belongingness to climate issues and translating experience to action is missing. States can improve on their own, irrespective of targets given to them. Each state would have differences in situations, but nationally, we are speaking with one voice and acting as one.”

Dr. J R Bhatt, Advisor, Ministry of Environment Forests and Climate Change

SPEAKERS

• Dr. Jessica Seddon, Director of Integrated Urban Strategy at WRI Ross Center for Sustainable Cities.
• Pier Roberto Remitti, International Urban Cooperation (IUC)
• Anil Kumar Jain, Additional Secretary, MoEFCC
• Dr. J. R. Bhatt, Advisor, Ministry of Environment Forests and Climate Change
• Dr. Ritu Kakkar, IFS, Director-General, Environmental Management & Policy Research Institute (EMPRI), Karnataka
• Jaideep Baruah, Assam Science Technology & Environment Council
• Shwetal Shah, Climate Change Department, Gujarat
• Lokendra Thakkar, EPCO, Madhya Pradesh
• Shishir Shrivastava, Gwalior Municipal Corporation
• Raina Singh, National Institute of Urban Affairs (NIUA)
• Shruti Sadhukhan, International Council for Local Environmental Initiatives (ICLEI-SA)
• Shantanu Gotmare, Global Green Growth Institute (GGGI)
LAST MILE CONNECTIVITY
Connected and Integrated Transport

CONTEXT

“To understand and find solutions to a fundamental challenge of providing quality metro rail transport to Indian cities, that ensures commuters have access to convenient, affordable and safe connectivity to and from metro rail stations, is what the Station Access and Mobility is about” quoted Pras Ganesh, Toyota Mobility Foundation, as he set the context of the discussion on last mile connectivity.

The first half of the session involved a brief presentation of WRI India’s research on first and last mile connectivity choice at a metro station in Hyderabad. Some of the key findings of the research were:

• Income and Station Catchment Areas: Income is positively correlated with distance travelled (i.e. higher income groups tend to travel further to access metro stations), and the average time taken to access metro stations is remarkably consistent across income groups at approximately 25 minutes. This is due in part to the fact that higher income groups can access faster means of transport to and from metro stations.
• Gender: Even though women in the sample were drawn from a similar income distribution as male respondents, they exhibited significantly different commuting patterns. Women, for example, walked far longer distances than men. Given a choice between buses and share autos, women were inclined to avoid the former except for extremely long-distance trips. This is perhaps a result of the perception that buses are less safe than share autos, especially if overcrowded.
• Mode-Based Findings: Share autos are used consistently for distances up to 10 kilometers, and data shows a statistically significant preference for share autos during morning peak hours. Likely reasons behind this trend seem to be: extremely frequent feeder routes to several metro stations; flexibility of service, as they can be flagged down anywhere along the route; and low cost.

Buses tend to be preferred for longer-distance trips, wherein the inconvenience of needing to reach a bus stop is offset by the higher average speed of buses (over share autos) for longer distances. Bus uptake is also determined by the structure of bus route network around metro stations – the number of destinations in different directions serviceable by bus that are not also on the metro line.
• Population density: A higher population density is correlated with a higher rate of walking around metro stations – as the distance between trip generation points and the metro station tends to be lower. However, this is mediated by two important factors – the quality and safety of walking infrastructure around the station, and the ease of accessing low-cost feeder modes from that station for short-distance journeys.
The research piece paved way for the panel discussion in the later part of the session. The economics of running a feeder network that would be viable for operators and can move millions of people was deliberated over. Madhav Pai from WRI India highlighted that the employment centres around metro-rail corridors were more spread out in Indian cities than in other Asian counterparts, necessitating longer last-mile commutes. Panellists agreed that the metro-rail systems were still new and evolving in the Indian context, and that the Delhi Metro could serve as a good example to other Indian cities.

