

URBAN GOVERNANCE

Lecture Series

February – May 2015



IC Centre for Governance, New Delhi

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This Lecture Series on Urban Governance has been organized in collaboration with the India International Centre and is compiled by Mahesh Kapoor on behalf of the IC Centre for Governance, New Delhi.

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First Lecture

SUSTAINABLE URBAN GOVERNANCE

February 5, 2015

Shanti Narain

Good evening everyone. Let me welcome this distinguished audience to the first inaugural lecture of a new series on urban governance. This is our twelfth series of lectures. Today, the topic is sustainable urban governance. We are privileged to have three very eminent speakers. We had Mr. Shankar Aggarwal, Secretary, Urban Development who has recently taken over as Secretary, Labour. Unfortunately, he has just now been called by the Prime Minister and we will be missing him for this talk today.

But we have two other eminent speakers. We have Professor Jagan Shah. He studied Agricultural design from the School of Planning and Architecture, New Delhi and Architectural history and theory from the University of Cincinnati and Columbia University in USA. He has served as Director of the Sushant School of Architecture in Gurgaon and has taught at the School of Planning & Architecture. He was the Chief Executive of Urban Space Consultants. He has a comprehensive list of publications to his name, the latest being *Contemporary Indian Architecture*. We would be looking forward to his very educative talk this afternoon.

Our second speaker would be Mr. Deepak Goray. He is an electrical engineer and a post graduate from the University of Mumbai and has had over 25 years of work experience with Tatas and another 21 years with Siemens. He has hands-on experience on Siemens portfolio in energy, mobility, industry and building technologies. Presently, he is heading the City Account Management at Siemens Ltd. He is supposed to be the expert on the concept of smart cities as far as Siemens is concerned.

We will be having Mr. M C Verma, Former Secretary in the Government of India and also a Member of the IC Centre for Governance. He would be welcoming the speakers for the day. I now request Mr. Goray, Professor Jagan Shah and Mr. M C Verma to take their positions on the dais. I would now hand over to Mr. M C Verma to initiate the discussions for the evening.

M C Verma

Thank you Shanti. Thank you friends for planning the first lecture in this series of lectures on urban governance. Today's topic is **Sustainable Urban Governance**. Since we have already been introduced, we will start straightaway. Let me formally introduce the subject. My job is not just to welcome you but also to provoke some discussions. The definition of 'sustainability' as generally understood flows out of the Brundtland Commission Report which was followed by Agenda 21 at the Rio which has been followed by the 20-year review

which the UN has done in 2012. That has been followed by the proposed development of Sustainable Development Goals (SDGs). The original concept of development goals was the Millennium Development Goals which were only 8 in number. The SDGs are 17 in number and the targets to be fulfilled are 169 in number. It is a huge task for any government. These are not final. These have to be put up in the UN General Assembly and if they get approved, these will have to be followed by the constituent governments of the UN.

Our focus here, from the IC Centre for Governance is not just sustainability; we are talking of sustainable urban governance which includes structure of municipal bodies, the role of Mayor, for example, local legislators and their functions, role of community including the RWAs and specialized bodies for some of the very basic items like water, sanitation, sewerage, waste disposal, energy use or public transportation; it also includes provision of basic education and public health. These are supposed to be useful functions and they have been reiterated in the Constitutional Amendments under the so-called Panchayati Raj provisions. We, in India, do have shortage of resources. When we talk of providing all this, we have to reckon with the shortage of resources and therefore, the question arises, how to best use the resources available which brings in the issue of the best technologies and in this space, the use of smart technologies and therefore, the concept of smart cities.

When we look at, in parallel, the SDGs, there is only one goal which is mentioned there which tallies with this and that is called Sustainable Cities. It was not Sustainable Urban Governance. It is not Sustainable Urbanization; it is Sustainable Cities. I thought this should be taken note of by all of us. Perhaps due to the rate of the past in our main cities, there are very few main cities in India; Chandigarh is an exception, with huge population living in slums, JJ colonies, resettlement colonies, poorest quarters settlements which are considered illegal and therefore, the questions do rise about how to upgrade the slums in cities. At one time, the idea was that the slums should be taken out. Who will raise those resources? These are very complex questions.

The city of Delhi with which I had lot of contact for urban governance, has been picked up as one of the possible smart cities. Only two areas have been picked up, one in East Delhi and the other elsewhere. That itself illustrates that it is a fairly difficult thing to think of and operate. In this background, I hope the two main speakers would be able to throw some light, guide us, not only for the present but also for future lectures which will be coming up soon. Thank you.

Professor Jagan Shah

A very good afternoon to all of you. First of all, let me thank Mr. Prabhat Kumar for having invited me for this lecture and for giving me this opportunity and to Mr. Verma for that wonderful exposition into the theme itself. I get a sense that the expectation might be that I will explain what smart cities are about. I am not going to attempt to give any kind of comprehensive or exhaustive definition. However, I would like to perhaps discuss with you, some of the first principles and some of the basic thinking that is going into the Smart Cities Mission itself. I have had the rare privilege of being part of lot of the discussions at the Ministry of Urban Development for whom my institute, the National Institute of Urban

Affairs is a think tank. And being privy to those discussions, one gets a slightly more confident view of what is being envisaged in the Smart Cities Mission.

A few prefatory remarks. I think Mr. Verma very rightly explained how we are understanding sustainability itself. The Brundtland Commission's very pithy and very robust definition of how sustainability should be understood and it is essentially something that links today's generation with the future, with our offspring and with our future cities that we are handing down to these generations. I think what is highlighted very much in the Brundtland Commission's definition is responsibility although I don't think they have used the word itself but they talk about the fact that we need to be responsible for the manmade world that we are handing down as a legacy to our future generations. This note of responsibility really does matter a lot and it is a word that we debate a lot nowadays even though we are speaking about technology and the application of technology and so on. I just wanted to flag the fact that responsibility is very much at the base of the way in which we are thinking about these in our mission.

There is no doubt that sustainability as such is not such a big question because urban governance will continue. We will run cities and we will continue to administer cities and so on and so forth. Sustaining urban governance per se is not so much of a challenge; it is really whether business as usual kinds of scenarios can continue. We could watch our cities deteriorate in the business as usual environment or we could take the necessary steps to reform our governance in such a manner that these cities can be sustainable and be actually handed down as a legacy.

Government, as we know it, especially city governments have to change. There seems to be a fair consensus about that. There are enough analyses which are presented by both the analysis of track record of our urban missions especially in the last ten years as well as the broader questions regarding governance as such and what should be the relationship between the polity, the citizenry and the administrators. There is a fair bit of debate on that. I will not go into any elaborate discussion on that debate but I would like to come to some of the key issues that are getting highlighted.

One of the problems that we have seen in the urban sector especially in the last ten years is that decisions tend to get based on exigencies, pressures, external factors rather than the very nature of very immediate and very localized kinds of problems that requires solutions. Exigencies tend to get dictated by flows of funds rather than by the necessity of fixing problems. They are not necessarily driven by citizens and the kinds of feedback that we get from the citizens. This particular scenario or this aspect of urban governance does need to change. Planning needs to become a central part of the way in which we think about cities and this has been one of the weakest parts of the way in which we have run cities which is that we do not use special and physical plans. Now this has something to do with the way in which understand cities because ideally, we should be looking at cities as special entities, as systems, as networks which all come together, which overlap, intersect and so on. Rather than that, we tend to look at cities as these nebulous entities which have no boundaries, which have no ownership and which have no real citizens attached to them. There is this kind of amorphous mass of human beings that seems to float through our cities every day and sort of float out, we hope. But migrations and livelihoods are the driving forces for

cities. There is a reason why we have cities and there is a reason why urbanization is picking up, the kind of pace it is because cities continue to offer what they have always offered, throughout the history of civilization which is they offer opportunities, they offer the anonymity that helps individuals to escape from the kinds of binding customs and traditions that they find in their what might be called rural surroundings but I don't mean to indict the rural at all; it is just that there is this movement that is being driven by certain push factors and those push factors tend to be cultural and social and economic and we cannot reverse that.

So exigencies cannot dictate our decisions and those decisions need to be based on special and physical planning. I think an ideal example of this might be the case of New Delhi for instance, the way in which the Master Plan for New Delhi is not based on ground realities. The Land Use Plan for New Delhi bears very little resemblance to what exist on ground. And although in 2004, the Directive that went from the Government of India to the DDA when they were making the plan was that they must use satellite imagery as a way of developing a base plan so that they understand what the ground reality is and then base their planning on that. It never happened. We continued in a business as usual mode and delivered a Master Plan 2021 which still bears very little resemblance to what is on ground. This is just one illustration of the disconnect between our decision-making and the actual evidence that is available.

There is no real leader or owner of the city and that continues to be a very big problem. Commissioners tend not to be from cities that they actually administer and therefore, there is less a sense of ownership or less a sense of commitment to the city per se. They are very committed officials, they do their jobs but they know that they are likely to be moving on. There is no sense of ownership for the city itself. As Mr. Verma also mentioned, mayors and the entire edifice that was created through the 74th Amendment to the Constitution, that entire devolution of powers to local self-government and headed by elected mayors has still to become a robust model for administration of cities. So we have got a bit of a problem on our hands and how do we actually address this problem is what the Smart Cities Mission is trying to look at.

One of the key premises on which the Smart Cities Mission is based is that we have very little time. The pace at which our cities are growing, the way in which these cities are coming apart at the seams, if I may use that expression, certainly it gives us no time to take a pause, refashion our entire system of governance and then to move on. These have to happen in parallel. This would be one of the premises that we need to work with.

Then we also have some clear idea about the new culture of running cities which, of course, is something that we rely on our leadership to provide. I would like to just highlight some of the key inputs that have been received by the Ministry of Urban Development from the Prime Minister:

1. He wants us to create a programme that is responsive to the real needs and that seems to be fairly axiomatic. Smart cities must be responsive cities.
2. Accountability is a very important part of this. I will come a little later to how that accountability needs to be dealt with. But certainly, the Prime Minister wants us to

make sure that everybody in the entire chain of decision-making and execution is accountable for the decisions they will take on the ground.

3. Then he has given the input that we must work bottom-up. Of course, there are always processes that work top-down which are valuable. But bottom-up and top-down must meet. That middle ground is where those smart cities are actually going to become successful.
4. And lastly, feedback loops must be established. That sounds very jargonistic but essentially feedback loops means that we must ensure that there is a system by which citizens are able to have a conversation with their local governments and that their local governments must respond to what the citizens have to say.

These four points while they seem to represent softer aspects are actually very important starting points for a whole process of thinking that is going into the Smart Cities Mission. Underlying all of these is the Prime Minister's idea about minimum government and maximum governance and how do we actually deliver that is one of the main stays of smart city thinking at the Ministry of Urban Development certainly.

There are some clear elements in the Smart Cities Mission which are going to address these objectives and these issues.

1. E-governance – E-governance is not a mandate given to the Ministry of Urban Development; it is actually a part of the Digital India programme which is managed by the IT Ministry. However, e-governance has a very direct bearing on the way in which smart cities can be conceived. So e-governance is a fundamental building block of our smart cities.

Now what exactly does e-governance mean? If I can try and paint a picture for you, then it is essentially what is called Enterprise Resource Planning, ERP in management speak on all municipalities so that we refashion the entire way in which municipalities internally function using technology, of course; using the kinds of technologies that all of us are using in our offices today but very strong systems thinking. That kind of resource planning will then create a front face, a face of that municipality which then mediates between the citizen and the municipality itself. E-governance is going to be a necessary condition for moving forward.

2. The other aspect is evidence-based planning. Our institute did a very quick, almost literally back of the envelope kind of a check on the amount of data that is actually available to decision-makers in a city like Delhi. We found 232 sets of data which are made publicly available. These vary from data on the economy itself, to demography, to environment, to the labour conditions, to the enterprises; all manner of data. And then we internally checked because we do attend a lot of meetings and seminars and workshops and so on and we asked our own employees how much of this data do they actually see surfacing when they had a meeting or heard somebody take a decision. By and large, there was a clear voice that came forward and said not even 5 percent. Decisions are not being taken on the basis of the evidence that is already available to us. Now this is where technology comes into play. Very simple technology but technology such as, again, what we use in our offices but technology

that can help us harness data, analyze and do number crunching and give us indicators that can help us to steer through this burgeoning mess that we call cities in India. That becomes another building block for the Smart Cities Mission. Evidence-based planning, evidence gathered both through numerical data as well as evidence gathered through special mapping and satellite-based mapping.

3. The third important building block is integration. The Smart Cities Mission directs itself at the integration of the efforts being made in all the different ministries, different programmes, schemes, local departments, and state level schemes, all of these to come on board when you are making a smart city plan for a city. If I am working on a plan for making roads, I can no longer sustain a paradigm in which I can make that road and not think about the fact that, that road also carries commuters, it carries garbage carrying vehicles and so on and so forth. I must look at transportation, I must look at drainage issues and I must look at connectivity as to how that road actually connects people. So there is a soft aspect. Roads have people walking on them and so I must think about pedestrian space, I must think about lighting and safety and so on and so forth. It is no longer possible for us to continue to think in what the Americans call silos. We cannot continue to think in these closed boxes that I have been given a job to do and I am not going to think about the other aspects of this job. That is another thing which I think has to be thrown out of the window. We must have what our Secretary, Mr. Shankar Aggarwal described as a collegiate style of decision-making. It is not a question of really having to sort out conflicts rather to start on the premise that consensus is what will take us forward. A collegiate style of decision-making means that at your planning stage itself, bring everybody on board and then you will be able to move forward in a more rational way and obviously, in a far more effective way.

Smart cities are going to be premised on these kinds of principles and I won't tell you how this manifests itself in the form of technology and the next speaker will certainly do that. I am going to rely on him to fill that gap but I wanted to just talk about the principle itself. We must also keep in mind that smart cities aren't something that has simply landed on us from outer space. It is not that we are not smart either. Take a look at the local trains in Bombay. They did not have smarter technology at their disposal but they run on time and they have been doing so for decades. How did that come about is worthy of a lot of research. How did the smart minds of those signal men and those people who have managed those system actually make it work well? We have the famous example of the dabbawallahs in Bombay again. We have the entire gems and jewellery business in India which is run on mind-boggling levels of trust and all kinds of systems and processes which are actually difficult to fathom, which don't coincide with our way of thinking of processes. We have been smart, we have built cities 5000 years ago; we have built cities which were smart cities actually for their time and then not so smart enough to survive the kinds of environmental pressures and so the old cities of Dholavira, Lothal, MohenjoDaro and Harappa vanished simply because of that. But this is something worth keeping in mind because all cities ultimately are fragile and I will come to that.

What are the priorities for the Smart Cities Mission? I will try and restrict myself to two main priorities. One is that we must change the relationship of citizens and city governments. How do we do that? One, of course, is to understand the citizen as a consumer of services

and a user of infrastructure. As a consumer, the citizen has rights. In legal speak, they can resort to what are called tort laws which are not very strong in our country but they are getting stronger. As a consumer, the citizen is going to continually assert their rights. And as a user of infrastructure, they need to be paying users. That is an important thing to keep in mind that infrastructure ultimately takes a lot of money to maintain, to operate and where is that money going to come from? It should come from the users themselves. And this has been one of the resounding failures of the National Urban Renewal Mission we had from 2005 onwards which was that operations and maintenance cost could not be recovered. And therefore, you created assets that nobody was willing to maintain and you did not have money to maintain them which is a huge drain on public resources.

The second aspect of changing this relationship would be the citizen as a contributor to the urban ecosystem. We tend to look at citizens as burdens on the city itself. However, as we are understanding from a lot of research that is going into understanding how migrants work in the city, for instance, sociologists are looking at how maids and other household help, the economy that they actually work in and generate, we are understanding that almost every single person who enters that city is actually contributing to the city economy whether it is the hawker on the side of the street, much as they are irritants to many of us who drive cars or don't have space to walk on the pavement, nevertheless, these are all economic generators and therefore, command a certain respect within the city itself.

Thirdly, the citizen as a co-creator and this is really an important thing. The Prime Minister continues to stress on this that why do we look at the citizens as passive receivers of our efforts. Rather why do we not actually make the citizens participants in the very process of creating cities and managing cities. This is more akin to what the former CM of Delhi had created as a Bhagidari system; the whole concept of Bhagidari has to be instituted in a very strong way in all communities and families.

Lastly, the citizen is one of a crowd. While they stand as individuals, they are one of a crowd and therefore, they also represent a very large number of sources of data and information and we can count on this mass of citizens as being a very reliable source of what might be called ground sentiment, ground conditions. In the cases of disaster, it is the citizens who take charge of the city and they are the ones who actually are able to recover from the immediate aftermath of most disasters. We need to count on them as partners in this whole management of the city. There is this important paradigm shift that needs to take place about understanding this relationship between the citizens and the government.

Then we need to change our understanding of the cities itself. How do we mean that? Most of us might not have a very clear idea of what a city is. But we all live in or at least all the people in this room, I assume, live in cities and it is really important for us to articulate what is it that we mean when we talk about a city and we ask somebody to govern that city. Cities could be described as engines, drivers of the economy; that is a very common and it is quite a fashion to talk about cities as drivers of the economy but they are not only drivers; they are also consumers of resources and they are huge complex systems which do bear a certain weight and therefore, can easily go astray. So these engines, drivers of economy need to be thought of very carefully. They are concentrations of capital, resources, manpower and that is what gives cities their economic might. They have the scale of enormous agglomeration of

communities and families and individuals and so there is, in fact, a crying need for us to start engaging with the sociology of cities. And a very peculiar thing that unlike in the more advanced economies, in India, the sociologists do not get involved in the whole conversation about policies about cities or anything like that which is a peculiar blind spot in the way in which we think about our cities. There are no sociologists whereas the very discipline of sociology in a country like the United States for instance is urban. It is about urban societies; it is not anthropologies for studying villages and so on; it is about cities.

Cities are sites of opportunities. That is why they continue year on year, day on day, in fact, to attract people to themselves. Importantly, cities are fragile and so building resilience into the way in which our cities are managed, is a very high priority; it is a national priority because the impact of any kind of unplanned and unanticipated occurrence, say because of climate change is enormous. Bombay lost billions of dollars in terms of its loss of GDP due to the floods that took place in Bombay. Vishakhapatnam has been almost devastated economically by the Cyclone Hudhud and so on. There are so many examples from around the world that cities are actually very fragile. If we are to make smart cities, those cities have to withstand these kinds of pressures. That must be embedded the way in which we design these cities.