An interesting session was the final pitch by the shortlisted contenders of the STAMP 2019 Kochi Data Innovation Challenge. The participating teams analysed metro transit data from Kochi to develop a suite of applications broadly aimed at improving accessibility to the transit network. Their solutions were expected to cater to one or more of 3 predominant focus areas: providing information and improving accessibility to vulnerable commuter segments; aggregating and disseminating real-time updates for informed commuter journeys; and, mapping commuter and citizen demand in cities to help transit agencies plan services more efficiently.

The challenge initially received 700 applications, which were narrowed down to the final 6 who presented their ideas at the session. After evaluating the presentations, the jury deliberated on the solutions before concluding the following 2 teams the Leading Data Innovators of the challenge:
- Team Sukriti, whose solution overlaid multiple datasets to accurately understand the many dimensions of commuter movement and help transit agencies design better feeder services.
- Team Hyperpro, whose data analysis and visualization tool could help transport agencies better understand various components of commuter movement to and from transit stations.

KEY TAKEAWAYS

**Feeder service: Affordability and Efficiency**
At the outset, the panel acknowledged the importance of the impact – cost and time – of the first and last mile segment on a metro commuter’s end-to-end journey; that inefficient and unaffordable feeder services would hamper utilisation of the metro itself. Mr. Seth pointed out the two key components of an effective feeder system capable of moving millions of passengers to and from metro stations – ‘assuredness’ and a fare structure lower than INR 4/km.

The economics of providing such a high-frequency, low-cost service were also discussed, as several attempts at providing such services in Indian cities have proved unviable in the past.

Three major points were brought to the forefront-
- The importance of integration (physical and data) and the need for a Unified Metropolitan Transit Authority in planning transit.
- The requirement for multiple stakeholders (metro agencies, bus agencies, the city council, large employment centres near metro stations) to work together to design and develop successful feeder modes and routes.
- Bus operators needed to deploy smaller buses at higher intervals on metro feeder routes, rather than the large buses typically deployed on city bus routes.

**Establishing micro-mobility cells**
An important difference between India and other Asian economies with well-developed metro systems is that employment centres around metro stations is dispersed more widely in India, necessitating longer last-mile commutes. Given this, and the evolving nature of metro systems in the country, an important point brought up was that transit agencies could establish micro mobility cells to specifically understand first and last mile trends which could influence station design interventions in upcoming phases of metro construction.
The panel pointed out that the impact of greater innovation and flexibility by transit agencies, for example, in exploring new mobility pilot schemes at stations, have proven to increase ridership. The panel discussion concluded with an important caveat that in the discussion of viability and operational feasibility of feeder modes, the perspective of the passenger should not be forgotten.

**QUOTES**

“Our analysis makes it clear how unanticipated urbanisation leads directly to unsustainable habitats. While there is no silver bullet, how can we have directional change in shaping future urbanisation?”

*Aniruddha Dasgupta, Global Director, WRI Ross Center For Sustainable Cities*

“We found that the first and last mile costs for a metro journey were almost as high as the metro journey itself, making it uneconomical for many passengers.”

*Samir Sharma, DIMTS*

“It is important to consider gender differences in planning first and last mile options. Women tend to prefer autos and other open vehicles for first/last mile options, avoiding buses if possible.”

*Aishwarya Raman, OMF*

“Each commuter moves through the city differently; has different travel patterns and has a specific requirement for first and last-mile solutions. Data-driven solutions provide an insight into the commuter movement patterns and provide transit agencies with the necessary information to plan and deploy services that are beneficial for seamless integrated passenger movement. By addressing gaps in services and catering to the benefit of the commuter, transit agencies can look forward to improved ridership and use of public transportation. This is what we are trying to address through STAMP*.

*Madhav Pai, India Director, WRI Ross Center for Sustainable Cities.*

**SPEAKERS**

- Ajay Seth, IAS, Managing Director, BMRCL
- DK Sinha, Director Syatems, Kochi Metro rail Limited
- Samir Sharma, VP, DIMTS
- Prasanna Ganesh, VP, TDEM and Director, TMF
- Pawan Mulukutla, Head of City Development, Bosch India
- Aishwarya Raman, Assistant Director, Ola Mobility Institute
- Akash Gupta, Founder, Mobycy
- Madhav Pai, Director, WRI India Ross Center

**JURY**

- Ajay Seth, IAS, MD BMRCL
- Tanushree Dev Barma, IAS, IT Director, BMTC
- D K Sinha, Director Systems, KMRL
- Prasanna Ganesh, VP, TDEM and Director, TMF
- Deepak Goel, Regional Director, Shell Foundation
- Vivekanand Kotikalapudi, Senior Manager, Mobility Solutions, Bosch India
THE CityFix LABS

CONTEXT

The Indian central government began working actively to make the startup ecosystem the focal point of policy-making around 2014. Seven central ministries launched schemes and policies promoting startups with many of these policies targeting the startup ecosystem at large, providing financial and procedural support and incentives to organisations and institutions, to set up incubators, conduct workshops, and upgrade technology and physical infrastructure for startups.

This session entailed a dialogue on how to scale and adapt solutions in line with the requirements of the central government policy and regulations and other urban local bodies. The CityFix Labs cohort comprising of 10 enterprises from water, waste and energy sectors pitched to the chief engineers, secondary engineers, planners, and other heads and officials from government agencies under the Ministry of Housing and Urban Affairs (MoHUA). The keynote speaker, SK Lohia elaborated on the huge opportunity for startups in the energy, water and waste management sectors to improve infrastructural facilities, including government facilities like railway stations. This was followed by sector-wise break-out groups for further discussion on the relevance of the innovation and opportunities to pilot with various government departments.

KEY TAKEAWAYS

Public-Private Partnerships
As the private sector is able to provide efficient solutions, the government has no choice but to collaborate with the private sector to optimise service delivery.

Regional collaboration
A regional collaboration through workshops wherein a company can directly approach a Smart City CEO to pitch and pilot in the respective smart cities was suggested as a means of institutionalising innovation culture in the country.

QUOTE "At IRSDC, we have need to innovate, we are like a startup because we have a mandate to make railway stations at par with airports." SK Lohia, MD and CEO, IRSDC.

JURY
• SK Lohia, IRSDC
• Srinivas R, TCPO
• Shashi Shekhar Retd. IAS, WRI India
• Ravi kant Joshi, Consultant with Gol
• Dr. C. V. Dharma Rao, NWM, Ministry of Water Resources, RD & GR, Gol (TBC)
• Palash Srivastava, South Pole
• Mriganka Saxena, DJB/ IRSDC
• Shri M. K. Parida (Pr. Secretary), PWD
• Dr. Avinash Kumar, Water Aid
• Nidish Kumar, Smart Cities Mission
Shri Kailash Gahlot, Transport Minister, Government of Delhi, addressed the plenary at Connect Karo sharing the vision for making Delhi transport more efficient and reliable. He stated that there are still rural areas of Delhi which have just one bus per day, however, the aim is to make at least three buses reach these areas on a daily basis. He further stated that the bus connectivity to outer and rural parts of Delhi is a high priority for the department with the pilot project on route-rationalisation, under the ‘Delhi Connect’ initiative being implemented in Najafgarh.

Mr. Gahlot stated that the Delhi Government is fully committed to the cause of sustainable cities and aims to roll out 1000 electric buses in the coming future with the finalisation of the Delhi EV policy. The biggest hindrance that the transport policy faces is the multiple governance structures. He further suggested that the management of traffic and transport becomes arduous due to the non-statehood of NCT as many several departments are controlled by the central government. He also discussed how previous failed attempts at building bus queue shelters in Delhi through PPP models prompted the administration to maintain the shelters on their own.

During his address, he also touched upon the issue of the existing defunct bus service stations, decongesting of the roads, and managing the service of existing non-operation buses.
MAINSTREAMING CLIMATE ADAPTATION
Into Sectoral Development Plans And Actions

CONTEXT
The session began with a welcome address by Dr. Nambi Appadurai, WRI India, who introduced WRI India’s Climate Resilience Practice work on mainstreaming climate change adaptation. This was followed by the keynote address by Dr. Akhilesh Gupta from the Department of Science and Technology. He stressed on the need for current climate research and science to percolate to local decision-making bodies, and for policy-makers to be appropriately trained as well as incentivised to include climate actions into their planning processes.