Lastly, it is very important for us to build the trust between the citizens and government. I think if we have to go forward in talking about sustainable urban governance, this word must be at the centre of our discussions. How do we restore the kind of trust that is necessary so that citizens and government can actually sit together at a table without mutual distrust and mutual anomy that we witness nowadays in all conversations about cities?

These processes possibly by understanding a new way to govern cities and also relooking at our definitions of cities themselves and understanding of the cities might help us to actually rebuild that trust and that really is the foundation.

I would like to end with just trying to answer this question which actually begs answering after I have said all these things is that if so, then how is this smart city going to be some kind of a solution to all this? This all sounds like extremely profound and difficult kinds of problems, how does a smart city do it?

I won't dwell on that because the next speaker certainly will, but some of the basic thinking here is, of course, the fact that technology simply allows us to do certain things faster. It allows us to harness the data that can inform our decisions more easily, makes data more 'handleable' so to speak and technology is also something that represents a strength and I think that is an important thing for us to keep in mind given the kind of demographics that India is witnessing where there is a very large working age population that is growing by the year, all of them needing jobs and are actually running short of opportunities. The number of IT-trained professionals in our country could represent a strength, an economic strength and perhaps, cities that are run using the kind of digital technology that even our children study. My children study in school now. I started using a computer when I was well into my late thirties but they started almost from the beginning. The fact that this ability to actually work with this globally available technology represents a strength for us, represents a potential, is something that we must keep in mind when we talk about smart cities.

To close, I think we have been hearing the word 'inclusive' used a lot; again, another word that bears a lot of discussion. However, I believe that the kind of technology that is being proposed for building smart cities is inclusive by nature because it is agnostic. The technology itself does not differentiate between the person, the individual or the group that is actually passing through that technology if I may describe that way. This also might be a very effective way for us to make cities that are inclusive rather than the cities where person to person, relationships tend to dictate the very nature of the outcomes rather than that for us to reinforce the fact that ultimately, cities are made for citizens and citizens must have a certain set of rights, liberties and so on and we cannot differentiate simply because the community is putting pressure on a citizen. We must secure those rights. That would be a very important thought to close with, the fact that smart cities ultimately have to deliver the promise of an inclusive society and inclusive city. Thank you very much.

Deepak Goray

Good evening. Before technology starts or becomes active, these are some things which are probably not smart. You probably need to be smarter than this to make these things work. Anyway, ultimately, I think we get down to it. I am happy that at least this has started working which is not bad by itself. Thank you Mr. Prabhat Kumar, Mr. Verma. It is a pleasure for me to be here and especially to talk to you on the concept of smart cities. My take away from this evening is also going to be the benefit of experience from all the people in the room maybe in terms of what could be a good way going forward. In case you have any suggestions, valuable inputs for us, please do help us. I think it is for a common collective cause. This is something at the heart for all of us that if we have some better quality of life delivered from better living conditions and better cities, I think it is good for all of us.

A point was made by Jagan very effectively that cities were always ever evolving; they kept changing with time. In the last week of December, during vacation time, I was in the city of Dholavira which you just mentioned, a city from 2300 BC and today, what is left of it is the dock which they had which is still around 35 kms out from the sea. There is no link to the sea today but they have prepared some scale models based on the GIS and GPS technologies and what contours and what it could have been at that particular point of time and through the use of an interactive screen and using IT, they have created a network as to how ships would have come into the harbour, how they could have gone and how the trade has happened and things like that. The point to note here is cities have evolved, they have grown great, they have also gone away with times. If you take the classic case of Delhi, sometimes, it is said that it could be the Indraprastha of the Pandavas right from the Mahabharata. We don't know how much BC was that but later on, if you see the amount of old forts in Delhi made by one dynasty or the other, the civilizations flourished and I think for some reason, they moved to another fort or another place; seven or eight places in Delhi and today, Delhi is one of the most known metropolises around in the world and it is quite a smart city in my opinion. Of course, we need to do some more work on it to fine tune it but it is smart by itself.

The point is the debate is always there. You go to any forum, it is called as smart cities. Is it a right tag or a right word to describe the city or should the city be called as a sustainable city?

How can a city be smart? It can be smart only as the solutions or people in the city or the different verticals, or the technology which is used or how the e-governance activities work in a city. So maybe, the right way of describing it is as Mr. Verma rightly said, it is sustainable cities and probably, with a lot of smart features thrown into the cities.

One way of describing smart which we use is smart is **Simple**, **Maintenance free**, **Affordable** and R is **Resilient** which Jagan touched upon very clearly and T is **Timely** or time to the market when you need things to be done on a particular time.

With this theme in mind, I will try to take you across what the concept of a smart city is. Keeping this presentation, a lot of company agnostic or brand agnostic which go to the concept of smart cities, what the challenges are, some good examples around the world, how cities have coped up or leveraged technology in order to become more sustainable and this is the way we will probably go forward. You can interrupt me in case you have any questions. Let us make this a more interactive session.

What makes a city sustainable? I think essentially, there are three basic parameters which city continuously juggles on – quality of life for all citizens, environmental protection and economic competitiveness and many a times, it is always a toss-up between one of these two as to do we destroy green patch in a city to build some malls, hospitals or schools or something or an IT park which gives me jobs or what is the other way or how do I really balance this out, the need for jobs, the need for development along with my environmental protection. This is a challenge which has been faced by cities all across generations and this is a continuous test and of course, it is a major point for all the city fathers who actually have to take decisions on how best to manage this particular equilibrium and interest. A continuous balance on these three fundamentals is really essential for a city to become sustainable and also reliant and resilient. The cities who reached this equilibrium and tried to maintain it for a longest possible period of time tend to be successful over a period in the long run. You find that most of the major successful cities in the world have really reached some level of equilibrium though always some things will keep on changing at all times but more or less they are in a decent state of equilibrium.

We have a lot of debates on what makes a city? Who are the various stakeholders in the city? The idea in this particular picture that I am trying to share with you is what are the challenges that a city father faces, what essentially could be the structure of a smart city and who are all the stakeholders in the particular smart city. On the left hand side, if we see what the challenges are, whenever a city grows, how to get enough power into the city. You need 24x7 electricity hopefully, how to manage the ever increasing traffic. I need not say much for Delhi. How to reduce the energy consumption and the emissions? I think we are not talking and also not so conscious about traffic emissions or the CO₂, carbon monoxide gases or the greenhouse gases and I think they are choking up the city. It is a very serious challenge which today is not being recognized or acted upon by the government but it is a major challenge. How to ensure safety and security of the people and most importantly, how do we finance all this? Anything which you require in terms of a solution requires a lot of finance and apparently, our government is short of finances. What is it that could be done to finance these particular topics?

On the left hand side are some challenges which any city father or an owner or somebody who drives a city faces. Let us take a look at the picture at the centre which actually describes what a smart city could be. Let us look at the bottom most layer of this. Probably, the picture may not be clear but you see a lot of field devices in it like you have lot of motors, you have lot of instruments, you have lot of automation equipment, you have lot of equipment. Traffic signals, for example. You have automatic fare collection machines. You have a lot of physical infrastructure which is there in your substations which you actually require to run your city. This forms the physical or visible layer of your city. An intelligent city is one where all this can talk to each other or communicate to each other. When these are able to communicate to each other, they communicate through whatever medium it could be like internet, Wi-Fi facility or whatever be the facility, when they talk to each other, they could be termed as smart devices or they have the capability to do the smart devices. And once they are on a network, they are within their own verticals and probably, then possibly you have a chance of looking at a central picture of what is happening in a city. For example, if it is an energy distribution system and all the points, substations and everything is connected and you have a central room, then you have a chance of knowing which area consumes what power at what particular point of time. You have lot of curves, demands and you know what exactly could be done to manage or govern the challenges in power. Maybe, sometimes, in some seasons, the power could shoot through the roof. You have a very high requirement but you have shortage of power. Maybe, you have some specific pictures of some areas, for example, typically where there could be a lot of malls or commercial complexes, you suddenly find peak in the afternoon or late evenings in terms of power. It gives you a chance to adopt some technology or put some corrective measures in so that you control the power and bring it to a level where you can manage with the overall available parts of it.

The same application could be done with water for example. We take water for granted; we have water just coming through the pipes. But the amount of energy which you require to deliver water to our homes is immense. The amount of pumps which are required, the amount of energy consumption which is required and it is all very simple and it depends on how actually it has been planned. Planning is a very important part. Our cities probably were planned 100 years ago or so and as the population grows, the city grows, they just kept on growing with the boundary limits. Maybe, the planning did not keep pace with whatever would be the expected population demands. As a consequence, you could have a situation whereby your city has countered in terms of this facility where your water storage could be at lower level and your city has grown up to a higher level which means that you need to pump in water from the lower level to a higher level which means you consume a huge amount of energy in this particular process. Now this is hidden. It will never be visible unless you have systems and technology which is put in place to do this.

Again, the way you distribute water through your pipes also matters. If you have a straight connection, it is the path which has the least resistance, it goes the fastest and it goes with the least energy. But then many of our networks are jumbled and they have grown with the city and you have a curving path that goes in, you have a lot of pressure drops, you have a lot of issues with them. You will have old leakage pipes coming in.

This is one aspect where some sort of smartness in terms of technology could be an enabler. It is not only a technology issue but I see it more from a governance point of view. Energy, water and other utilities are more governance issues. If a city father who is responsible for this has access to this knowledge and information, I am sure they are quite capable and quite intelligent enough to decide to put corrective actions in place within the existing physical infrastructures, do little modifications or some modifications which are required and then possibly have a smarter way of providing the utilities in a better way. The interest of the citizens is taken care of. You also manage your resource contents at that time in terms of energy, water and in terms of the people who are required and you possibly have a chance to achieve a lot of things.

On top of this, if for example, you build water meters or you have leak detectors for water in place, you today have a technology which can detect leaks in your particular pipes and again can hook up your central system. If you add on this onto your existing networks and map them on a GPS, put them on a map so that you have the entire Delhi region on a map with every valve or every critical point already on a display for you and with that, there comes a red dot which says that there is a leakage from this section of the pipe, it gives us a chance to correct that pretty much faster. I am not talking of metering water and billing water later on which, of course, a smart city would be require to do later on but at least, let us start on a step by step basis. Let us do the minimum things that can easily be done before any legislation, regulatory or other things come in before we move to the next step.

A few examples of how this physical layer works. In the centre part of it is your physical layer. You see the IT parks, the buildings, the residences, hospitals, the malls; the physical infrastructure that we have. And on top of this when we always talk of a smart city, we talk about a layer of ICT, Information and Communication Technology on top. This is a layer which connects all across and also helps to give an overall city view of these particular verticals which are in place. For example, you could have a traffic management system which covers all the traffic signals in entire Delhi. I think it is probably not done in Delhi but in Mumbai, at least in South Mumbai, which is the core, we have 293 signals which are hooked up on a common control centre like this. You have a big screen whereby every signal is every monitored. You have a camera which can capture every car or every violation in traffic. It gives you a chance to control your traffic, have some safety and security for the citizens. These things are available. They need to be factored in, planned.

The biggest issue in this is if you want to lay a new network, you need to dig the roads today or rather you were required to dig the roads which by itself is a big problem. In Mumbai, you dig anything and you don't know what is 6 inches or one foot below. We can hit a cable, we can hit a water pipeline or a gas pipeline. We have not idea. These things probably are not available in the way. But in the new cities or in the concept of new cities, even with the existing cities, the idea is to have GPS or GIS mapping of the cities. So you have all the networks mapped properly; you have a water network mapped, electrical network mapped, the gas network mapped and other utilities mapped properly so that if you need to do some good things in the city, you need to improve on some element or aspect of technology. It gives you a better chance to do that at a much better rate but these are things which need to be done. Technology today is available to do all these things. There are lots of cities which are trying to do these things. For example, in Bangalore, Bangalore Water Supply and State

Electricity Board have chosen a pilot area in one part of Bangalore where around 273 valves have been incorporated in the water distribution system and have been put on the GRS map and they have put the water leak detection sensors and they have this system live and working. If you go on our website, you can get the status of what is happening there. So it is possible. There are governments who have done this. I am sure it can be done by lot of other governments as well.

Coming to the right hand side, if you look at a smart city or somebody who needs to build up a city, I think if you have to look at a Greenfield environment or Brownfield environment, you have a lot of stakeholders today. Jagan had said very clearly we always have an issue with planning. We have a big pool of master planners today in the city. A lot of international firms have set up shops in India. They were not probably there 10 or 15 years back but today, India is being seen as a big market and these guys are all here, the ICT planners, programmers, engineering consultants and technology providers. You have probably everything that is required to make a good city work in terms of technology, in terms of resources available to this particular ways. You have lumpsum turnkey contractors.

Q: Can I just ask a simple question? We keep hearing that 60 percent of the world lives in cities. Currently, 70 percent of India lives in villages. Now, if we say that 60 percent of India comes to stay in cities and the High Court has strictly said that the manufacturing has to be done in the cities, out of the people, 60 percent of the people in the globe in the world are going to be living in cities. Because if we know what they are doing, then we know what resources they need, whether they have a family and joint family and so on. Have we done any thinking on that? It is great of leaders to say very progressively that they want smart cities. But have we done the basic homework? We are over 1.2 billion. Have we projected about cities for the next 200-300 years? If you are going to be talking about 200-300 years, have we projected what our population is going to be, profile of the population for the next 200-300 years? Based upon that, what about facilities like schools, hospitals etc.? If we have not done that and jump straight and have technology there; this is my dream. But as somebody said, 70 percent of Pune is not a planned thing. We are heading for a disaster.

Secondly, as regards global warming, we have successfully in the past 40-50 years killed, I repeat the word 'killed' 40 percent of the species which were there before. That is not a joke and each of these species was part of the ecosystem and when the ecosystem is disturbed, we have all these problems.

Thirdly, when we are talking about energy, assuming we have renewables, then we talk of global warming, had you factored all these things when the population was 2 billion 100 years back and is going to be 15 billion in another 5 or 10 years? We have not.

Deepak Goray: I will take all your three questions. These are very valid questions. Unfortunately, the slide on demographics is hidden and I did not show it here. As Siemens, we don't do this study but McKinsey has done this study. I think they are one of the reputed consultants. They have done a study which they have shared with the government. They have done a projection of demographics down to 2050. Demographics has been done and plotted and probably, a lot of planning has gone into how you exactly need to increase the

infrastructure in a city to meet the requirements 20 years down. You are right. Planning is a 20-year process and a lot of cities have done this planning.

Let us look at one of the key ingredients in a city which is transport. You are very right on transport. The basic challenge is going to be on transportation. All the consultants, all the studies have shown that there is lot of shift from rural to urban over the next 20-30-40 years which is going to happen and this is consequently going to lead to challenges on all fronts in providing affordable housing, providing transport or mobility, providing energy, water, providing opportunities for solid waste management, sanitation, education, health and so on. I think it covers the whole gamut. So the planning needs to be all inclusive.

Let me take one element at a time in this particular way. How has the evolution been? Like right from the time when the first electric train was developed in 1879 in Berlin down to the first electrical taxi which ran between Berlin railway station to the Berlin hotels in 1880s down to the time today and the first trolley again was sometime in 1890. The trolley was like a tram which runs on electrical lines was done in Germany in those years. By the time in 1920s, when the oil came in which was very, very cheap compared to all electrical and whatever efforts and work was done on the electrical systems have all been probably relegated to the background and we started using more fossils in all our automobile vehicles and the transport modes and again the shift has come in today from the last 20 years back keeping in view the CO₂ and the CNG gases that we need to shift back to electricals.

This is just a graph. The **first picture** on the left shows the first electric local in 1925. The **second picture** is the revised or new updated Mumbai local from 2010. This is much more efficient because it gives the railways, the carbon credits to the tune of 3 crores a year, a shift from DC to AC technology and very clean efficient systems. So technology also keeps pace with it and to help shoulder all this. The **last picture** is the Mumbai metro. I would specifically like to mention Mumbai Metro because it changed the habits of lots of Mumbaikars. This Mumbai Metro runs between Andheri and Ghatkopar and between Andheri and Ghatkopar, Saki Naka is a stretch which has extremely vehicular density all through mornings, afternoons, evenings; traffic mostly throughout the day. There was no option and people, who had to cross the city from the central to the western line, had to use this path. After the metro has come in, there is no traffic on the roads because there were around a couple of thousand autorickshaws plying on the roads have shifted elsewhere. It is so good that the time taken of one and half hours has been brought down to 21 minutes straight. Commuters are no longer willing to use autorickshaws or other modes of transport to go to these destinations. It depends on the need of a city. It continuously evolves. Some governments are proactive in thinking and putting such metro systems in place. Delhi Metro is a classic example. It has impacted a lot of Delhites. For Mumbai, at least, where I stay, I know this has had a lot of impact on commuting within Mumbai.

The last slide here shows how the BEST buses moved in the three years. At the centre is the electric double decker tram which was running in Mumbai in 1950s and 1960s but again a very clean mode of transport. Hopefully, it will probably make a comeback in the next ten years time. Dadar TT was called Dadar Tram Terminals. This phenomenon has been happening worldwide. People are realizing and coming on to the more efficient modes of transport.

I will skip this slide which shows what the right mode of transport is when the city fathers or the governance have to decide the transport strategy for a city. This chart possibly tries to show for what distance and what rate of traffic density, what is the appropriate mode of transport for a city. It starts from an e-bus or a BRT downtown trams or light rail or automated people mover to a metro.

This is an example from Vienna where we talk of mobility done right. Actually, this is an integrated mobility system in Vienna where all possible modes of transport are integrated well, exchanges are well. There is a common ticket which can move across the city integrated with parking management. One argument always is Vienna with its population of 7 million or entire Austria has a population of less than 7 million, I think more than 7 million passengers are carried by the suburban locals in Mumbai daily but leaving that aside for the time being, this has actually come over a period of 20-30 years. Even Vienna, with a small population, has spent efforts in planning a transport strategy and they have reached this over 20-25 years. They are doing one more thing after this. I think Vienna is pretty good. All the people who have been out would have realized this. As Siemens, we have a smart city toolbox. One question which Mr. Mahajan had already raised about how do you plan it. The mayor of Vienna had a vision of having a sustainable transport strategy till 2030 or 2040. The vision was to have a sustainable transport strategy. In 2012, they were talking of 2030 or 2040 and what is it that could be done. They had factored in how many people would move to Vienna city and what would be the business coming in, which area of the city are going to expand or become urbanized in that context and how do you really do this migration. How do you meet this challenge when urbanization comes in Vienna city in the next 20 years time? With the smart city toolbox, this is how precisely we have helped them suggest which technologies could be right for you in order to meet these particular challenges. The idea was always to keep the carbon emissions to a minimum, reduce the greenhouse effect, gases and so on. It is more strategized on hybrid buses or e-buses, metro networks and things like that. This is possible for some visionary cities to do this and we are today working with six cities around the world. Unfortunately, none of the Indian cities, though we had offered came forward to do this because as you said rightly, 232 sets of data, we also require 380 sets of data to do this planning within the cities and this is simply not available or up to the mark.