Following this Ayesha Dinshaw, WRI India, presented key findings from the recently released working paper on Mainstreaming Adaptation in Action: Case Studies from 2 States in India, and Vidya Soundarajan, ACT, discussed examples of mainstreaming in practice which ACT had been involved with. This laid the foundation for the panel discussion which was moderated by Anu Jogesh, Acclimatise. The 6-member panel had representation from both state and central governments, as well as donors and practitioners working in the adaptation sector.

The discussion revolved around the challenges faced by states and state climate cells in integrating mainstreaming into their sectoral work – with the state nodal officers of Telangana, Madhya Pradesh, and Uttarakhand talking about their experiences. The state-level discussion was complemented by an overview of the macro-economic picture of what the Centre needs to do to propel mainstreaming and mobilise climate finance by the panellist from the Ministry of Finance. GIZ and ACT spoke about the challenges they faced on the ground in translating policies into action and to communicate the urgency of mainstreaming adaptation and climate proof development plans. Jesse Worker, WRI, presented climate governance models and best practices from different countries and Prutha Vaze, ACT, spoke about Maharashtra’s approach to climate policy.

KEY TAKEAWAYS
Broaden the Adaptation Conversations
There is a need to include the broader development sector in adaptation conversations. To normalize and catapult mainstreaming to scale we need sectoral departments such as agriculture, water, forests and health to be part of these conversations. Their involvement will bring the understanding around entry points for mainstreaming, implementation gap and finance needs to the adaptation community. We need to look at more cross-cutting areas and policies in tandem and identify them for bringing more inter-departmental coordination, which is key for accelerating work on climate change.
Mainstreaming Climate Change at Local Level
Climate change science needs to percolate more to the local level for successful mainstreaming. In addition, local authorities need to be interested in integrating adaptation data into decision making at the local level – village, block and districts. Also, access to data needs to be followed by capacity building to analyze the data and to use it to make decisions.

Cross Learning between Countries
There is a definite need to promote more peer to peer learning within the country, and discussions need to be facilitated among the different state climate change cells and knowledge centers so that best practices can be shared.

Broaden the Horizon of NAFCC
India is one of the few countries which has a dedicated National Adaptation Fund for Climate Change (NAFCC) but the limited nature of the funds available under NAFCC cannot make a difference at scale as a stand-alone resource. The projects conceived under NAFCC should be designed creatively to involve state departments with provisions to bring additional departmental resources. To bring change at scale, NAFCC should broaden its criteria for funding and be willing to invest resources in building alliances and cooperation among stakeholders to trigger effective implementation on the ground.

Quotes
“Departments and sectors have other pressing priorities. We need to get them to acknowledge climate change as a top priority and only if this happens, would mainstreaming adaptation into sectoral work be successful.”
Lokendra Thakkar, Environmental Planning & Coordination Organisation, Govt. of Madhya Pradesh

“There should be more competition among states to encourage climate action, and to see who performs better. We need something like the Swachh Bharat for climate change action.”
Kalyan Chakravarty, ETPRI, Telangana

Speakers
• Abhishek Acharya, Ministry of Finance
• Kalyan Chakravarthy, EPTRI, Telangana
• Lokendra Thakkar, EPCO, Madhya Pradesh
• R N Jha, Uttarakhand
• Vidya Sounderrajan, ACT, DFID
• Anu Jogesh, Acclimatise
In 2008, 50% of the world's population was living in the cities; and this figure is expected to rise to 70% by 2050. More and more people are vulnerable to climate change with increased risk of flood, landslides, water shortage, deteriorating air quality and urban heat islands. Case studies from various Indian cities highlighted numerous challenges: Kochi’s natural calamities, heat islands and shrinking water bodies; Guwahati’s loss of forest, landslides, flash floods and human wildlife conflict; Bangalore’s vegetation loss and heat islands; Chennai’s floods and shrinking water bodies; and Kodagu’s landslide and increased suspended load in dams. WRI Aqueduct projects high to extreme high water risk in India by 2040.

Recognizing growing challenges in cities, the panel on ‘Inspiring, enabling, mobilising a movement on Cities4Forests in India’ discussed the opportunities for Cities4Forests to protect, maintain, and increase forest and tree cover in peri-urban and urban areas to inspire a movement around restoration for inner, nearby and faraway forests.

**KEY TAKEAWAYS**

**Need for Cities4Forests in India**

Ecosystem services rendered by forests and tree cover are of immense value to urban and peri-urban areas to meet Sustainable Development Goals (SDGs) along with its contribution towards the Nationally Determined Contribution (NDC). These objectives require to synergise rural and urban development through a landscape approach. Cities4Forests is a movement to catalyse political, social, and economic support among city governments and urban residents to integrate trees and forests at three levels – inner, nearby, and faraway – into city development plans and programs. Globally, 52 cities are members of Cities4Forests, along with Kochi, being the first city in the alliance in India. Forests and tree cover provide multiple regulatory, cultural and provisioning services for cities and its population. These include improved air and water quality, recreation and health benefits, improved biodiversity, carbon capture and provisioning of food, fuelwood and medicines.

Cities4Forests provides technical assistance at each forest level to support climate action through activities such as: planning guide for urban development goals, innovative citizen science approaches and geo-spatial tools to calculate GHG emissions in inner forests; economic analysis to invest in forests, peer to peer visits between cities and guidance to access financing for implementation in nearby forests; and assistance for cities to reduce carbon footprints in faraway forests through sustainable sourcing and procurement policies.
Initiatives inspiring a movement around restoration in India for inner, nearby and faraway forests

WRI India initiatives in the landscape restoration space includes Restoration Opportunities Atlas of India that offers restoration potential in nearby and faraway forests, and the Mapathon, that facilitates an improved understanding of forests and tree cover and enable assessment of carbon sequestration potential through a citizen science approach. Additionally, WRI India is also working towards augmenting green infrastructure instead of grey infrastructure to make cities more resilient. USAID’s initiatives under the Sustainable Landscapes Portfolio, the Forest-PLUS 2.0, air pollution and role of forests in improving air quality are noteworthy. Gubbi Labs conducted biodiversity assessments outside forests in Western Ghats and its surrounding cities through citizen science approach. ICLEI South Asia’s initiatives on nature-based solution enables sustainable and resilient cities. It includes integration of ecosystem services in urban management, integration of natural assets in urban planning, integrated catchment management plans, local biodiversity and strategy action plans and policy interventions.

Opportunities to synergise rural and urban development

With cities facing growing challenges, it crucial to balance the economy and the environment to ensure cities are both sustainable and liveable. Energy intensive economic processes create huge waste. Sustainable development should be low entropy and low resource intensity economic processes in order to create improved well-being. In order to achieve the balance, local action has to be empowered by co-operation between various levels of government, and legal, and policy framework and systems have to be in place to support integration of ecosystems and biodiversity in land planning.

QUOTES

"Achieving India's Nationally Determined Contribution (NDC) and Sustainable Development Goals (SDGs) requires to synergise rural and urban development through a landscape approach to restoration that can inspire, enable, mobilise a restoration movement in the urban and peri urban areas for its, inner, nearby and faraway forests, with careful attention to the underpinning enabling conditions, as sustainability of interventions is contingent on it."

**Dr. Ruchika Singh, Director, Sustainable landscapes and restoration, WRI India**

"Landscapes need to be multifunctional, complementary and supplementary to each other acting as solutions to all these problems; and the solutions should be based on nature."

**Dr. Sanjeeva Pandey, Former Principal Chief Conservator of Forests, Himachal Pradesh**

"Forests are required for economic stability, not just for those directly dependent on the forests or living in rural areas, but also for the urban population."