Another example is Munich. Today, they are a 3200 watts society. They say that per person in Munich today consumes 3200 watts. Their target is to reduce it to 2000 watts per person. What is that they should do in that technology or even with the regulation of norms so that this can be achieved? They have to factor in increase in population in the next 20 years as well. There are some things like you have a building and you need to change the insulation material for the building because the heating of the building consumes lot of energy. If you lose it to the cold air outside, it could be a lot more efficient. How do you improve the building materials to make it more efficient? But that has to come as a matter of regulation or norm while constructing a building. When you construct a new building or modernize a building, you need many things to be done so that this becomes a much more efficient society. This is where your governance part also comes in which the city authorities have to do. There is some technology which also supports them. Of course, the citizens also have to feel that ownership and pride that they need to achieve the goals of this particular city.

We had talked about one important point on building automation and we talked of fire safety and security today. This is where the regulation actually comes in, in a big way. In Mumbai, we are seeing so many fires and we have this snorkel which reaches only up to 23rd floor. Anything above that, the snorkels don't reach or most ironically, the fire brigades cannot reach the places where there is fire because the roads are too narrow or turning radius is not there or there are illegal encroachments and so on. As city fathers, when they think of making cities smarter, they need to keep this factor in mind that one part is technology which will help you say that this is where the fire is and evacuate people safely and provide an alarm directly to the fire brigade or city police and others which the technology can do but then physically, a lot of norms within the government also has to be done.

There are lots of old buildings around all the cities where there is no control over anything, neither energy, neither fire and I am saying fire is more critical for the whole building than energy because it is a question of human life. You put the things in place, have regulations, have norms that even old buildings have fire audits once in two or three years especially the commercial ones and you could save lots of lives. This is what we have been talking to the government. Some of them are willing to accept it and I hope the day comes when this happens.

One factor again. We all stay and work in buildings. Buildings constitute 41 percent of the energy which will also mean that the highest portion of the green gases or CO₂ emissions which are there in the world, transport constitutes only 28 percent and industry contributes 31 percent. This is the total of whatever goes in the building.

Speaker: Lighting by itself is one third of the world record.

Deepak Goray: Lighting and then the second part is the chillers which are used for the ACs both heat and cold, HVAC conditions. Chillers consume the maximum. In the cost of a building probably, the initial part of the design is 20 percent and the operational cost is 80 percent. This is where technology can help. Technology and regulation go hand in hand.

For example, this is my headquarters in Mumbai. We were not the most efficient of buildings though we have the technology players and we tell the world to make their buildings more efficient. We practiced what we preached at home and this is what we achieved. We did this project around three years back and invested around more than a crore in this. We got the energy consumption down to 22 percent and energy cost down by 38 percent and return on investment of 1.4 years. This is very attractive and this is a solution which we have offered to a lot of buildings. I think a lot of new buildings, of course, voluntarily go in for these sorts of systems. But it is possible even in old buildings. We have renovated some 100 year old buildings to be more energy efficient and the idea is that they can pay the cost themselves in less than two or three years' time which is a good period for getting the ROIs. It is mainly in chillers, lighting, BMS closed loop controller systems ensuring that the temperature remains at 24° or the preset points depending on the temperature. We try to use shades wherever there is a direct sunlight on the building. We try to see that the sides or the barriers which you have are put at such an angle so that direct sunlight does not come into the building. We have tried measures to keep the building cool

by natural means and do this. This again needs to be in the norms of new buildings. I know for DMIC and other new buildings where this could go as a norm that you need energy efficiency systems. There is one more technology which is used in hotels called Demand Flow which helps reduce chillers energy.

The slide here is on water, waste water and other things. I have already discussed the use case earlier. I will not go through this.

Some things which make the city smart again. Energy networks, the energy network grows. This was a classic case in Mumbai when Reliance took over from BSES where we did the whole network mapping and reworking with them. Just by doing the remapping, putting the right transformer in the right place, setting the right things, we helped them save 20-30 percent on losses in energy alone. And of course, the reliability could be improved. This is what is required in all the Brownfield. Majority of the cities in India are Brownfield and whatever needs to be done has to be done in a Brownfield environment. Lot of these solutions has to work or keep that point in mind and then work on it. These are some things which are available.

This is a very interesting point. You see a park on the right. This is not a park; this is actually a substation which is underground. Cities have a challenge of finding money. Today, the land prices in all the cities are atrocious. If you have a substation in the heart of the city, you can easily put it totally underground. The picture on the right shows that it is totally underground and you will not even know that there is a substation inside. GIS substations (Gas Insulated Switchgear) are maintenance free for 20-25 years and the city is free to do whatever they want with the land. They have built parking lots on top, they have built parks at the top. They are power substations and they distribute power into the whole area and this is 400 KV and 220 KV as well. Everything is underground. There is no pilferage, no losses. You don't even come to know of it.

This is something that we have done in London. London is supposed to be very up to date and a very smart city but again, they are still working on the power distribution concept for 2020 today. This slide was made three years back. They are still thinking 10 years ahead. They are doing a power strategy study for 2040 also on which we are supporting the UK government. Lot of progressive cities has taken steps to think much way beyond what is today. In fact, they have planned this factoring all the population requirement, the area requirement, how the demography will flow etc. A lot of solutions like the hybrid buses which take 40 percent less fuel and emissions are things which have already been done.

This is a slide which I have already talked of that we have done lot of work with lot of cities. That is all from my side. If there are any questions or suggestions, you are most welcome. Please let me know if I have missed out on something.

Question and Answer Session

Q: I am from the IC Centre for Governance and formerly, professor of economics from IIM, Ahmedabad. Both you and Mr. Goray talked about the issue of finance. You talked about the consumers' pain, the price which covers the cost. The experience that we have as

of today clearly shows that we don't have that culture. There is a big political economy underlying this and that political economy is encouraging the people to believe that they will now have to pay. If that is going to happen and that is happening, how do you think that the issue of smart cities and developing, for example, Delhi along the lines you mentioned would be feasible?

Q: I worked with UNICEF. I motivated UN to support NIUA when it came into being with Mahesh Buch for many years. We were together in Lahore and then later on in Delhi and in college. My experience in terms of urbanization and urban development is what Chandigarh is today or has been. We lost out after Chandigarh. We are already taken over by the urban disaster tragically. I have a couple of suggestions to make. I could talk about Gurgaon where I live. It is shocking to live there. It is mini-India. 16 months now for Faridabad and Gurgaon, the garbage collection centre is not functioning because of the usual Indian thing called short circuit and you know what I mean. The Government of India, I believe, should not go by Swachh Bharat slogans or smart cities slogans, phrases which will continue to repeat after most of us seniors have gone. My humble plea is in the bureaucracy, push for some key individuals from every state to go overseas and learn what urbanization and urban development is and how it should be delivered. If you can bring technologies for Metro from overseas, why can't we do this? In eight years, we have had eleven commissioners coming to Gurgaon and going away. 47 percent of the revenue of Haryana comes from Gurgaon but the money does not come back here. You have mayors and 35 corporators who have not power. We have a colonial system from the central state level and nothing has been done. There are about 200 RWAs and I am a member of 3 of the largest ones, nobody listens. I believe it will end up like what is happening in some of our districts elsewhere in India. We are not listening. The disaster has taken over. I hope NIUA from theorizing will get on to the ground and do it – the basic services, sanitation, pollution that is existing all over north India especially in winters and so on. We have to start doing things and not creating slogans. Thank you.

Q: Mr. Shah, why are you so crazy about urbanization and not about de-urbanization, the way the earlier speaker was pointing about Gurgaon and other cities. I don't think we are going to reach anywhere. The need of the hour is to make more smart villages than smart cities.

Q: I have been connected for many years with the Government of India in their different departments. I was very much impressed with what Mr. Chopra said. I listened to him very intently. Unfortunately, I came a little late. There are two points which I would like to make. The first point is, apart from technology, facilities and so on, the basic issue is in 1992-93, an Act was passed by the government about the state government doing everything possible to develop the local government structure. There are two areas – the rural area and urban area. How many years have gone by and at this moment, the point is when policies are taken, action has to be taken, then the point of governance comes in here, the point of accountability comes in here, the point of flow of funds, the point of discharge of responsibilities at each level comes in here. The point which he made was very vital. Things have gotten wrong in this country not only at the local level but otherwise also. We have huge central government, huge state government, relatively to the manpower which is available at the local self government and the rural area, administrative manpower is

deficient. They don't have the proper manpower and this is a level which is delivering in the city area as well as the rural area. The issue is the concentration of administration is more at the headquarters of the central government or the state government. Despite what you may do, centralized control has some limitations and the control also has to be decentralized. You have a system where you have a centralized control, decentralized functioning is not possible. Decentralization also has to go along with adequate power. That is my submission. Thank you so much.

Q: In this age bewildering flux of ideas, candid experimentation, candid specialization and now heightened urbanization and so on and so forth. You can go on adding onto that. I don't think that a magazine in this age should also be as Wordsworth opined about 300 years ago, go back to nature, go back to villages. How do you think this concept of going back to nature and back to villages can work in this modern age of great science and technology, engineering and all other isms which have cropped up in 20th and 21st century? Everybody is talking about global warming now. 1 percent rise in temperature will decrease our farm produce by 4 percent and so on and so forth. Thank you.

Q: My point is simple. We are using massive sledge hammer to solve a problem which Indians hardly 60-70 years back had already got some ideas. One is, we designed all these smart cities and everything and as somebody rightly pointed out, 70 percent of the people are staying in the slums. I assume they are not citizens. If they are citizens, why are they staying in slums? I have done some R&D and I am working on 21st century villages incidentally; I am an amateur. Why they come is 50 or 60 years or 100 years back, there was no concept of a job. Most of the people were farmers and they grew and if there was a famine, they died and if there was no famine, they enjoyed. This phenomenon of a job is very recent brought about by Industrial Revolution. And the cities which we are all claiming like New York, Berlin and all that, these are essentially outcome that the Industrial Revolution needed factories. And factories in those days could not be made unless you had massive manpower around 500 people. The second thing is all those 500 people in the assembly line had to come in at 8'0 clock because even if one guy did not come, the whole system got help up. The concept of time and punctuality came in. Some of these concepts are talked by Alvin Toffler which is worthwhile reading.

We are now in a knowledge economy. We came from a decentralized agricultural economy which was global to an industrial economy which about 200 years back was brought about by the British and others and we missed out on that. We caught up but we still have not caught up. 70 percent is still in agriculture. They are already giving into the information economy, computers, technology and all that stuff. Fortunately, for the information economy, with those technologies, you don't have to centralize everything. In fact, the latest manufacturing which the Americans are going to do and put the entire Chinese manufacturing industry in big time trouble is digital manufacturing. You manufacture just in time and just what you need. And the manufacturing process is something like inkjet printer. You literally squeeze and spray metals and all that stuff. Anyway, that is a different issue. There is a lot of work being done on that. My question is at the fraction of cost, with technologies available in existing India, forget about importing them even, we can at least make our villages 50 percent efficient if not more. If we do that, the cities which we develop will survive because the 70 percent slums hopefully will come down and if they get the same

kind of facilities nearer home, I don't think anybody really wants to go out of his home, leave his wife and children behind to work over there. You will have a countermand.

Meanwhile, we tried to focus on our villages and in case, my earlier hypothesis that I was talking about. We were talking about knowledge work and knowledge work is something which is location independent. I was sending work from Chicago to India a couple of decades back and it worked. And that's exactly how the IT boom took place in India. I don't see any reason why we can't send work from Nehru Place or Colaba etc. to the smaller cities and then ultimately to the villages. If we do that, you will have this.

If we have this approach and fortunately, the third wave does not need centralization. You can have decentralized villages living locally, you can have a sustainable permaculture and all this stuff and you can make them reasonably self sufficient and you can take care of the transportation cost and global warming and all that. All these technology is something which can be learnt relatively easily even if we have such a large young population which is largely functionally illiterate, pardon me, but I think that is a fact, we can get these people quickly trained up in those technologies and make those little incremental improvement in the villages. Make a model village and get the whole process working around it. If that is done and by that time, hopefully, our technology changes and we will catch up. The smart cities are required; I am not saying, they are not required but they have to be required for a certain functionality and not for everybody. That is my suggestion.

Professor Jagan Shah: I think Mr. Mahajan had raised this question earlier about cities and villages and that has been raised by others as well, it is not a very static kind of a relationship. It is not that the city and villages have some kind of antagonistic or contradictory existence at all. In fact, we are presently doing a research project along with the Centre for Policy Research and IGIDR in Bombay called the Shramik Project supported by Tata Trust which is looking at migration in depth. We are spending three years in looking at urban migration in depth. What is emerging from the first one and a half years of work is a very dynamic situation. Migrant families, for instance, don't spend their entire spent in the city. At times of harvest, they go back. Depending on the year and age of the family member and so on, there is lot of mobility to and fro between the villages and the cities. What I am trying to say here is that I don't think it is possible for us to choose. That would be social engineering; it is not that. It is a very dynamic relationship and certainly, not only this government is talking about this, but our former President talked about the PURA, Provision of Urban Amenities to Rural Areas and that idea continues to have a lot of resonance. So the commitment is not only to building cities. However, we must recognize that our existing cities are a mess and I think we all agree on that. I think it is important for us to correct one possible misconception here that the smart cities that we are talking about are new cities. I think that misconception needs to be dispelled. This programme of building 100 smart cities is actually 100 existing cities. And so, if one gets into the depth of the problems of the existing cities, then one's entire stance on this issue might change. It is not about building new cities; it is about fixing existing cities and the ways in which we can do that. I just wanted to mention that.

Mr. Mahajan earlier asked about the jobs. Certainly, they are going to be in the tertiary sector. They are certainly not going to be in the primary sector. At least, there are lots of

organizations that have produced reports that seem to suggest that the growth in tertiary jobs is the fastest and it is going to continue to grow. The nature of jobs is also changing. It is only industries, manufacturing and agriculture that tend to be very location-specific.

I would like to make a couple of other points. I think we must understand that there is a huge capacity gap in the cities. You talked about this need to train the city officials and city staff. That is very much on the cards. The government is coming out with Capacity Building Mission for municipal staff and municipal employees which will include the kinds of exposure visits that you talked about.

(Speaker: That was a part of the Nehru Mission.)

Professor Jagan Shah: That was also a part of the Nehru Mission but not much moved on that. There were some 700 crores given for capacity building, out of which about 30 crores were used. The rest of the money was sent back but now there is a fairly ambitious capacity building programme which will involve global institutes of repute in partnership with the Indian institutes and will incentivise training as well. There will be some incentives given to municipal staff to actually obtain that training. It will be a career-linked incentive which will be the most effective. That is very much on the cards and that is, in fact, being finalized right now.

Mr. Dudeja asked about de-urbanization. I think again my response would be that we are not China. In China, you need a permit to enter a city. It is called the Hukou and without that, you really can't enter a city. We don't have that option. That is why I mentioned the idea of PURA. The demographic change that has surfaced from the 2011 census talks about one alarming fact which is the growth of what is called census towns. Some 2600 census towns have been added. These are towns that are not statutory and therefore, don't get recognized and therefore, are not given an urban administration but have achieved the kind of size and the kind of occupation base that would qualify them to be cities.

Q: Even a villager is a citizen of India. This programme of 100 smart cities should actually be 100 smart villages. How do you distinguish between a city and a village and on what basis? If you want to stop the influx of the migrants from the villages to the cities, you are increasing the divide by making the cities smarter. What are you doing with the villages? You should make the villages also smarter. Both the cities and the villages should be smart. The question is smart city is a westernized concept. We have the habit of taking everything western and absorbing it immediately. We should follow smart initiatives. We need smart initiatives. That is the reason Delhi will not become a smart city. Only two or three locations in Delhi will become smart. We are adopting norms and not initiatives. This is also the reason that eight or nine months have passed and nothing has happened. Everybody is confused about what a smart city is.

Q: What is the 74th Amendment for? The concern is what is the role of NCR Board or Commission for? To get a bureaucrat at a higher level and put him there? His or her role should be that the 15-20-30 medium small towns around Delhi should lead to Delhi. It is not happening. Everybody who comes in, if it is an Englishman, then there is a colonial

approach. Apna time nikalo aurnikal jaovahan se.
 अपनाटाइम निकालो और निकाल जाओ वहाँ से। That is the saddest part.

Professor Jagan Shah: On the 74th Amendment, it is important for us to recognize that the urban sector is with the states. That is really important for us to understand that the centre cannot dictate what happens in the urban sector in the states.

(Speaker: That is why the money was not spent.)

Professor Jagan Shah: Possibly. Who am I to give even that excuse? I am just saying that this is the fact of the matter. Secondly, the very interesting fact about the 74th Amendment is that there is a clause right at the end of it which allows the state to not implement the 74th Amendment. There is a particular term for it, exclusionary; there is a clause that allows you to simply not implement the 74th Amendment. That as I learnt was added at the eleventh hour. I could not agree with you more that the 74th Amendment is certainly a very good amendment and the principle is very sound. However, this is not a problem that we can simply settle through this debate as to whether every state government should actually implement. There are four states which have devolved almost all the functions except saving one possibly to the ULBs – Madhya Pradesh, Gujarat, Tamil Nadu and Kerala. So there is devolution of powers. One is also seeing that those states are managing their cities well. There is corroboration also from ground experience. However, it is the problem of the federal structure for constitution itself. Much more work will need to be done on this.

I want to just go back to this idea of whether we can choose between doing our cities and doing our villages. I don't think there is a choice. Both need to be dealt with. In fact, removing the line per se, the division per se is going to be most beneficial for us. What is happening is that increasingly a large metropolitan agglomeration like the national capital, Delhi and along with central NCR as they call it, Faridabad, Gurgaon and so on, the central NCR has seen 200 percent growth. That is because of Delhi. What I am trying to say here is that the kind of a footprint that this kind of a megacity or even we need a new term for it, this kind of a city has includes huge swaths of rural land and villages along with it. They are production basis; they supply food and all kinds of other products to the cities. The idea that cities and villages are somehow separate, that idea needs to be debunked. They are very closely linked to each other and the villages are, in fact, continuing to be growth centres as well. But it is because of the economy that services cities. Increasingly, that trend is there that it is not stand alone. There is this interlinkage between villages and the city and I think the more we understand it and cater to that interlinkage, so that we don't actually end up losing the baby with the bath water, in that sense. That would be the wise thing for us. I personally think and I don't think that even presently, the Ministry of Urban Development is looking at its domain as being somehow in conflict with the rural domain in any sense.