**Varghese Paul, Senior Forestry Advisor, USAID**

SPEAKERS

- Dr. Sanjeeva Pandey, Former Principal Chief Conservator of Forests, Himachal Pradesh
- Dr. Ruchika Singh, WRI India
- Varghese Paul, USAID
- Dr. Rajan Chedambath, Centre for Heritage Environment and Development, Research and Development wing of Kochi Municipal Corporation
- Samrat Basak, WRI India
- Dr. Monalisa Sen, ICLEI South Asia
- Dr. Sudhira H.S, Gubbi Labs
- Dr. Rachna Yadav, a development consultant and a former NIRD fellow
INCLUSION AND EQUITY IN THE TRANSITION TO ZERO CARBON BUILDINGS

CONTEXT

The session focused on carbon neutral or zero carbon buildings and the restructuring, reorganizing and rethinking of ways in which we build, ensuring that the transition benefits all and doesn’t adversely impact poor and vulnerable communities. The opening remarks were given by Shirish Sinha, Director Climate, Children's Investment Fund Foundation, who emphasized that apart from buildings' transition to zero carbon, cities to need prioritise interventions in three other critical areas – transport, waste and governance keeping in mind equity and inclusion issues.

Sumedha Malaviya paved the way forward for the panel through her presentation that highlighted the experience and challenges from WRI India’s ongoing work on developing a ZCB roadmap for Kochi. The panel included Anju Singh, Ministry of Power, Simmi Shashi, Kochi Municipal Corporation, Karthik Ponnappa, Smarter Dharma, Dr. Ronita Bardhan, IIT Mumbai, Shankar Laxman, Kaushal Bhaav Skill Solutions, and Tanmay Tathagat, EDS Global.

The panellists shared their experience on ZCBs from their work. Simmi Shashi shared her experience of working with different governance structures for ZCB planning in Kochi. While Kochi’s political will on operationalizing ZCBs is strong, she said mandatory enforcement of rules to promote energy efficiency in buildings from the centre or the state would encourage Kochi to actively implement the ECBC and Green Building Policies. Shashi also stressed on awareness-building to create demand and acceptance towards sustainable buildings. Shankar Laxman, Kaushal Bhaav Skill Solutions, shared his journey on skilling masons and making traditional housing methods cost-effective. While his organization makes low-cost housing at INR 134,000 per house, he stressed on the need to transition from low-cost housing to sustainable housing.

Tanmay Tathagat, EDS Global, pointed out that costs would vary accordingly when a building operating from on-site renewable energy is compared to a building operating from off-site. While framing definitions, these factors should be carefully considered. At present, policies are mainly focussed on technology and products.

KEY TAKEAWAYS

1. It is important to know how the occupants operate the building, which is unfortunately not being addressed by the available active policies.
2. Acceptance of the strategies for efficiency can be economics-driven. Mandating energy efficiency standards for products and appliances have led to the stabilisation of costs for energy-efficient products and appliances.
3. Anything to do with emissions or energy must be at the sector level and not at the end users’ level because users do not have a choice in what they can use.
4. It is important to understand that the aspirations are not set by the person who benefits from affordable housing, it is set from persons sitting in offices and attending workshops.
“Clearly the pathway for moving us from here to a truly inclusion equitable ZCB environment is going to be challenging. What data and language do we use to engage with various stakeholders in this aspirational journey? This is what we need to focus on.”

*Jennifer Layke, Global Director, Energy Program - World Resources Institute*

“We can do work on various sectors, but in the end, it is the capacity of the governance system. The municipal level is where everything comes together and cities are grappling with day-to-day challenges, where is the time for planning for these issues?”

*Shirish Sinha, Director Climate, Children's Investment Fund Foundation (CIFF)*

“Every stakeholder has pain points. We need to show them benefits from economic, social, environmental models.”

*Karthik Ponnapa - Co-founder & Principal - Smarter Dharma*

“Stop making net-zero hero stories and make it about ordinary human stories.”