Deepak Goray: I think Jagan I could not agree more with you on this point. If you look at it, in the last ten years, the penetration of mobiles in the country, I think from the cities especially, if I go to my ancestral village in Ratnagiri, in the coastal part of Konkan region, I just remember spending my childhood in my ancestral village, around 250 kms out of Mumbai, maybe in my childhood and maybe today, every person there has a mobile phone and there are a lot of farmers. Essentially, it is an agrarian community, mainly mangoes, if

have heard of Devgarh Alphonso and cashewnuts and because of the use of mobiles and the access it provides for information on the internet through 2G plans; maybe 3G is not there but the data access that controls it, the lives of lot of people have changed including education. I have seen my own cousins who have been born and brought up there vis-à-vis me or my kids who are born and brought up in a city like Mumbai, the gap between us is diminishing pretty fast because the information sources are available to that. Yet, there are still issues with them regarding job opportunities. A lot of entrepreneurs are going there and setting up shops on education probably or healthcare. The main crux is the opportunity for making a living. Like I am hopeful and positively optimistic that of all the DMIC and all the corridors that are being planned, mainly as manufacturing hubs and if the government is successful in decentralizing manufacturing and locating to different corners of India, I am sure my cousins would not like to leave a beautiful life which they have and come down to a city in Mumbai where they have to travel two hours. Today, we at least travel one and a half hours one way, same like Delhi and probably have a very poor quality of life. But actually the main economic drivers of earning a living, probably which will be the differentiating factor and I am optimistic and positive that the government in the years to come will look into this area and creating jobs locally by shifting manufacturing out to a lot of places which can do it.

And one point which came on having some knowledge services which can be sourced from out of the country, I think in Nashik, we have IT parks today, out of Bombay. We have IT park in Indore and all around the place. Lots of software companies are going all around the place taking advantage of the revolution which we are having and providing employment opportunities for the intellectual people down there and have a better taste of life. They enjoy good quality of living compared to the smaller cities that they have and possibly they earn a good livelihood also. I am quite optimistic and positive that in the next 15-20 years, at least with whatever steps the government has started thinking and started taking in small ways, it would be positive.

I would like to give a small example. Madhya Pradesh state, as we all know, is the second largest state in India. There is a quiet revolution going on which probably normally people like us will not realize. They have all the services of the government, e-MahanagarPalika Scheme launched in Bhopal. They did a three year business process reengineering of all the services. They are now extending it to 378 urban local bodies and rolling out the services in the next three years. I think a lot of transparence in system, lot of citizen to government interfaces will work out in a very positive way. It has received very positively. All the tax payments to the government, in five or six major cities are already online. And a lot of such services are happening in small pockets all over India in small ways and all add up to the smartness and improving the life of citizens in all the respective locations. The main crux in my opinion is providing opportunities for employment wherever they are in villages or wherever they are, I am sure then people would not like to come to cities because life in cities is very tough and dangerous. It looks alluring but believe me, I would like to go back if given a chance. Thank you.

Q: I would like to add to make it attractive to the people to live in small towns and smart villages like providing good education and good medical facilities because without these two things going hand in hand with manufacturing, it cannot happen. You have opened IITs, IIMs but you are finding it difficult to get the faculty. They are not prepared to go. We have

had six branches of AIIMS but the AIIMS doctors in Delhi are not prepared to go anywhere because of lack of these facilities.

Q: Let me ask couple of questions which I had earlier raised. One was what to do with the existing slums and JJ colonies in terms of whether smart technologies make them live more livable like fire safety and other problems. The other question is about governance. Now the existing governance systems require the commissioner to have all the powers. The Bombay Municipal Act of 1952 has been copied practically everywhere. Now that Act does not empower the Mayor; it puts all the powers into the hands of the commissioner. We have been bureaucrats and so we are quite happy but the point basically is should the Mayor not be responsible for all the functions which happen in the city and therefore, should that also not be changed? So the governance of the cities also needs to be made smarter like what we have in many other parts of the developed world.

Q: I have already asked about smart cities which you have answered. I appreciate what you said about Madhya Pradesh because I come from Madhya Pradesh. I will give you one example that there was a land and I had to rush every month to get the record and I paid revenue. It will never be available for years because the patwari is never available. He is available if you have someone big like Gandhi. I was surprised I have a lot of land and if anybody is interested to move to a small village called Khajuraho, I can provide all kinds of facilities. You can go there and stay free in my resort and hotel, get the cheapest land, best land with all the facilities, five star hotels etc. It is now very good that you just have to click the site called Bhoomi record and you get your record updated here. In Delhi, when Sahib Singh Verma was the Chief Minister, I was his colleague. JitendraNarain tried and failed to get these books introduced for revenue records because of land mafia. They never allowed that because they sold the land ten times. Thank you.

Secondly, how have you decided about 100 cities because there are 760 districts in the country? Are you going to create a movement? You have selected only 100 and how long are you going to complete the development of these cities – 5 years or 10 years or 30 years? That should also be defined.

Professor Jagan Shah: The question about slums is obviously not an easy one to answer. There are severe constraints for in-situ redeveloping which is now the chosen attitude towards slums. We are not going to follow any relocation although that may still happen; one does not know. But in-situ to upgrade slums like you mentioned for entry of a fire tender in case of a fire and so on is actually an intractable problem right now because it would mean providing six metres of free space which in most slums does not exist at all. There is a severe problem. We are working on decentralized sanitation solutions. There are some 690 slums in Delhi under the Delhi Urban Shelter Improvement Board. About 70-72 percent of those slums do not have a square inch of space on which a toilet can be placed, let alone provide full sanitation. How do we do that? Maybe, the only way forward is to rebuild new housing units with toilets on that but we are trying to work that out. Prefabrication technology is one of the ways, building the entire precast units if that is culturally acceptable to slum dwellers which might be another issue but certainly, the high rise 10-floor Singapore model of slum rehab may not find desirable outcomes in our context.

J S Oberoi: Thank you very much. All good things must come to an end. I request our President, Mr. Prabhat Kumar to kindly present mementos to the two wonderful speakers. I now request our senior member Mr. Mahesh Kapoor to propose a Vote of Thanks.

Vote of Thanks by **Mahesh Kapoor**

Thank you very much. It is indeed a pleasure to propose a vote of thanks for Mr. Shah and Mr. Deepak Goray who have brought in very clearly that there is no difference between the city and village; both need to become smart and we need not quarrel about either staying in the village or the city. It is making and improving the quality of life of the citizen whether he lives in a city or a village and they have also suggested that if you have the capacity to dream, to dream about how to do things, technology is available to help you achieve it. There is always a possibility with technology. Before I close, I would like to mention two more things. This is our first lecture in the new series and we have had 12 before. The entire proceedings of the lectures including the questions and answers get printed as a book. And these books are available with the IC Centre for Governance. We have covered a whole range of subjects including inclusive governance, Civil Services reforms, judicial reforms; a whole lot of other subjects. We continue to bring in new subjects in the area of governance. Anybody interested is more than welcome to write to us to collect these documents. They are also available on our website. Before I close, I must thank the audience for their support and participation. Thank you.

Second Lecture

URBAN HABITAT

March 20, 2015

B D Gupta

I have great privilege to extend a hearty welcome to you all on behalf of India International Centre and the IC Centre for Governance. We are having the second lecture this evening under the title 'Urban Governance'. We had the first programme of this series on 5th February, 2015 under the caption of 'Sustainable Urban Governance' where Professor Jagan Shah, Director, NIUA and Shri Deepak Goray from Siemens had addressed us on the conceptual framework of smart city and other associated subjects.

Today, we have **Dr. M Ramachandran** and **Shri Balvinder Kumar** to deliver their lectures on the wider canvas of urban habitat. **Shri Syed Shahid Mahdi**, Former Chancellor, Jamia Millia has kindly consented to chair the session. Shri Mahdi is an esteemed member of ICCFG Core Group. He had the distinction of being an educationist, bureaucrat and diplomat. He is also a founder member of India International Centre.

Both Dr. Ramachandran and Mr. Balvinder Kumar are well known bureaucrats. They have contributed a lot in urban development both on conceptual framework side as well as on execution. Still a few words about them. Dr. Ramachandran is an IAS officer of 1972 batch from UP and then Uttarakhand Cadre. He has a brilliant academic record. He retired as Secretary, Urban Development in June 2010 after serving for four years in that capacity. He has been responsible for several new initiatives in the Indian urban sector including steering the flagship program of JnNURM, Jawaharlal Nehru National Urban Renewal Mission, Chairman of Delhi Metro and later on Chairman, Bangalore, Chairman Kolkata and Chairman, Chennai Metro Corporations and structuring the JV companies thereof. Besides he has served the central government in various capacities in shipping, ports and waterways. At the state level, he has been the Chief Secretary of Uttarakhand. He has quite a few publications to his credit besides working as the Guest Editor of the Special Number on Urban Governance of the Journal of Governance.

Shri Balvinder Kumar is an IAS officer of 1981 batch from UP cadre. Mr. Kumar is presently working as Vice Chairman, DDA. Prior to this, he has held various positions in central government in Chemicals and Fertilizers, Agricultural Cooperation, Textiles, handlooms besides numerous other important assignments in UP state.

I am sure both the dignitaries can reach us this evening with their valuable insights on the important subject urban habitat. I now request our President, Shri Prabhat Kumar to make his opening remarks and thereafter, Mr. Syed Mahdi will conduct the proceedings.

Prabhat Kumar

Good evening friends. Today, we are going to discuss Urban Habitat. I will start with a statement, rather a hypothesis that the future of humankind will largely be determined by the character of our future cities. I am saying this because humankind has crossed a special milestone early in this century. In 2007, for the first time in history, there were more than 50 percent of human beings living in cities. So we are an urban species. The pace of urbanization can be seen from the fact that in 1900, 13 percent of human population lived in cities. In 1950, after 50 years, it became 29 percent and now it is 50 percent. I think if this pace continues, I think very shortly we will have a very large preponderance of urbanites in the world. Nevertheless, India is still more rural than urban. There are about 300 million people living in cities, constituting about 30 percent of the population. We have a very unique opportunity which is that in the future pace of urbanization, we can learn from the successes and failures of urbanization in other urbanized regions of the world. The big question is whether we are learning anything.

Cities present the finest and the most terrible aspects of human habitat. On the one hand, they are the beds of poverty. There is mass poverty in some of the large cities of the world. But they also offer the best way to overcome this challenge. Similarly, they are centres of environmental crisis but they also offer the best way of sharing the limited resources efficiently and more fairly. So there are two sides of urbanization. On the one side, the cities are the destinations of education, culture, trade, commerce and on the other hand, they are centres of overcrowding, disease and crime. For us, poised at this state of urbanization in India, we have two alternative paths to choose from; you go this way or that way.

A lot of research is being done on urbanization all over the world. The universities and institutes which are coining new concepts; there is a concept of Urban Morphology. I don't understand it or Urban Metabolism where research is being carried out by universities in the West on Urban Age Projects. I don't know whether any worthwhile research is being carried out in India and if there is, then at least, let it be brought to public discourse. I see hardly any discourse on urbanization per se in the public domain.

Talking of India, one city cannot define urbanization in this country. There are cities and cities. There are ancient cities like Patna and Banaras. There are commercial cities like Kanpur and Ahmedabad. There are small cities like Khurja and Khandwa. There are planned cities like Chandigarh and Greater Noida. And now, they are talking of smart cities. I don't know whether anybody understands about smart cities or not. And in India, there are cities in flux where modernity, urbanization is intruding into age old rural settlements. I think this is the key; the small cities, the small medium sized cities. Unfortunately, we are neglecting them. Unfortunately, the government or the community is doing nothing about the small and medium-sized cities. Think about it. There are 4378 urban centres in the country and of these, 35 are cities with a population of more than one million and these 35 cities with a population of more than one million account for around a little over 100 million people. Where do the other 200 million urbanites live? They live in small and medium townships. I think in our country, there is a bias against these small and medium cities.

When we talk of urbanization, we think of the large, big cities. The big cities are engines of growth. When we talk of education and culture, the big cities are glorified. We cannot even think of a small city with all this new technology of information, communication and

transport, that a small city can also be a centre of art and culture. We are not thinking in that direction. Look at our Jawaharlal Nehru National Urban Renewal Mission. 75 percent of the assistance is being given to 65 mission cities and 25 percent to 640 small and medium-sized cities. I think this is something we should think about as to how we can put a little more investment in the small and medium-sized cities. I am heartened to learn from certain reliable sources in government that the Government of India is now thinking of bringing a new policy of urban development where greater attention would be paid to the small and medium-sized cities. Let us see. It might come in a couple of months. The policy is already in the drafting stage.

Talking of cities, in Europe, we have a tradition of building cities. During the Renaissance, we had these town planners and city builders who studied and shaped the urban space as if the whole city was a piece of architecture. I have lived in Paris and the people there take pride in being Parisians which is synonym of being graceful and smart. In Paris, a city which was built in the 16th century by Louis XIV, you cannot alter a building. In the city, you just can't alter anything. They are so jealous about the city. Now we have garden cities, cycling cities. We have Chicago where they have separate lanes for Segway, the new means of transport which is an environment-friendly transport. There are canal cities. And there are cities like Paris and San Francisco who are pushing the limits of freedom and achievement. Why can't we think like that?

The question, therefore, ladies and gentlemen, is where do our cities stand. Perhaps, as Indians, we do not believe in city planning. Perhaps, essentially, we are village folks. Perhaps, after losing MohenjoDaro and Takshashila, Pataliputra and Indraprastha, we have forgotten the art of city building. We are doing patchwork. We specialize in patchwork. So the question is where do our cities stand and we are looking for answers. Thank you very much.

Syed Shahid Mahdi

I think with this excellent introduction, perhaps, we could skip the opening remarks of the chairman. I invite Mr. Balvinder Kumar first to share his wisdom with us.

Balvinder Kumar

Before making my presentation, my colleague Romi Roy is here who will make a presentation as to what steps DDA has taken in the last one year. I will just introduce briefly about my presentation. We all know that in Delhi, we have a population of about 1.82 crores and perhaps, this is one of the fastest growing cities in the world because every year, nearly 6 lakh people migrate into Delhi. As per the Master Plan 2021 which is at present in vogue, nearly 24 lakh housing units are required by 2021. This is basically the projections.

What are the challenges before the planner? The first, of course, is housing for all but land is limited. We all know that land acquisition has become almost impossible now with the promulgation of new Land Acquisition Act. Second is about unauthorized colonies. We have more than 1800 unauthorized colonies. Then we have 680 slums and these unauthorized colonies and slums constitute more than 50 percent of population. According to one study, it is more than 60-65 percent but conservatively, it is 50 percent. In large areas of Delhi, people are living without title like in Karol Bagh, PaharGanj. There are 23 Nazul

estates where nearly one lakh families, residents are residing there without title. Then we have 5 villages, those who were paying chulha tax even prior to independence. During the British time, they were paying. Even now, those people are still living in Delhi without title. There are no ownership rights. Then, of course, there is very little respect for law. Building by-laws which we had in vogue were never implemented by most of the residents. Wherever opportunity came, people went for unauthorized construction.

Basically, these are the four challenges which I think are very important which we tried to address in one way or the other in the last one year.

First of all, we introduced some long-term policy changes in Delhi and two are the important Land Pooling Policy and Transit-Oriented Development (TOD) Scheme. This Land Pooling Policy would be coming up in four zones of Delhi. Nearly 20000-24000 hectares is the urbanisable area at the outskirts. It is on the western side of Delhi. We are going to introduce the Land Pooling Policy very shortly. Operational guidelines have been prepared by the authority and final notification is expected any time.

The second one is the Transit-Oriented Development (TOD) Scheme. We have tried to introduce new development norms along the Metro Corridor. 500 meters on each side is the influence zone and again, the authority has already approved the TOD policy and final notification is expected any time. With these two policies, this will give a new direction to the development that is taking place in Delhi.

Third is the redevelopment. Basically, the Land Pooling Policy is the green field, the urbanizable area. And now, we need to address redevelopment of unauthorized colonies. Then we have planned colonies where still more development, organized development can take place. Thirdly, we have the 23 Nazul estates. Then we have nearly 1000 group housing societies. We also have the DDA colonies and then, commercial areas. We have already prepared a blueprint for redevelopment of these areas. Currently, we are in the process of seeking comments from the stakeholders. And then the fourth area is slum rehabilitation. We have 690 slums and we need to rehabilitate these slums. We have already prepared a policy. Presently, we have uploaded this policy on our website and we are seeking comments from the public and hopefully, we will be implementing the redevelopment and slum rehabilitation policy soon in the next two months' time frame.

Basically, these are the four major changes that we are introducing in Delhi. On the one side, we have formulated these policy changes which will have an impact on long-term basis. Secondly, we have tried to introduce efficiency and transparency in DDA. We will tell you more about it very shortly. We also took certain measures to address the problems being faced by the citizens.

With this background, I will request Romi Roy. She is instrumental in introducing TOD policy. This is her favourite subject and she will also tell you about TOD policy because in the coming time, this will play a very important role.

Romi Roy

Since Mr. Balvinder Kumar has already given the introduction. We will be talking in two sections. In the first section, we will try to show you the policies that we have introduced and in the second part of the presentation, things that Mr. Balvinder Kumar has done in terms of good governance.

The first part is long-term changing of the city and we will just try to highlight the key things. As everyone here must be aware, the Land Pooling Policy has been launched. In that, about 5 zones are being opened up for development. This will really address a lot of the housing pressures that is there in Delhi because most people are currently either working in Delhi, living in Noida, Gurgaon travelling 20 kms to work or they are not finding affordable homes in Delhi. It is becoming a very, very distant dream for most of the middle class to have a house in Delhi. So hopefully, this policy will definitely give that opportunity to people to finally fulfil the dream of having a home in Delhi.

The other very important change that has come, as you all know, that Delhi had always developed. Like DDA used to acquire land and then develop. But it is now moving to a more private participatory mode where the developer and the land owner and the DDA will be partners in pooling of land and development of land. Hopefully, this will be more participatory, more fair and it will also be faster.

This map gives you the impression of how it is. The central area is this white portion and these are the areas that will be opened up. Of course, they will be connected with new mass transit systems, new water, energy, infrastructure trans systems and there will be new sub cities that will actually be created because most of these areas would be about 20 kms from the centre of cities. We would not like people to live in these far areas and have to commute for entertainment to the centre, to work in the centre or school or college in the centre. These areas will develop as new sub cities of Delhi.