*Dr. Ronita Bardhan - Assistant Professor, Centre for Urban Science and Engineering, IIT Bombay, India CWIT Fellow, University of Cambridge, UK*

“Sustainability on paper may not be the most sustainable thing for society when seen from an equity perspective.”

*Tanmay Tathagat, Executive Director of the Environmental Design Solutions*

**SPEAKERS**

- Anju Singh, Project Engineer at Bureau of Energy Efficiency
- Jennifer Layke, Global Director, Energy Program, World Resources Institute
- Karthik Ponnapa, Co-founder & Principal, Smarter Dharma
- Dr. Ronita Bardhan, Assistant Professor, Centre for Urban Science and Engineering, IIT Bombay, India CWIT Fellow, University of Cambridge, UK
- Shankar Laxman, Managing Director at Kaushal Bhaav Skill Solutions Pvt. Ltd
- Simmi Shashi, CHED- Centre for Heritage Environment and Development
- Sumedha Malaviya, Manager, Energy program, WRI India
- Tanmay Tathagat, Executive Director of Environmental Design Solutions
Unlocking the Potential for Transformative Climate Adaptation in Cities

CONTEXT

A flagship report on climate adaptation in cities is to be released at the UN Climate Summit in September 2019. In this context, the session focused on bringing experts and thought leaders to deliberate and discuss the challenges and opportunities of prioritising climate adaptation in the context of cities. It was curated and led by Anjali Mahendra, Director, Research, WRI. The Global Commission on Adaptation, launched in October 2018, comprises of global representatives and commissioners that will oversee the development of the report. The flagship report will lay out a compelling vision for scaled up and transformative adaptation showing that investment in adaptation is a cornerstone for development.

The session opened with a discussion on the need and importance of the GCA. The presenter argued that the impacts of climate change are not being recognised in public policy making, especially those that affect the poorer sections of society, who are the most vulnerable. Additionally, the GCA seeks to accelerate climate adaptation action and support and divert investments towards climate adaptation to increase the resilience of cities.

The report will comprise of papers on the seven identified themes, one of which is cities. Eric Chu, IPCC, presented an outline of five broad sections of the paper that explain the challenge of urban climate adaptation along with the approaches and enablers that integrate adaptation into urban functions. This paper focuses on tier 2 and tier 3 cities, which will offer locally relevant and suitable solutions for cities, prioritizing adaptation from the local to the global level.

Case studies from Gorakhpur, Chennai, Surat, Shimla, and Bengaluru were discussed to showcase how adaptation strategies are context-specific, and the need for participatory resilience planning to aid in the conservation around ecosystems. The case studies also provided an overview of the types of challenges cities face and in what way climate preparedness can aid in mitigating the devastating impacts of climate change. ICLEI’s work on adaptation was also discussed which used different toolkits for cities to assess the climate risks and provide scalable models for resilience building measures for Indian cities.

The session further served as a platform to garner feedback on the paper on cities and reflect on its strategic importance for policy-makers, academics, practitioners, and local champions. For this, the participants were divided into five groups to deliberate on themes such as the role of climate science, understanding risks and vulnerabilities, institutions and governance, informality and community-based approaches, metrics and measurements, and resourcing and financing adaptations. The groups facilitated the identification of the challenges and gaps for each theme, and provided solutions to overcome the challenges.
The session was aimed at prioritizing the safety of children in urban design. To set the tone, three key stakeholders were invited to share about their experience of day-to-day commute in a city – a parent, a teacher and a child which paved way for follow up deliberations.

The parent felt more confident in letting her children out on the road knowing there was infrastructure in place to ensure her child’s safe commute. The teacher urged for provision of easily understood road infrastructure to facilitate safe travel. The child shared her perspective that adults must switch from cars to walking and cycling as they can reap incredible environmental and health benefits while decongesting roads at the same time.

Road safety experts have turned their attention to this niche yet important issue largely due to physical and cognitive threats posed to children when they commute on roads. The Safer Commute for School Children is one such initiative being convened by WRI India at Rohtak, Haryana.

“Globally we lose 224 children every day in road crashes and 43 of them die on Indian roads. It is high time to prioritize child road safety while planning and designing cities.”

- Vaibhav Kush, WRI India

**KEY TAKEAWAYS**

**Limited understanding of child related risk**

As an adult, it is not easy to imagine the risks posed to children on road particularly due to their short stature and lesser capability to perceive risk. The domain itself has a relatively small body of research. An experiential outdoor activity was conducted at the session to enable participants to literally experience how children “saw a road” by using periscopes so that they saw the road at a reduced height just as a child would.
Need for change in how traffic enforcement in perceived

Historically, role of traffic police is aimed at smooth movement of traffic rather than providing safety to road users. Traffic policemen performance is evaluated by how well they manage traffic and not how convenient they make commute for pedestrians, cyclists and other users. There is an urgent need to bring a change in that perspective.

Safer street design

There is a tremendous increase in youth becoming fascinated with motor vehicles leading to underage driving and giving less value to walking and cycling. Indian streets are incredibly dynamic and unique and there is a trend to control the outcome, but flexibility holds the key to design them with evolving needs. When we try to understand children’s safety from a multi-dimensional perspective, it starts to challenge many of our pre-conceived notions of urban design.

QUOTES

"Parents want the cities to be safe for children rather than having to be worried about their constant surveillance."

Veena Padmanabhan, Volunteer at I am Gurugram and Director, Totus HR School

"In the coming future children fatalities due to road crash will reduce owing to the fact that there would be no space for them to walk or cycle on streets and they would rarely come out to play."

Dr. Shailija Tetalia, Associate Professor, Indian Institute of Public Health

"Cities which are inclusive for children are inclusive for everyone. Planners need to have an integrated approach to build child friendly cities because safety concerns of children can not be segregated into sectors."

Rushda Majeed, India Representative, Bernard van Leer Foundation

"Focus of traffic police and transport planning largely has been on planning for smooth movement of traffic rather than safety. Change is required not only in the planning approach but evaluation standard of a traffic police as their performance is measured by how well they manage the traffic and not how they make the streets convenient for pedestrians or cyclists."

Himanshu Garg, IPS, Deputy Commissioner of Police, Traffic, Gurugram
“In India, there is a trend of trying to control the outcome through street design where in for such a dynamic country, flexibility in design is key.”

**Greg Meckstroth, City Strategist and Designer**

“When we try to understand child safety from a multi-dimensional perspective it starts to challenge many of our pre-conceived notions.”

**Dr. Sudeshna Chatterjee, Chief Executive Officer, Action for Children’s Environments**

**SPEAKERS**

- **Amit Bhatt**, Director, Integrated Urban Transport, WRI India (Moderator)
- **Sarika Panda**, Head, Integrated Transport & Road Safety, WRI India (Moderator)
- **Binoy Mascarenhas**, Manager, Urban Transport and Road Safety (Moderator)
- **Vaibhav Kush**, Project Associate, Cities, WRI India
- **Veena Padmanabhan**, Volunteer at I am Gurugram and Director, Totus HR School
- **Lily Nagpal**, Principal, MDN Public School, Rohtak, Haryana
- **Avira Bhatt**, Student, Heritage Public School, Gurgaon
- **Atsani Ariobowo**, Manager, Global Road Safety Partnership Projects
- **Rushda Majeed**, India Representative, Bernard van Leer Foundation
- **Manish Thakre**, Senior Manager, Research and Knowledge Management, Save the Children
- **Dr. Sudeshna Chatterjee**, Chief Executive Officer, Action for Children’s Environments
- **Dr. Shailija Tetalia**, Associate Professor, Indian Institute of Public Health
- **Parul Agarwala**, Regional Urban Advisor, United Nations Habitat
- **Himanshu Garg**, IPS, Deputy Commissioner of Police, Traffic, Gurugram
- **Greg Meckstroth**, City Strategist and Designer