I will come to the basic concept which is giving housing. The Smart City concept is now the focus of the government. This is an area where we are now hoping to implement the Smart City concept. What does that basically mean? The Smart City concept means, very simply, at least, that is our definition. How we have put it is being smart in investment. We invest less and get more benefits. If we are doing that, then we are smart. The infrastructure for water, energy, roads, Wi-Fi etc. will be implemented in such a way that investment is less. People have to travel less for their daily needs. In power, energy saving, energy use and everything is more sustainable so that you can recycle. There is more dependence on recycling. Energy efficiency is the focus of design. For this, we have introduced lot of norms in the Master Plan as part of the review.

As I had mentioned, these are some of the salient features of the Land Pooling Policy which will facilitate creation of new sub cities which will be smart.

The current status of the Land Pooling Policy is that the operationalization of policy is under process. The regulations have already been approved by the authority but the modalities are being worked out and stakeholders' consultations are ongoing. Various other policies like TDR etc. are currently being explored. Land Pooling is a very important policy because this is our opportunity to not make the same mistakes of the past again. In the cities developed earlier, people had to travel long distances for their daily needs and everything was car-

oriented, open spaces are gated, communities are segregated and so on. We can correct these mistakes in the new policy. Hopefully, we have really learnt from our mistakes.

And two or three important policies which will actually help the land pooling area to also become a better city, to become a smart city are these two policies which are: Environment and Transport Chapter which have been recently approved by the authority. Earlier, the Environment Chapter used to only lay down concepts like we should have rainwater harvesting, we should save power and so on. Actually, in the current Environment Chapter, we have really laid down the regulations that you will get this incentive and therefore, you will do a green building. Clear guidelines have been given. Rainwater harvesting was becoming a concretized kind of an infrastructure like people were making pits and not understanding how rainwater harvesting works. In this Chapter, we have also discussed how green areas can be integrated into becoming rainwater harvesting systems. Parks can be multifunctional like it is happening worldwide where the entire landscape of park perform double functions. A park is working as a filtration system, as an open space system. These are smartness that we can do in our future cities and make every infrastructure do three or four different functions. These have been laid out in the Environment Chapter.

Very crisp guidelines have also been given for green complexes. Lot of incentives are also proposed where FAR is one of the biggest things and which is also required because some of these techniques, as you can see, such as cavity walls, creating underground storage tanks etc. These are also little expensive. Of course, they give the user a long-term benefit but often the challenge is although the user is getting a long-term benefit, the developer tends to be shy in investment because he feels why should he make that extra investment. To cover that extra investment, we are thinking of giving and we have already got it approved. The extra ground coverage and FAR approved will be given as a big incentive so that these things get delivered. Once they get delivered, then they should be self-sustaining. Dual piping system, for example, once it is delivered, it will always function. It is a very big step in going towards sustainable cities.

The second very important Chapter that has been added and revised completely is the Transportation Chapter which also includes the TOD policy which Mr. Balvinder Kumar mentioned.

These two diagrams are very interesting. The left one, as you see, looks at urban transport as a mix of these four modes. When we think of transport, we always think of buses, metro, cars but we generally, don't think of pedestrians and cyclists who actually have a greater share than cars. Like in Delhi, for example, I don't have the numbers here but about 20 percent people are driving but 35 percent people are walking only for their daily needs. That needs to figure in the transportation policy of the city because only then we can move towards sustainability as well as cycling. The data shows that 35 percent people own cycles but only 9 percent are cycling. Obviously, there is something wrong because even after having a cycle, people are not riding them. We have comprehensively addressed these issues in this Chapter. All modes have been addressed.

And TOD, as you can see, transit has been taken out from that and the pedestrian has been taken out. TOD depends on two things – high speed public transportation and walking and cycling. These are the two key things that form the basis for development. You have homes

and jobs which are now close to high speed transportation and they are walk-friendly. Simply put, that is what TOD is.

The key features of Transportation Policy is, in UTIPEC, we also evaluate projects as you all know and whenever we talk about walking and cycling, there is a feeling that we are going to take the space of the vehicles. It is not like that. What we want to tell the people is that if you want to drive, you are welcome to drive and if you want to walk and cycle, you should have the option to walk and cycle. This policy gives you more option of walking and cycling. In this policy, key features like Bicycle Master Plan and Parking Policy, Street Design Guidelines and Road Network have been addressed.

One big project that has been taken up now which is pending for approval, which is, we are taking up Dwarka sub city as a model development where many of the things will be tried. Cycle sharing as you know has already been announced. The roads will be retrofitted for putting in NMV tracks and good footpaths. And the TOD zone in this will be developed as a visionary corridor in lines of Orchard Street of Singapore or some really visionary area where it is a destination for local people of Delhi. Dwarka people currently go to Gurgaon for entertainment but this will become the local hub for the area. That is one of the areas where we are hoping to implement these policies immediately.

I have already explained the TOD policy. Basically, it gives you the option of living in high density along the entire metro corridor but not the entire city. As you can see, people who don't want to live in high density still have the option of not living in high density.

I would just like to highlight two important new building by-laws that we have introduced. One is safety of women. This is a very, very major change that we are introducing in the building by-laws because currently, it requires setbacks and the moment you have the requirement of setbacks, you have boundary walls that come in which is actually not required and even the fire department does not want it because they cannot access the building because of the boundary wall and the parking happening behind the boundary wall. They have said that they would prefer zero setback buildings. This has a very big benefit because when you have buildings like shops or town homes facing the road, then the footpath is safe. Like you can imagine that this street is definitely not going to be safe even for men, leave alone it being safe for the women.

The other thing we are introducing is scheme-based development so that blocks become shorter and I would not go into the technicalities but this is also a very important thing.

One more thing we are introducing is that when the city starts going high rise, we will have requirement of solar access. So this has also been introduced in the Master Plan so that every home has the right to have solar access and sunlight.

One of the key pilot projects that has been launched by Mr. Balvinder Kumar recently is the East Delhi Hub. You may have seen it in the papers. It is a 30 hectare DDA site. It has one iconic tower and lot of housing. It is mostly housing dominated and looks at shared public spaces and community building is the focus of this project. It is hopefully going to have the tallest tower in Delhi, the first tall tower hopefully with 100 storeys. Recently, the MoU for the same has been signed between NBCC and DDA and work has already started in terms of engaging of consultants for this project.

The policies had to go into good governance. I would request Mr. Balvinder Kumar to continue from here.

Balvinder Kumar

First of all, we have uploaded all the information on our website. We have made the system totally transparent. In the office, we have also introduced work stations, as being done in the private sector. We have created one website for UTTIPEC and also for landscape and environment planning. We have created one Facebook page and as far as restructuring of DDA is concerned, National Productivity Council (NPC) has already submitted a report and currently, we are implementing that scheme. We are going ahead with comprehensive computerization. We have floated RFP as on date and within one month's time, we will be appointing a vendor for carrying out comprehensive computerization in DDA. We have already introduced e-tendering, e-auctioning. Now all parking spaces, commercial plots and everything is being e-auctioned. We have introduced online payment. There is nothing like challans now. We are now taking payment only in online mode. We have introduced biometric attendance. Nearly 14000 people daily are entering the office after putting their attendance on biometric machines.

Nearly 8300 hectares of land is now on the website. We have introduced NagrikSuvividha Kendra for carrying out leasehold to freehold properties and we have set up these NagrikSuvividhaKendras in Dwarka, Rohini and VikasSadan. We have disposed off more than 7000 cases through these kendras.

We have already announced a policy for chulha tax for freehold of property, as I was saying that these people are residing there even before independence after paying chulha tax. For Karol Bagh and PaharGanj area, we have introduced a policy for freehold of their properties. Nearly, one lakh residents are living in that area.

We have also reduced conversion rate by 75 percent. Now those people who are residing in commercial areas can convert their properties to residential. We had announced a housing scheme. Nearly 60000 houses are under construction. Another 40000 are in planning stage. By the end of this year, nearly one lakh houses would be under construction. We had also announced 25000 flats. This is the first ever scheme where we introduced corpus fund for maintenance. Rs.363 crores have been provided as corpus fund for maintenance and all these buildings were green.

We have introduced Raahgiri in Dwarka. We are going to start it in Rohini the day after tomorrow.

At nearly 100 metro stations, we are going to introduce multimodal integration. We have already formulated schemes for that. For example, this is the MayurVihar station before and now after implementing this project, the MayurVihar station would look like this. This is the Chhatarpur station. It will look like this after the project.

We have also introduced special projects. Most important is these old age apartments. Nearly, 2500 flats would be constructed on five different sites where all kinds of facilities would be provided to the old age people.

Basically, these are some of the initiatives we have taken in the last one year in DDA. Thank you very much. I will be happy to answer any questions or any details if so desired by any member.

Syed S Mahdi: I suggest that we listen to the second esteemed speaker who I think will be putting things in a much broader context and keep our questions at the end of the second speaker's presentation.

Dr. M Ramachandran:

Thank you Mr. Chairman. Thank you Shri B D Gupta for your kind words of introduction and my respectful greetings to all the seniors here and friends and colleagues. Shri Prabhat Kumar touched upon a very huge canvas of urban issues. But I will confine myself to the committed topic of urban housing issues because otherwise, it will get very broadened. That was the mandate given to me. Urban housing agenda has come into specific focus in recent times with the announcement in the last year's budget about the government's commitment to endeavour to have 'housing for all by 2022'. This is not an easy target to achieve considering the huge complexities involved. This year's budget speech elaborates it further by stating that 'a roof for each family in India'. That is housing for all by 2022 would require Team India to complete 2 crore houses in urban areas, 4 crore houses in rural areas. As a corollary to this, each house in the country should have basic facilities of 24 hour power supply, clean drinking water, a toilet and be connected to a road. The outlay proposed for the coming year under the new Sardar Patel National Mission for Urban Housing with the objective to provide pucca houses to every slum dweller, homeless, destitute and migrants is Rs4150 crores. Each house for the urban poor is expected to cost something like Rs7.5 lakhs. It is clear that the task involved is huge and the challenge of implementation could be something which we have never experienced. It is a complex exercise because both the central and the state governments are involved since the action is basically at the state level as housing is a state subject and the role for the urban local bodies in this process continues to be somewhat vague.

Let me now refer to the confusion regarding the house list in the country. The confusion with regard to urban residence are to be provided with housing which can be easily understood by the approaches we have had to determine what are the numbers and how the issue is to be addressed. I will give you some statistics on this. The Eleventh Five-Year Plan estimated an urban housing shortage of 24.7 million units with 99 percent of this shortage pertaining to the economically weaker sections and the LIG. As per Census of India 2001, a total of 52.4 million people were living in slum areas in 1743 towns reporting slums. A Committee of Slums Statistics estimated slum population for all the 5161 towns and cities in 2001 to be 75.26 million. Now the Technical Group on Urban Housing Shortage came to the conclusion in 2012 that housing shortage in Urban India is 18.78 million households of which 56 percent belonged to Economically Weaker Sections, 39.5 percent to LIG and 4 percent plus to the MIG and higher categories. I always make this distinction that we all belong to a minority of 4 percent and the huge shortage is in the Economically Weaker Sections category and the LIG. 2011 Census found that 17.3 million census houses are categorized as slums which means 68 million people roughly. This is the first census that collected data on people in slums and covered about 4000 statutory towns only. That is the confusion with regard to figures as to how many people need houses in urban areas.

Let us have a look at the policies and programmes which we have had so far. It is not that there have not been adequate efforts made to address the crucial issue. Government of India has come out with plethora of policies since 1950. One of the latest in the series, the National Urban Housing and Habitat Policy, 2007 advocated a two-pronged approach for the MIG and the HIG. The suggestions included fiscal incentives, development of innovative financial instruments, reform of Rent Control Act, rationalization of stamp duty and promotion of rental housing. For the poor, the policy seeks to assist poorest of the poor by providing them access to reasonably goods housing on rental and ownership basis. Various states formulated their own housing policies taking the cue from the national policy and included reform of Rent Control Act, increased supply of land, reservation of the land for the poor, creation of State Shelter Funds, interest subsidy, increased FAR etc.

In terms of specific initiatives other than the 1.5 million dwelling units envisaged under the Urban Renewal Programme of the centre, the state of Uttar Pradesh launched the Manywar Shri Kanshi Ram JiShahriGaribAwasYojna in 2008 with the object of building 101000 dwelling units for the poor in the first phase and Indiramma Scheme of Andhra Pradesh launched in 2006-07 aimed at achieving a slum-free and hut-free state in three years. I just took these two examples which the states have floated.

Why is it that despite various such policies and programmes, we are nowhere near providing houses to all those who need it? There is much talk about affordable housing. Affordable for whom is the basic question. The experts feel that fixing a single definition for a country as diverse and large as India using the concept of, 'one size fits all' would be difficult. A Task Force on Affordable Housing in 2008 underlined that several factors enter the equation. Gross Household Income, cost of the tenement excluding the land cost where the cost differences are large, the size of tenement etc.

What stands in the way of our moving forward? Ill-defined land policies through overregulation, creating land shortages and distortions in the land market leading to speculation and price escalation. An outdated Urban Land policy formulated as early as 1965 continues to set the rules for development of urban land, supplies and land use. There are serious shortages of urban land at prices that are affordable, encroachments on public land and private lands keep happening, land use is irrational and there is absence of spatial plans in cities.

Land policies and the way in which these have been implemented have pushed the cost of urbanization to a level where on the one hand, it has adversely affected the living conditions and quality of life of urban households and on the other, made business and industry less competitive. Complex regulations and permissions required by local municipal bodies are such that land cannot be quickly put to effective use further distorting the market. Issues relating to cadastrals, computerized land records and inadequate application of e-governance to land transactions still continue to be requirements to improve the speed of transactions. Cost of regulating the land market in India is extremely high. We are aware that bureaucratic procedures involved in the administration and enforcement of various laws and regulations are long and arduous and are overcome, most of the time, by payments made informally and illegally. Since urban poor households are unable to make such payments quite often, they remain without access to land.

Another set of issues that adversely affect the supply of land are:

1. Cumbersome land acquisition procedures;
2. Lack of clear rules on land development;
3. Ill-defined zoning laws;
4. Siphoning off of lands earmarked for housing in Master Plans by land regulatory agencies;
5. Faulty urban planning and by-laws, restricting the FARs and building height;
6. Rudimentary land records, resulting in litigation over land transactions;
7. Lack of political will and absence of attention to land and land-related issues.

On the fiscal side, various tax concessions given to investors in housing have not improved affordability much. There is no organized rental housing market and supply of rental housing is a small scale activity. Rental housing provided on a mass scale in Mumbai in the form of chawls is now a historic fact only. Rent Control Act is often mentioned as one of the key reasons for killing this supply channel.

A brief reference to some international references as to how they actively address the housing issue will be in order. It is often said that with the exception of Singapore, no country in Asia has solved its housing problems. The Housing and Development Board provided small and utilitarian flats to all those who needed housing that too at low cost. A framework of housing and mortgage subsidies and the availability of Central Provident Fund savings to aid housing payments made the Housing Development Board Flats affordable for Singaporean families. Public housing is built on state-owned land and the Board offers flexibility in house sizes depending on the income group. Together with comprehensive land use planning, cost effective design, construction and responsive public housing policies, the Board could achieve full home ownership for all Singaporeans.

Brazil launched a social housing scheme which provides for grants to middle and lower middle class workers who would use the money to make down payments on new homes. Mortgages are made available by the state-owned bank to eligible families with preferential finance, low interest rates and a long tenure. The objective was to spur the construction of 2 million new homes and Brazil is a country with a housing shortage of 6 million units wherein people earning a monthly salary of 1000 US \$ or less account for about 90 percent of the housing deficit.

In Turkey, the Housing Development Administration called TOKI provides affordable home solutions to households with regular income through their mass housing schemes. They have the authority to take over lands in public domain in order to develop housing projects. In the year 2009, this authority exceeded its seven year goal of building 350000 homes by completing 400000 units and another 100000 by the year 2011. They have different housing models for the lower and middle income segments, mass housing projects are constructed in TOKI-owned land. It provides mortgaged loans with long maturities and low yields to the beneficiaries.

On a slightly different note, it is worth recalling that European economies faced with utter devastation after the Second World War, began the reconstruction process largely based on housing but it went further. They recognized the principle of Property-owning Democracy. Home ownership was the single most important factor for the development of their post war society as well as economic development.

I would like to touch upon some urban planning issues. In our scale, there is also an issue about Master Plan approach as to how effective it is in taking note of the housing issues and how effectively it gets addressed. Most of the Master Plans do not provide flexibility for city governments to adapt. The biggest challenge lies in the implementation of the Master Plan on account of multiple variables not being accounted for, weakness of governing structures, planning agencies being separate from delivery agencies and most critically, corruption at the local level. Policy changes also lie in the city's inability to address a number of critical issues including rapid urbanization, climate change, poverty, growth of informal sector and safety. What gets ignored in the entire process quite often is the interrelationship of elements of urban form. For example, accessibility to any space within the city is dependent on its density and transport linkages which in turn are dependent on the land use. Layouts in new areas are dependent on the land use and the proposed density that would determine the extent of open land, recreational, commercial or other uses and residential use. Land use in turn is dependent on transport linkages and the density to be achieved.

Let us look at two relevant urban planning models. Once again in Singapore, the Concept Plans brought out every ten years act as anchors to the country's 40-50 year development strategy and is prepared using the state-of-the-art GIS mapping. It starts with the target population, cascades down to employment estimates per sector and high level land use including sequencing of areas for green field development as well as block by block redevelopment. The Concept Plan provides broad guidelines for a set of key projects and policies essential to serve expected demand of physical and social infrastructure such as mass rapid transit systems and affordable housing units.

In London, the Greater London Authority headed by the Mayor follows a unique cascade model of urban planning that works largely because of a clear set of mandates and roles assigned to different organizations involved. The Greater London Authority gets a 20-year statutory Metropolitan Master Plan prepared. Like Singapore, London's Master Plan starts off with the city's vision and key socio-economic forecasts including population and employment. These forecasts are then translated into a broad land use plan and key initiatives in transportation, affordable housing, basic services and environment sustainability. These initiatives are usually backed by a broad plan that sets forth priorities in a sequence manner with financing mechanisms identified.

The Task Force headed by Mr. Deepak Parikh had recommended the following action points to comprehensively address the issue of providing houses on a large scale. I will briefly refer to them.

Bring in additional land into urban usage on a regular basis.

Review the process of master planning since it continues to be carried out on principles and premises that are outdated.

"Affordable housing" to be treated a 'public purpose'.

Revise FAR, FSI across cities of different sizes commensurate with investment in infrastructure,

In-situ development on public lands is one of the most effective instruments for addressing affordable housing issues.

"Security of tenure" is an important and integral tool for relieving pressures on the housing market.

Create a healthy rental housing market.

State housing boards be revamped and encouraged once again to focus on playing a more active role.

Various alternative technologies for low cost buildings to be constructed and

Low-rise, high-density built form can be an appropriate measure for upgrading, redevelopment or construction of housing projects for the lower income groups.

Other than finding the land required, another key measure will be that of finding the required level of resources.

Last year's budget referred to tax incentives on home loans, a new Mission on low cost affordable housing and evolving schemes to incentivize the development of low cost housing, increasing the flow of cheaper credit, easy flow of FDI and inclusion of slum development in corporate social responsibility.

With the finance minister providing taxation clarity on Real Estate Investment Trust (REIT) in the latest budget, there is an expectation that a host of real estate players will be keen to rush for REIT listings. Listing of commercial properties on REITs will allow builders cheaper capital and also offer an opportunity for retail investors to participate in India's growing realty market.

The 'Housing for All' Mission details are yet to emerge. What will be important is how actively the states will be on board to take forward this huge challenge in a time bound and systematic manner. Finding the land required, providing for a time bound approval system, actively facilitating removal of obstacles that keep coming up, providing for a robust regulatory system, structuring policies whereby migrants into cities have access to proper shelter are all critical issues which need a system and a structure which will work and deliver. Also it is to be noted that housing is not a subject mandated to the urban local bodies as of now. They have to have a stake and a role in all this and also have a share in accountability also. Thank you.

Syed Shahid Mahdi: Now the floor is open for questions. Please introduce yourselves and make your questions short.

Question and Answer Session

Q: I would like to know with all these schemes, what is the agency which will ensure that the guidelines are followed, public follows the discipline required, is the Municipal Corporation of Delhi the main agency to maintain the roads. Currently, for instance, you take the BRT which is a plan which is totally being misused. How do you ensure that the regulations are followed and not corrupted?

Q: My question is related to the present Vice Chairman, DDA, Mr. Balvinder Kumar. But before that, I will start with the initial remarks made by Shri Prabhat Kumar. He rightly said that cities have two contrasts – the story of dismay and the story of challenges. But we should also remember that cities are great polluters. The maximum pollution worldwide, the carbon emission rating is coming from the towns. Probably, when we talk of urban governance, this should be the focal point as to how we govern the cities to make it less polluting.

Syed Shahid Mahdi: Basically, you are talking of transport.

Q: Basically, in that context, DDA is now thinking of a smart city in Dwarka etc. Are they thinking of a compulsory green building rating at least when they are reviewing the mid-term Master Plan? Unless this is done, at least in the government buildings, there should be a statutory restriction that unless they have the green building rating, it won't be sanctioned. Thank you.

Balvinder Kumar: Regarding how to make these regulations enforceable, I think the only way is to make it simple and transparent. What has happened in the past is that we made very complicated rules and regulations and that is why, they could not be enforced. We all know that the implementing agencies have been municipal corporations and we all know what has happened at the lower levels. But keeping this in mind, the Ministry of Urban Development in the central government has taken it up to reformulate these building by-laws. They have constituted one committee under Delhi Urban Arts Commission in which DDA, municipal corporations are all members. They are giving a fresh look into the by-laws which have been prevalent till today. Hopefully, if these building by-laws become simple, transparent and avoid any duplicity, then certainly these can be enforced. Otherwise, it is very, very difficult.

Regarding these green buildings, in DDA, we have made it compulsory. We are now making all our buildings green. In fact, the authority has already taken a decision and we are waiting for notification. GRIHA and another council are being authorized to rate the buildings. We hope that once we give 5 percent additional FAR and also some other incentives, then people will come forward and they will adopt. Otherwise, yes, we can think of making it compulsory but I think first of all, we will have to notify these rules but in the meanwhile, DDA has decided to make all buildings with green rating.

Q: Mr. Prabhat Kumar made very good reference about the complexities of housing, character of these new cities, in all the discussions that we do, we have to take into account, what is the infrastructure requirements which is massive and if you look at the two issues of water and sewage, there is a McKinsey report which says that the quality of services in the urban cities is going to deteriorate by 2030. It has given estimates of what the requirement is and what the supply is. I think we need to focus on utilization of water and also the demand for water. If we are talking of urban governance, are these issues not going to be focused on that? Why should the government be giving free water, free electricity? These are the issues which must come in a public debate. And if the water is going to be so stressed, then all these cities will not have any future. I think we have not been able to come out with any concrete plan on the infrastructure specially on water and sewage.

The second aspect which I think is not really urban governance but Mr. Prabhat Kumar touched upon that: about 69 percent of the population of India lives in villages. The efforts which are required to be made rejuvenating the villages, the PURA scheme which is providing urban facility in the villages was a concept which was given a few years ago. But I don't think there is any literature or study on how much has been done on this which is rejuvenating the villages by providing them some kind of urban facilities, urban infrastructure. Dr. Ramachandran touched on many areas, I thought maybe, he could throw some light on these.

Syed Shahid Mahdi: Mr. Raj has raised a very interesting dimension that can we think of urban development planning in isolation. This is what he was trying to point out ignoring the surrounding rural areas and concept of Provision of Urban Amenities in Rural Areas (PURA) etc. because if we ignore that, then the pressure on the urban areas becomes almost intolerable.

Q: I want to raise two issues. The first is, solid waste management and water. As I have worked at the ground level, working with an NGO, I studied this problem of solid waste and as everybody agrees, 60-80 percent of solid waste is biodegradable. I started utilizing the solid waste myself by composting etc. but the whole issue is implementation. It is very easy, if in every household, you segregate the waste at source. Once it goes out of your house, it is all mixed up and it is chaotic. So the question is implementation. And once that is done, then 60-80 percent of solid waste which is dumped all over the place will be utilized for manure.

Secondly on water issue, Delhi as far as water is concerned, depends on the river. I know lot of money has been spent on Yamuna Action Plan and this and that, but there are two issues which are there should be a minimum flow in the river secondly, how to stop the drains from getting into the river. All these people are connected. People say how can you completely prevent the drains? Set up waste water treatment plants. Then the issue that comes is where is the water. The question is we must ensure that river is not polluted and we must ensure rain water harvesting is done at all levels. It is no use constructing high rise buildings. In Gurgaon, water table is going down 3-4 metres in a year. These things should be seen at the ground level.

Syed Shahid Mahdi: These are holy truths that river should be clean and these are good recommendations. Everybody will agree to that.

Dr. Ramachandran: I will start with the point about infrastructure. I myself haven't been able to find answers as to what we do in terms of urban development. Do we prioritize these basics or not? To supplement what you said, broadly 70 percent of urban population has access to water within their premises. There is a 30 percent for whom, I always say for the lady of the house, in the morning, the first job is to go out and bring back home water from wherever available. In our scheme of things, we have not put this as one of our first priorities. Equitable access to water is not a priority as far as our schemes are concerned. And we keep groping in the dark in the sense that this is not the subject of the central government but the subject of the state government. State governments have to mandate it to the local bodies.

About wastage of water, our wastage of the non-revenue water is something close to 50 percent. You are familiar with this subject and the acceptable level is 15 percent. Singapore has gone down to a much lower level and they recycle the waste water and it is potable water. One reason why the Jawaharlal Nehru Urban Renewal Mission was taken up was the centre thought that the state should be prompted to take action on these lines. Mr. Prabhat Kumar referred to 70 or 75 percent of the funds going to the 65 mission cities. I must say it is a decision of the cabinet. It is a policy decision that focus will be on the 65 mission cities because those are the cities which need huge investment as far as the infrastructure is concerned. Of the funding which went to the 65 mission cities, something close to 70-75 went for the basic infrastructure improvement only. There has been a focus but the states had to travel along with the centre as far as the 23 reforms agenda is concerned. If you take stock of the reform implementation, I don't think there is one single state which has done 100 percent implementation of the 23 reforms. That is where we stand with regard to cooperation between the centre and the states. These days, I keep thinking about the concept of cooperative federalism. Probably funds will go but it is again up to the states to take up what they want to do in their cities. I think we are slowly moving away from the concept where the centre acts where the states don't act. I have no difference of opinion with what you are stating but we don't seem to prioritize providing access to water as one of our priorities in our urban scheme of things.

There are various other points like waste management. If segregation takes place, nothing like it. But who is to take the call as far as enforcing these and making these happen is concerned. I am a little bit trespassing to the other subject. As far as Delhi is concerned, 30 percent plus is unauthorized colonies and 30 percent plus is slums and it is only the remaining 30 percent which went by the regulations and provisions. Why does that happen? I made a reference to a point. Housing is not a subject mandated to our urban local bodies. There is a reference to slum improvement but housing as a subject is not for them. They are happily placed. If the state housing boards and the likes take some initiative and invest some money, then something may happen in the housing area. There used to be a time when development authorities used to do but today, the development authorities can't do much; DDA is an exception because there is no land and it is difficult to raise the finances. That is why I consider this important. The central government taking up this target of 'Housing for All' by 2022 is critical because there is a vision that is a driven objective or an agenda now. People should fall in line and make that happen. It is another matter, as I said, the details are not available. I don't know how that is going to happen. Where will they find the land for all this? How will the slums get rehabilitated when there is an issue about where they will go and how is the allotment process etc. to be taken up?

The impact of Provision of Urban Amenities in Rural Areas (PURA) , I think, is a slightly broader subject or probably, it is a subject for discussion, but world over the trend has been urban centres have been the centres of activity; as you know, they are called engines of growth. Where there is more opportunities for employment, people naturally tend to come to the areas where there is potential for employment. However much we may wish, it may take quite some time for providing urban facilities in rural areas and it will take time and we must remember, our urban areas contribute something like 70 percent of the GDP, more than 80 percent of the tax revenue, 70 percent of the additional employment created. That is the given situation. Globally, that is the scenario. Urban centres promote growth. I came across a recent commission's report in UK where they talked about the role of cities not as

standalone but cities as joint activities. In particular corridor, cities can join together and bring in advantages and they refer to the global competitiveness issue. They say it is not just London alone which can contribute to UK's GDP factor. We have to look at other centres and clusters also.

I will just conclude by making one statement. I have been repeatedly saying this. We don't have an urbanization strategy or an urbanization policy. Even if the centre gives one, it is for the states to follow. But we don't have one and no one has really taken the pains to think about that. If we do that, then these issues of vertical versus horizontal development, infrastructure to be provided, whether the infrastructure would come first or the development would come first, what to do about migration, providing shelter to each and every individual who would come into the cities; all these will have to form part of a strategy which we have to have. As Mr. Prabhat Kumar said, the trend is towards urbanization and it may only be 30-31 percent on paper; I would think it is close to 40 percent if the census towns are also taken into account. We are steadily moving towards that 50 percent figure but then we know the condition of the basics as far as our cities are concerned, the shortages and issues in delivery.

Q: Adding to what Mr. Bagai said and what Mr. Balvinder Kumar responded, very rightly, I could not agree with you more that the laws have to be simplified to ensure effective implementation. The other part of the question, if I have not got it wrong was, which is the agency which will ensure this? Do you have any ideas on that?

Balvinder Kumar: Municipal Corporation is the only agency.

Q: In the current manner in which they function leaves much to be desired. Do you have any ideas on how to improve that?

(Speaker: Currently, they don't have money to pay their employees' salaries.)

Q: My question is specific to Delhi. I am an old resident of Delhi's government accommodation. I am sure Mr. Balvinder Kumar won't be able to provide an answer to this. Perhaps Dr. Ramachandran might be able to throw some light. It intrigues me no end that we all keep talking about decongesting Delhi, making Delhi less polluted, less crowded, is there any thinking whatsoever about non creation of homes for every description of government civil servant from type II to type VIII? In Washington DC which is the capital of the richest and most powerful democracy, except for the President and the Vice President, nobody has been provided with a house, not even the member of the House of Representatives. The senators are given a studio apartment. We have allotment for daftary upwards to minister. Is there any thinking about decongesting non essential government offices from Delhi to the outskirts?

Dr. Ramachandran: If I could take up the first point about decongesting, I am sure you are familiar with the National Capital Region Act and the initiative taken. The idea was since Delhi was reaching the saturation levels, more activity should get located in the adjoining areas. That is working to an extent; to what extent is a debatable point because the respective chief ministers ask the question that why should they invest in that pocket for the benefit of Delhi instead of investing in the remaining parts of the state. But still there are things

happening in the NCR part. I must also mention that there is a decision of the government that no new government office is to be located in the core of Delhi. But I think it is often violated rather than followed. Only those who follow the principles, they try to locate outside. But everyone else thinks that his or her office is the most important one and should be located in Delhi. So that is why the Hindustan Times House and all such buildings have tenants.

From the point of view of government employees, I think it is much, much beyond the urban agenda. I remember one of the Pay Commissions; I don't know which one, encouraged by providing rent facility to government employees. The idea was to slowly take people away and they start living in their own homes. That is probably one of the first steps. It will take time. Instead of the point about decongesting, probably what you can notice from the New MotiBagh and upcoming East Kidwai Nagar is, instead of one level or two levels of houses, multistoried construction is coming up. But I don't think it will be such an easy call to take in Delhi that the employees should be denied that facility. We may reach the US situation in I don't know whatever number of years it will take.

Q: I retired in 1989. After that, I have been associated with several NGOs. I am also the chairman of BaniJagtayani Trust whose job is to do funding to various NGOs who are engaged in giving help to the poor by way of medical relief as well as for education. If I had not been in this NGO, I would not have known what is happening in Delhi. I live in VasantVihar since 1992 and around VasantVihar, there are five slums. I was not even aware of the slums. It was only when we funded one of the organizations called Vidya which was doing education for the poor in one of the slums called Motilal Nehru camp and after giving funds, I went and visited that place and I was aghast. My brother-in-law who was with me and couple of other persons, we took photographs. I think everybody sitting here should weep and see what has happened to Delhi. In Motilal Nehru camp which is named after one of our biggest leaders of this country, there are 8000 people living there on one side of the boundary of Motilal Nehru camp with the Jawaharlal Nehru University, his son's university and on the other wall is the National Institute of Health and Family Planning.

When we went there, we saw open drainage, terrible conditions there, no toilets. There was just one room built by Vidya for educating the children for which they wanted funds to enlarge it. Can you believe as we walked in, right in the centre of that basti, is a shamshanghat? Can you imagine the women and children living in those surroundings named after one of our greatest leaders? Then after that, we started going around the other bastis. There is one place called Bhanwar Singh camp and Nepali camp which is about 200 yards from the street where I live. I live one house away from where Tejinder Khanna lives who was the former Lieutenant Governor completely unaware of the conditions there. Another 12000 people are living chock-a-block, no toilets, pigs roaming around and on just the border of that street is my friend Soli Chatterjee staying there which is called the D-8 Street. Next, you must have seen Vasant Intercontinental where you go and have tea and coffee, right at the end of that road from Gang Nath Marg, Munirka Marg and Nelson Mandela Marg, there is the worst slum that you can see in Delhi which is called Coolie Camp. It is a terrible condition in Coolie Camp. We have taken photographs of all of them. Then we found a large basti called KusumpurPahari which is 43 acres of land enough to build houses for all the five slums. For four years, I have been knocking around to the Lieutenant Governor, Ministry of Urban Development, Sheila Dikshit, VenkatSubbiah, the

Prime Minister telling them that it is the easiest thing to do. You are talking of big city development. In one area, out of the five slums, can't you build houses in one slum to house the rest of the slums and green it? Bhanwar Singh Camp is the DDA horticultural land. It is right under your place. You also know about this project. For four years, we have been knocking on the doors of everyone concerned, running from pillar to post but nothing is happening. When you can't develop four or five slums which are under your jurisdiction, why are you talking of 685 slums? 685 slums, mind you, is not under DDA. It is under 15 agencies. We have analyzed how much is under Delhi government, MCD, Railways and so on. We asked for making this VasantVihar slums as a model. Once you make this as a model, replicate it in the rest of the 685 slums because it comes under the criteria of institute development. You don't have to shift people there. That is where we are going. Then I went and wrote a letter to the President of the Ramakrishna Mission and said that we were calling it VivekanandVihar and asked them to give some moral support. They sent their moral support through Modi. I am only saying for four years to follow the Singapore Model. There are so many land agencies, create a housing development board and give them the same autonomy as you will give to the Metro authorities and they will do the rest of the job. We are working day and night and have hired architects, engineers and so on.

Syed Shahid Mahdi: I think this is a very spirited question and description of the situation and firsthand account of what is happening around VasantVihar. I think one also take one factor into account that these are the slums which are providing all the services to the elites who are living there including me in VasantVihar. I think there is a lot of sociological factor also involved. I think this is will be a very good case study which should be discussed.

Balvinder Kumar: I know that this is the problem there. In fact, we are totally helpless. In fact, the government is helpless. We had taken this Kathputli Slum Rehabilitation Project which is a typical kind of a slum area where 2800 families are residing in subhuman conditions; in worst conditions. We created 2800 very good temporary shelters in Anand Parbat but people are not shifting there. It is basically institute development. I am sitting on the field and I know what the problems that we are facing are and there are no solutions. What people are saying now is that they don't want to go to multistoried flats; they want plots.

Syed Shahid Mahdi: The same thing happened in Bombay.

Balvinder Kumar: How do we do it? Mafia is operating there. How are you comparing Singapore or America with Delhi? You all know what is happening in Delhi.

Syed Shahid Mahdi: I am a little wary of these examples of comparing India with Singapore. Let me allow the questions first.

Q: You have given a very nice and brilliant scheme 'Housing for All'. I would just like to know keeping in view the resources and the infrastructure at your command, is it really achievable, realistic and pragmatic by the year 2022? Because when I glance over the last decades, internationally, such schemes have been relegated to the limbo of believing and forgetfulness. For example, United Nations declared 'Education for All' in 1970s and 'Health for All' in 1980s and the whole world knows as to what happened to these programmes internationally.

Syed Shahid Mahdi: Something happened. Don't say that.

Q: But still there is much to be achieved. 'Housing for All', if it is really achieved, it is a brilliant idea and it will please everybody. French Philosopher Voltaire believed in the dictum of greatest good for the greatest numbers. I think it is for the first time, a scheme has come in India during the last 70 years on the lines of United Nations or WHO like 'Education for All' and 'Health for All' and now 'Housing for All'.

Balvinder Kumar: Actually, in Delhi, it is achievable only because of Land Pooling Policy if we are able to succeed in this policy. As I was telling, nearly 24000 hectares of agricultural land is available. And now we are introducing this Land Pooling Policy. Once this policy comes, then all group housing societies and 15 percent FAR is reserved for EWS houses. With the next 10-15 years' time, 20 lakh houses can come up in that whole urbanizable area which is to be covered under the Land Pooling Policy. Otherwise, it is an impossible task.

Q: We heard a lot about some of the very good programmes, policies, simplification of rules presented by Balvinder Kumar. I think each one deserves some merit. But in many of these things, when it comes to urban development, you need the participation of the people. They should have faith and respect for the organizations which are implementing. The problem I see, maybe, for wrong reason to some extent, when you talk about, excuse me, I hope I am not misunderstood as it is a sensitive comment I am making, in any group or society where you people sit together, the way they talk about DDA and it is much worse when they talk about municipal corporation. But the reality is they don't have faith and they don't see that these are organizations having a good image and unless that is changed, they will never participate in doing things like rain harvesting or something else. They will never pay taxes. They will all be reluctant. They will say things can be managed. How do you propose to change, attack your inner organizations to change their image so that people participate and people have faith in that organization?

I have a small question about congestion. Many years ago, I was talking to my friend Admiral Tahiliani and told him that the way defence housing was expanding in the city of Delhi and so many buildings coming up, why we can't think in terms of having a new cantonment, 50 kms away from the city which will give the overall protection to Delhi? But that will be more modern and better etc. and the condition of Delhi, in a very large way, can be affected. He said that he totally agreed with me and he said that when he was the Chief of Naval Staff, he had moved exactly the same thing. But for doing this, you required a ten year plan and the government will never commit the funds for ten years. They will give on annual basis. For these silly little things, the whole good objectives are not implemented. Unless we think about these basic things at the top level, these good ideas don't get implemented. Thank you.

Syed Shahid Mahdi: Thank you very much. I think things happen here incrementally. We can't expect radical changes.

Q: I wanted to add one line to the discussion which is going on about Kathputli Colony. I went there some ten days back and interacted with lot of locals. The problem with them is that they don't trust the government. There is mistrust between the government

administration and the locals. And one major reason for that is this project is being given to a private developer. Instead of giving it to a private developer, why can't it be given to DDA or any other government authority where they at least have a higher amount of trust? Secondly, the entire area where the Kathputli Colony is there, there will be a mall constructed in half of the area. That is another reason for people to have mistrust that maybe, they will be thrown out of the city like it happened with the Yamuna Prastha region.

I have one more question. I went to Greater Noida where the new towers are coming over there. We were talking about green buildings and rain harvesting. I was informed that the builders have taken the water from the ground and digging and throwing fresh water and wasting it to construct three or four floor basement floors. There is no action taken against them. There is a National Green Tribunal decision action against that. But I don't know how much it is imposed. Is there any coordination among the entire NCR planning and development because now Delhi is not limited to this Delhi region. It comprises of the NCR region. This planning cannot be done in isolation. You cannot isolate Delhi and do planning like this. Thank you.

Q: I have a very simple question on governance as the issue. And the question is about when we are talking of housing policy, should we not separate the regulator and the implementer? The regulation of land should be in one authority and the building of houses should be in another authority. Should that not be done?

Balvinder Kumar: I totally agree that it should be totally separate. This is the mistake that we have done in Delhi but now fortunately, the land bank is very limited and we have very little scope for further housing. We hope the Land Pooling Policy will take care about the need of housing in coming times.

About Kathputli, there is no commercial area coming up there. It is only residential. The thing is 70 percent houses would be going to slum dwellers and in the remaining 30 percent, he will build his own apartments. Second is the PPP model. In fact, DDA has consciously chosen this project as a model, as a pilot project to go for PPP model because we know very well that DDA simply cannot rehabilitate all slum dwellers. In fact, even in Bombay, everywhere, they have gone for PPP model. What was our mistake? Our mistake was that we selected private developer and then the private developer went to Kathputli Colony asking for vacating the houses. In fact, what could have been done was slum dwellers would have selected a developer and then we could have given that project to the developer and now, we have formulated a scheme on those lines. Actually, the problem is there are so many vested interests in that slum area including political, economic and social reasons. Mafia is operating. There is one person who has got 200 jhuggijhopri which he has given on rent. And we have requested the police number of times to arrest him but there is nobody to help. A strong will is needed for this. There is no will power at any level.

(Speaker: That is because they finance the local leaders.)

Syed Shahid Mahdi: I am very glad that this very participative and now, some kind of a consensual discussion which is taking place.

Balvinder Kumar: I agree that unless and until we improve our image, we cannot seek cooperation from the public and obviously, they will all see DDA as a corrupt organization. That is why, my first emphasis has been to go for simplification of rules and regulations, transparency; I have uploaded each and every information on the website. The biggest problem that we faced in DDA was when people used to come for getting their houses freehold. It used to take almost 6 months to a year. If you now come to DDA, you can see that it is a huge air-conditioned hall with Italian tiles. You get tea there and once we also tried giving box of sweets to people for conversion into freehold. At least, 7000 cases were done and we have satisfied those 7000 people. I totally agree that we have to improve our image and we are doing the best that we can. The only problem is that it takes time.

Q: My question is to Mr. Balvinder Kumar who mentioned in his presentation that there is very limited space in Delhi. I think the space is actually very poorly utilized. What is the plan for shifting out Badarpur Thermal Power Station out of Delhi? This is a very simple and concrete question to you. Maybe, the answer is difficult because it is creating a lot of pollution and it is a coal-based power plant occupying a lot of area and now it is almost in the heart of the city.

Q: In the lecture series on governance, I have one very basic question. You mentioned that I had been teaching and giving lectures. Only about three weeks back, we were teaching PPP because infrastructure of solid waste management and water cannot be sorted by government funds alone and therefore, we say that PPP is the best suited model. And then they say, reduce subsidies if you want PPP. Now see in Delhi. They say that water charges up to 20000 litres free and they have a popular mandate. The basic governance issue arises whether water to some extent and other solid waste management etc. should be treated as basic necessity and not under the realm of economics and financial management. This is a basic issue of urban governance. AAP got 67 seats on these basic manifesto issues.

Syed Shahid Mahdi: If I may be allowed to comment on this, this will be a political issue, it is not a technical issue. This is an issue which has to be decided by the people and the mandate that they give. That mandate may sometime be little ruinous but it is there. What can do?

Q: My question is to Mr. Balvinder Kumar. It is assumed that by the next decade, 50 percent of the population would be residing in urban areas. In that case, improving the quality of life for the people and infrastructure will be a real challenge for you. Secondly, you are talking of green housing and so on. Why don't you start with your own house and you have built so many flats in Delhi and water management and waste management?

Balvinder Kumar: Now in DDA, all 100 percent green buildings are coming up.

Q: We have seen that in Delhi, the air is getting polluted more and more. And when in the next decade, 50 percent of people would be staying in Delhi, I find that with the congestion, more and more air will get polluted. Moreover, I find that most of the trucks at night go through the cities only and they are the most polluters of the city. Do you have any plans in mind to have a by-pass there? This has been continuing for long.

Balvinder Kumar: There are plans. NCT has also issued many directives, orders from time to time but the only thing is implementation in Delhi. All rules and regulations exist but there is no implementation.

Syed Shahid Mahdi: Thank you very much. There is very little for me to say. But I would like to make a few observations. First of all, I think in our country, things are always incremental. We are not prone to total revolutions. Despite this last elections, even there things happened. And I am very glad to say that at least for DDA, we have a vision which is very essential. I am not sure that vision will be implemented 100 percent but they have a vision which itself and to have some kind of integrated things. I would say that most of us have raised very pertinent questions, we should be skeptical but perhaps, we should not be cynical because that won't lead to anything. We should have faith in things and things move slowly here. We all know that. One very interesting point was made that the academics are not paying much attention to these issues. This is what Mr. Prabhat Kumar mentioned. Very few universities are doing it. There is a very book which has come out which I am yet to read, Isher Judge Ahluwalia's book based on some case studies and observations and gives some kind of hope. But the literature on this since I had to do something with academics, that is why I am emphasizing this that the literature on these issues is much less than it should be. I am not saying that researches will bring about changes overnight but at least they will be one input in giving some insights to the administrators because the administrator is busy with day to day issues. They don't have the time or perhaps the mandate to go into all these issues.

Since we are all from Delhi, we were focusing our attention to metropolitan city like Delhi. But my feeling is that the smaller towns which are no more so small are also being choked almost to death, I would say. I know only one small city which I have been visiting for the last 30-40 years which is Aligarh. Aligarh those days and Aligarh now is almost impossible to enter the city and to come out of it. While we are focusing on the big cities, metropolitan cities etc., I do not know how much importance we are giving to the so called smaller towns where most of the urban population lives.

The last point that I would like to make is every time, I hear that so much of GDP is coming from urban areas and so much less GDP from the rural areas. I think we must demolish this whole business of GDP. Let us be more human. We are all reduced to GDP.

The last point that I would like to make as a person living in Delhi and I would like to quote Ashok Bajpai in this. He said that it is a very good city but we have no pados. We have lost the pados. That human relationship living in some kind of an urban space. Even in VasantVihar, we don't know each other.

(Speaker:It is not like that. I have lived in a place called Hanuman Road for 19 years where the AamAadmi Party office is and everyone knew everybody.)

Syed Shahid Mahdi: But in big cities, we are losing this. Even if we have to meet a friend, according to Ashok Bajpai, we have to create an occasion. It is not that you are interacting and that has lots of sociological issues which are coming up in big cities including something which is always there in the focus in the newspapers. I am not going to mention them. In the physical planning that we are going, can we introduce some element where some kind of a

social interaction in a cosmopolitan city like this could take place and we have no complaints that we have lost the pados which used to be when we were living in smaller towns or even in Delhi perhaps 30-40 years ago.

I think this has been a very, very rich presentation and from the kind of questions that were raised, I think everybody was totally engaged in this and I would like to thank Mr. Balvinder Kumar for that overall presentation which was very enlightening and also to Dr. Ramachandran for his presentation.

Vote of Thanks **by B D Gupta**

Thanks to the presenters Dr. Ramachandran and Mr. Balvinder Kumar and the very lively audience who put the whole session into a lively discussion. Thank you very much. I request Mr. Prabhat Kumar to give mementos to Dr. Ramachandran and Mr. Balvinder Kumar.

Third Lecture

URBAN SANITATION

MAY 15, 2015

Mahesh Kapoor:

Good Evening, Ladies and Gentlemen! Let me welcome you to the third lecture in our series on Urban Governance. The IC Centre for Governance in collaboration with the India International Centre had initiated this lecture series after we had done 12 earlier ones on various subjects on governance.

Urban governance has had a mixed reaction with people; there is a school of thought that says let's continue to stay where we were in the villages and back to the villages, is one story. Government also pushed a lot of its influence, money, impact onto the rural areas, Panchayati Raj, various things came up and until the Jawaharlal Urban Renewal Mission came, there was very little money going in urban development. Rail based systems in large metros were handled by the Ministry of Railways not the Urban Development Ministry and so whether it is transport or whether it is local government, urban areas have had all sorts of problems and continues to have.

When you think of an urban environment and you enter Delhi by train, you'd like to shut your eyes. When I came to Delhi, it was a city of around half a million. 53 cities, in India, today, are a million plus. Two-and-a-half billion people will migrate from the rural areas to urban areas 90% of them in Asia and Africa. Whether it is going to be a major problem we can't say but that it is a surprise and we did not know it. We would be fooling ourselves. For years people had been saying, for God's sake look at what is happening in the urban environment. If we look at our heritage, we can go back to Mohenjodaro and see well-laid drainage systems. That's hundreds of years ago. So where did we get lost? Money, institutions, plans, policies, politics? Politicians, of course, don't like small sanitation works, our subject of this evening. They would rather do large projects and cut ribbons for major works. No one looked at sanitation except recently when our Prime Minister started the Swachh Bharat campaign and some politicians did stand by for photo ops with 'jhadus'. Let's be serious on the subject. We have three experts on the dais today; we have MrJalaj Srivastava, Former Chairman of the New Delhi Municipal Committee, we have MrMehra who was for years the Municipal Commissioner, and we have Mr Mishra, who is Additional Secretary, in the Ministry of Urban Development. So, we have expertise, we have information, we have knowledge, all rolled in. And before I request Mr Mishra to take over

the proceedings of this evening, I have a request- kindly please switch-off your mobile phones or put them on silent mode. Thank you very much.

D.S Mishra:

Good Evening to everybody. Thank you, Sir, for the introductory remarks and I will start with where you ended that the politicians will take 'swachhta' as the last thing. Sir, our honourable Prime Minister, has taken this as the first thing. That was the first biggest launch of this Government, something which was very close to our Rashtrapita Mahatma Gandhi and so dear to our honourable Prime Minister that he has taken a commitment on himself and to the whole nation, that in the next five years, under Swachh Bharat Mission, not only urban but rural India also it will all be swachh, it is all going to be clean. It is a tall order. A good number of persons here have been civil servants. We understand the challenge, we have worked in the Municipal governance in different capacities, some as Municipal Commissioners, some as Secretary to the State Government, and if not in other capacities, at least as Collectors of Districts. Others also who had have worked in different capacities in other segments of the government, they have also seen how challenging is the task. Who other than those in the railway Ministry will understand this problem. You go to the railway platform, you travel across the country and all across you will see only littering all around. You would be seeing things which you would not like to see.

We come back from our experience abroad –we travel on some official or personal tour abroad, and come back fully charged how clean we have seen the other parts of the world to be. We come back and we start littering in our own place. As I say, it is an ugly sight. Would you like to live in that kind of an environment, where your house is so dirty, where your immediate neighbourhood is so dirty, nobody would like to stay in that kind of environment. Yet we are, somehow, and this is something which we need to see. What has gone wrong- Sir, you gave an example of our Civilisation we had beautiful cities what we read in the chapters of History, what we have seen in the SindhuGhati- I mean, like the remains of that , people lived in that kind of orderly life. And we expect that must have been living a very clean life. So what is that which has gone wrong and how we have now taken on this kind of a sight and from now on the clock has started. From 2nd October, the Prime Minister said that in the next five years, which means 2nd October of 2019, exactly five years hence, the country will be Clean. So what is that we need to do as citizens, as different segments of the society, as government, and what is that we are doing , this is going to be the discussion of this evening today. Jalaj has been at the thick of this movement. In fact, he is my batch mate from UT Cadre and we have worked very closely when this whole abhiyaan was conceived. We have the proud privilege of being part of the whole abhiyan when it was initiated by the PM and we were witness to the launch on 2ndOctober at Rajpath. When the PM goes to any part of the world, one thing he doesn't miss is the Swachhta. How any person sitting in any part of the world can contribute to this. The NITI Ayog has got different challenges and they have constituted committees to meet them. One of the committees is a committee of

the chief ministers and certain eminent persons. One of them is on swachhta being led by our honourable chief minister of Andhra Pradesh and very shortly it is going to hold a meeting and they are going to take up from the states what kind of contribution can be made there. Now we will start with Jalaj who has been doing this swachhta, his experience and his thoughts on the challenges we face and how everybody can contribute towards a swachh India, if not immediately, at least in the next five years. Thank you.

Jalaj Srivastava:

Respected dignitaries and my Gurus, on the dais and before me I feel very privileged to be sharing some of the thoughts mostly to do with my recent experiences in the Indian scene. Let me just flag a few issues because as you would rightly know, NDMC is a very different area from the rest of the country or any other municipality. It is the only Municipality in the country that does not have elected councillors by law, by separate Act. It does not have a burgeoning population in fact the population of Indians in the area over last ten years has declined. And you know of course, that we have very difficult clients to cater to, we have people who will not tolerate more than one hour of electricity cut and certainly not more than a day of some road being blocked or something.

It is a high-intensity, high security area, and therefore apart from us being on our toes for the civic services which I would not like to address because we are taking that for granted. We are taking for granted what is difficult to achieve in various other parts of the country. Certain levels of cleanliness, certain levels of water supply, electricity and other things. So, I would like to start by saying that on the parameters on an all-India level certainly the T&D losses, certainly the electricity supply and outages etc., it is given that they are far ahead of the all-India level. But that is not what actually should be the reason for any kind of pride. What is a matter of pride is that there have been innovations in such a controlled environment when the political interference or political supervision is not there. It is also not there as an excuse for us. So, we have to perform, we have to innovate, we have to come out with slightly out of the box solutions and if we are able to, we have also to see that it is doable, it is implementable within oneperson's tenure. I started some things and I had the satisfaction of seeing it through, although I did not have even two years of a tenure. I will just flag a few issues and then maybe we will come back to some of them.

The swachhta Bharat Mission, the Swachh Bharat Mission, links seamlessly with the smart cities concept. As you rightly said, Sir, it is not that a modern city or a city with wi-fi is a smart city. Mohenjodaro was a smart city, patterns, places where you have those underground step-wells, or even FatehpurSikri is a smart city. There is so much of air flow through the walls and there is so much of aquifers...Rome is a smart cityParis is a smart city of its time, Constantinople, now known as Istanbul was definitely a smart city and is a smart city. All these examples go to show that what exactly goes into it is imagining what the

citizen wants and tuning the best available technology to make things better. The beginning of any civic services breakdown is the point where you have not catered for a certain level of population or a certain level of growth. You know how Delhi has grown over the last hundred years. It has been through several waves of people coming and settling down. NDMC is now 102 years old. When the British were making this city, would you believe it that the population was what-some 6 to 10 percent of present day population. And yet the systems they made, have lasted beautifully till 1970s - and that's when they did not cater for this sudden spurt of population coming in in so many waves. We went through the tragedy of partition, we went through the people coming in from Africa at a point...you know, 1970s something happened, 1980s something happened. The tunnels that you have in Connaught Place today, which we did not know in NDMC are of a size that existed in 2009. Now, this is the kind of advanced planning- MehraSa'ab is here, he will probably share with us the fact that the sewerage system of Delhi at that time was constructed in such a way that it could have taken the load of 1970s, 1980s, and only now we are faced with certain issues.

The second point is how does a town plan its landfill site. Invariably you are talking of a town which is some 3-4 square kilometres, and then you are supposed to plan a landfill site not in my backyard kind of a thing- you go and throw your garbage there and as reality develops, you realise in a few decades that the landfill site is in the middle of the town and you have 5000 tons of stinking garbage and you don't know what to do about it. The third is how do you on a daily basis collect garbage and how do you segregate it. Then, comes the question of urban spaces how you have planned your traffic, your colonies, your commercial institutions, educational, residential areas. Initially when Delhi was developing, certainly there was a culture. We were a country which had gone through severe stress so if I was there I was told ok you live here and within every household you will conduct some trade or you will develop some manufacturing unit. But that is not how the 2000s will see. We went through the process when the administrators are under court orders shutting down units so the pendulum swings to the other extreme.

Then again, the question of open areas and parks – you would remember in your childhood and I certainly remember mine what you see here in Connaught Place now only on Sundays at Rahgiri time such open places and places where people can bike or skate or certainly play football or cricket in the open and the open parking areas. At that time, there were so many parks and many open spaces which were available for the children, they are certainly not available now. Then again, the spurt of motor vehicles parking is a very major issue. Somebody told me that if within NDMC area I buy a car and just park it, I am actually encroaching upon roughly two crore rupees of real estate. The point is that urban spaces have not provided for parking with the same advanced planning as the people who are purchasing new cars and the manufacturers bringing out new models.

The other part is public transport- I would like to link it also with the culture of Delhi. The culture of a city. A typical, very rich person in Mumbai does not feel all that iffy about

travelling by local train. Here, we may be next door to each other but we will not do car pooling. Now that is unfortunate, it depends on the city, but by and large good, organic public transport growth has to be coupled with the general milieu, the attitude of the people to be able to utilise that facility. I have to come to, naturally, toilets, and a certain concentration of the toilets. Within the NDMC area, yes, we have more than the per thousand people kind of thing and the number of public toilets the experimentation that has happened over the past several years is to give it on PPP basis. There was an effort last year that people would like to come up and introduce the kind of *sulabhshauchalaya* under CSR. Not many came forward with their money but some companies said that fine, you construct it, we will run it. A composite toilet for gents and ladies and also a place where you can have a water ATM. NDMC at the time was able to offer and I still would offer somebody would like to come up and do this with NDMC, absolutely free potable water and it could be the first city in the country to provide absolutely free on the tap drinking water. It is totally doable. The amount of money which NDMC would spend is not even Rs.60,000 per month per such vent. And if I construct 100 such, it would be no big deal. But the branding, I am sure, cannot be replicated throughout the country but at least some beginning can be made, at some point.

Then, we came to recycling of solid waste and recycling of water, greening and to what extent. NDMC area is among the greenest and Delhi is among the greenest cities is also fine, but the question is whether we are able to insist on greening of a certain portion of the city, leave space, for children to play in the parks. It is important that except for gated communities where this is understood, outside, in the general town planning, it would be a very crucial component keeping the next few generations in mind. Within NDMC, certain efforts had been made, although not enough. It does have extreme temperatures and general climate is such. At the same time, the culture of cycling has really got nothing to do with climate.

In the coldest of countries and in the most humid of climates, the culture of cycling is prevalent and it takes care of a lot of other issues. It's a great leveller. Even in the more prosperous areas of Vietnam, people tend to cycle, they tend to take it as a way of life. Those who watch the serial called 'Suits' would agree with me- cycling is just a way of life. In our parks, we have pushed some open gyms as a concept. I am very happy to report that this has caught on very well as a culture. The one part I will just quickly gloss over but mention here that we have, for example, the introduction of composite pillars with wi-fi, CCTVs and LEDs, to provide a secure environment as well as for this kind of a seamless connectivity. Lastly, waste to energy. We do have technologies today, we have been ordinarily just incinerating it or converting it to certain amount of waste to energy. Today, we have a mirror image technology available- from six tonnes per hour you are able to convert to one megawatt hour of energy. Today technologies are available to convert one tonne into 12 megawatts per hour of energy. This kind of a paradigm change from whether bio degradable or non-bio degradable. Therefore, don't treat waste as waste but as wasted assets and utilise it for something which gives your citizens a better value for money. Having flagged-off these

issues, I would like to just stop here; I know I have exceeded my time but thank you so much and I feel deeply privileged to be here.

D.S. Mishra: Thanks a lot, Jalaj. In fact, Jalaj dwelled on many points and basically the focus was on urban planning; different aspects of urban planning, and from his experience, what all he has done in the NDMC area and how things have contributed towards a better core area of Delhi. You must have seen in various reportings. Jalaj has been so innovating in getting so many new things in the last couple of years of tenure. Nearly two years of tenure as the chairman of NDMC he has brought so many innovative things, whether it is for the parks, whether it is for the open space or for waste to energy...many things...the results will fructify, the results will come very soon. We were right in the core of Delhi and now we will go beyond the core- we will cover the rest of Delhi. And we have Mr. Mehra who has been at the helm of affairs of the Municipal Corporation of Delhi when it was unified single Municipal Corporation, for nearly five years. You won't have a person with such a vast experience of the municipal functioning and when you think of municipal functioning, swachhta comes as the first and foremost responsibility of the municipal area. So, Sir, you have seen it from inside and now you are seeing it from outside, when the campaign is going on. So, I will request you to share your thoughts and what is it that we can do under Swachh Bharat Mission.

K.S. Mehra:

Thank you! Let me first share with you my experiences of my tenure in the Municipal Corporation of Delhi. The subject of discussion this evening, sanitation, is linked to various factors and it would be just incomplete in case we do not first know about the way the city of Delhi has developed.

As we all know, Delhi is a mega polis. It has an area of about a 1,083 square kilometres. The Municipal Corporation of Delhi looked after 94% of the area. The remaining 6% were looked after by the NDMC and the Delhi Cantonment Board. And 97% of the population resides in the area of the Municipal Corporation of Delhi. As we all know, the growth in urban population has been unprecedented over the years. Particularly, if I tell you that in the unplanned areas which constitute 75% of the total urban growth, the construction of buildings, the drainage systems, have been such that it is very difficult to look after the sanitation in those parts of the city. The drainage system is such that in case water is not lifted and pumped into the peripheral lanes and from there into the main trunk line, the entire trans-Yamuna area would get inundated. So, sanitation is linked to the built environment in the city. In case it is well planned, it would be easy to maintain sanitation. In case it is not planned, we know what is happening all over the city. And just now, it was being mentioned that when you come to Delhi from outside, you better shut your eyes because the sight is so bad. That is along the railway tracks. Let me tell you, during my tenure as a Municipal Commissioner, I had consultations with the Railway authorities to allow us to enter those areas so that at least people coming from outside do not have a bad

feel of the city. Just as they enter, they feel it is so dirty as if nobody seems to be looking after the entire city; but that is not the case. The sanitation, per se is very important and I think in urban governance, it should occupy the top most priority.

In the Municipal Corporation of Delhi, sanitation is looked after by, when it was unified Municipal Corporation, it was looked after by 75,000 safaikaramcharis. Now, when I joined the Municipal Corporation, I would like to share my experiences so that we are able to understand it better, the absenteeism problem was so high and so acute, that barely 40% would report for duty. So the first thing that we did was to make them come to the places of duty. That was a very important and formidable task. So I talked to the officers and they said saab it is very difficult, there are unions who are just not under anybody's control so I thought of introducing biometric system of attendance. And I say it with some sense of pride that MCD was the first organisation in the country to introduce biometric system of attendance. And when I told that I would do it for safaikaramcharis, in one particular zone (MCD has 12 zones) there was total challenge to that decision from the safaikaramcharis who came and told me how could you discriminate...there are other employees, the total staff strength is 1lakh 75 thousand. It is a parallel government. So I decided that we will not do it for the safaikaramcharis alone- we would begin it from the Headquarters, Town Hall, at the Ambedkar Stadium offices. We started biometric attendance for these offices and since I also marked attendance on a daily basis, there was no excuse for anybody not to mark attendance. It so happened that in a matter of six months' time we were able to take the system of biometric attendance to the entire city including in the far flung areas and rural areas like Narela, Najafgarh. We introduced mobile biometric machines which were to be carried by the sanitary inspector. So the first thing that we did was to ensure that the safaikaramcharis come to the workplace because unless they come to the workplace, how will the sanitation take place?

Having done that, we ensured that MSW, that is, the Municipal Solid Waste is taken to the sanitary landfill sites on a daily basis. That also called for some discipline all over the city, and I am happy to say that it was possible to carry about 8,000 metric tonnes of garbage to the landfill sites on a daily basis. These landfill sites, at Bhalaswa, Ghazipur, and Okhla, they are spread over an area of about 160 acres, and as Jalaj was saying earlier, there was about 5000 metric tonnes of garbage. Let me inform all of you that already there is about 16.5 million tonnes of garbage collected there. They are overflowing their capacity. The most important requirement is to deal with this garbage lying over there. Only yesterday, there was a report in *Navbharat Times* that in Bhalaswa Landfill site there are fires, with methane gas emanating. During my tenure as Municipal Commissioner, we thought about all these problems and setup, or planned to setup, Waste-to-Energy Plants, and I am happy to say that two of them started working, and the plant at Okhla has already utilised 20 lakh metric tonnes of garbage, and produced 300 million units of electricity, which is fed into the BSES grid on a daily basis. It is proposed to start the Ghazipur plant maybe in the next couple of

months. It is proposed to take on a daily basis about 1,300 metric tonnes of garbage, and produce about 14 MW of electricity on a daily basis.

The sanitation, as I mentioned at the beginning, is linked to the drainage system. The drainage system in the city is spread over an area of about, I think the total length of the drains in the city, the natural drain is about 350 kms in length and the manmade drains are 1700 kms in length. Now you can understand that in natural drains, the water flows with gravity, whereas in the manmade drains, water has to be lifted and pumped into the drains at a higher level, whereby it goes down to the Yamuna river. The storm-water drains in the old city area were constructed way before even India's independence, and they are all settled, so much so that during the monsoon season, the sewer lines get punctured and entire muck comes to the streets. So, there is a need to prepare a master plan of the drainage system in the entire city, and I believe that IIT Delhi is doing that work, and once the master plan of drainage is prepared, it would be possible to take care of the drainage system. Improper drainage during the monsoon season leads to the development of potholes; there are pools of water that are breeding ground for mosquitoes. So, one thing is related to another, and you can see, the entire city during monsoon, soon after a few rains, everything comes to a grinding halt.

The traffic in the city is increasing by the day. It was planned by the government in 2006 that the traffic that is not bound for Delhi and only passes through, would be taken via Western Expressway and Eastern Peripheral Expressway, but those two Ring Roads have not yet been completed because of various problems, and the cost has now, from the original 844 crores has escalated to 3589 crores. That is the size of the problem. The introduction of the metro has offloaded a lot of the population from the city's roads, and the ridership is also increasing by the day. The ridership would increase even further if there is point-to-point connectivity, but the encroachments on the road, as we see all over, is such that it does not allow the traffic to move freely; so, there is a need to remove the encroachments. The LG of Delhi has setup a centre which takes care of various issues relating to designing of roads, and, I think, all proposals have to first go to the UT pack, all proposals relating to construction of roads are finally cleared by them.

The rag pickers in the city play a very important role. There are about a lakh of them who daily collect recyclables in the city from the households and the roadside. When we talk of sanitation, we should understand that the primary collection of wastes from the household is done by the households themselves. It is the secondary transfer of wastes that is done by the municipal bodies. The Municipal Corporation of Delhi had introduced a scheme in 2009 of door-to-door collection of garbage in two zones, Rohini Zone and Civil Lines Zone. Now, this agency which was given the contract of this work, was charged with the responsibility of also processing the garbage. They were assigned a landfill site at Narela; they are in the process of setting up a plant also for electricity generation, and have already started making Refuse-derived fuel, RDF. Now, the issue is whether DDA can allot landfill sites. All these

years, the Delhi Development Authority has not been able to allocate sites because the resident population object to it. They do not want the waste to come to their areas, which is known as the NIMB Syndrome, Not In My Backyard, that is take it anywhere else, but not at my place. I was reading in the newspapers that it has been decided by the Ministry of Urban Development that the garbage should be segregated at the household level. Now I think that is a very tall order in my experience. We tried it in some of the areas by distributing polythene bags, but nobody would do it; they would just mix up everything and give it to the person who would come to collect it or they would take it to the collection points for garbage. In case it can be done, it can be a very good solution for ensuring that the waste-to-energy plant function with full capacity. As of now, the separation is done at the level of the plants; they have setup separate units where this is done. We have also been able to take care of the construction and demolition waste. A plant was setup in Burari, which is in Jehangirpuri area, where the construction and demolition wastes from two zones is taken and it is converted into curbstones, aggregates, manufactured sand, cement brick, and readymade concrete. In course of time, this is the first plant in the country which is doing recycling of waste.

The public toilets – I think Jalaj Srivastava also talked about the public toilets, and the toilet facility in the city – I think there is a genuine need of providing public toilets, and public urinals all over the city. In the Municipal Corporation area, we have 1,500 public urinals and public toilets, but we all know that the floating population, the rickshawpullers, the vendors, they do not have anywhere to go, and the condition of these public toilets and urinals is well-known to everybody. When I was working in the Municipal Corporation, Delhi, we had thought of involving the corporates, the private sector. It was given to an advertising agency to utilise the space available for putting the advertisements, and maintain these toilets in two zones. Eventually, they forgot to clean the toilets, but continued to display the advertisements. We then had to cancel the contract. Eventually, the case landed up in the courts – it is still pending there. I think it will take some more time.

One more thing we should know is that in the city there are no separate arrangement for scientific management of e-waste. E-waste is mixed up with other municipal solid wastes and it is taken to the sanitary landfill sites. I believe the Ministry of Environment is in the process of framing guidelines for the disposal of e-waste, and I think after it is done, then it should be possible to create separate areas where e-waste could be taken.

I don't know whether all of you had seen the Idgah slaughterhouse. Idgah slaughterhouse used to be an eyesore for everybody in the area, because on a daily basis, 1,000 – 1,200 small animals were slaughtered, and 3,000 buffaloes were slaughtered, and it was just not possible to make these people take care of the various things coming out of the slaughterhouse – like the blood coming out of the slaughterhouse, coming through the drains, and eventually flowing into the Yamuna river. Then, it was decided to setup a modern slaughterhouse in Ghazipur. The slaughterhouse was setup, but they were reluctant to shift there – they would

not shift, because they thought that in case they go there, they will not be able to earn enough money. This is what they thought. So, after investing about 150 crores in the slaughterhouse at Gazipur, we couldn't have waited that this be allowed to continue in the Idgah only, we insisted that it be shifted, and eventually we succeeded in shifting it there. Now, this slaughterhouse in Ghazipur has been setup using German technology. This is state-of-the-art slaughterhouse where 12,000 animals – I think they run two shifts – and 6,000 buffaloes are slaughtered on a daily basis. There is arrangement for the blood to be taken to a place where it is converted to a by-product has also been made. The requirement now is to setup a separate slaughterhouse for the pigs. All over the city, you have lot of pig-slaughtering taking place, which leads to lot of insanitation in the area. Luckily, now I have been told that the DDA has allotted a place for setting up this slaughterhouse, and in course of time I think it should be possible to provide them with safe and sanitised place for slaughter to take place.

Another problem which we are dealing with is related to dead animals. In the city, you have about 70 dead animals on a daily basis which need to be disposed off. Now, contracts were given to people who would just take them to SLF (solid landfill) sites, just skin them, and leave it. So that would lead to all kind of other nuisance. A rendering plant was setup in Ghazipur, where the dead animals are now taken, and converted into chickenfeed. So that problem no longer remains in the city and has been taken care of.

Another area which is of concern is the slum areas. The slum areas, as we all know, is in very bad condition all over the city, and a sizeable population resides in these areas. So, there is a need to improve their condition. The sewage treatment plant, the sewer which goes into the drains, and finally into the river Yamuna, is very acute. If I could just give figures – I think there is no need of reeling out statistics, but I think these figures can be easily shared. As of now, the capacity to treat sewage is only about 603 MGD (million gallons per day), whereas on a daily basis, the city is generating about 1,200 MGD's of sewage, so there is a huge gap.

So is the case with water supply. The total requirement is 1,080 MGD, whereas the availability is only about 845 MGD. So there is a deficit of 235 MGD. All these things are related to sanitation only. Electricity, the requirement is of 4,500 MW, whereas the availability is only 3,400 MW. So, there is again a deficit of 1,100 MW.

I have narrated all these at random – we need resources to ensure that we are able to provide these facilities. What happens, the transfer of funds to the local bodies, takes time, and most of the time it is not given. If it is given, it is given at the fag end of the year, so that it cannot be spent. I think it can be attributable to various factors, and I do not want to go into those details, but the fact remains that as per the recommendations of the various expert committees, it is mandatory to give them funds. The legitimate funds as per the Finance Commission, because that determines the allocation of funds for the local bodies it should be given on time so that there is proper planning, so that it is possible to ensure that various activities do take place on time. One more point I forgot, when I started my talk, which

related to the absence of records of ownership to immovable properties. There are no records as of now. So the requirement is that the titling records should be created and maintained, as that would ensure that there is no litigation. As of now, there is a lot of litigation in the city. All this impeaches on a lot of things, various bad things in the city. Delhi Government started the process of titling of properties, and to that effect an Act was created in 2009, and it is hoped that in the course of time it would be possible to create a record of titles.

One very good scheme we implemented in the Municipal Corporation is e-governance. All the activities of the Corporation was put on the computer. 71 modules were prepared, some for citizen centric services, and others for the internal working of the Corporation. But the sad thing is that after the Municipal Corporation was trifurcated, it was designed for the unified Corporation, it would take some time to allocate it for the different corporations.

When we talk of the resources of the Corporation, we say that the government should give funds, but we also know that the local bodies have to also generate their own funds. But it has been my experience – take for example Property Tax – only a few properties pay Property Tax. If I could give you the numbers, out of about total of 40 lakh properties in the city which were under the MCD's control, only about 10 lakh were paying Property Tax. The others would not pay, and when we started collecting Property Tax from let us say unauthorised colonies – because they also take civic services – basic services are provided by MCD only, but then the deliberative wing of the Corporation would say that we would not collect tax from there. So that is something which needs to be ensured, as you are providing civic services everywhere, sanitation and other services are being provided, but they are not paying any tax. Whenever I put budget proposals for enhancing rate of Property Tax, which I used to submit before the Corporation, it would be rejected outright. They would say we will not allow any enhancement in the rate of Property Tax.

I had also started a proposal for Congestion Tax on vehicles to decongest the city, particularly market areas where parking space is available only at a premium, but then all such proposals were outrightly rejected. So the need is to ensure that the urban local bodies are allowed to raise their own resources freely, and also that the Government allocates and releases funds in time so that they are able to look after their duties and discharge various functions without any problem.

Now I can go on and on but then I would stop here. My view is that if the built environment is safe, if the structures in the city are safe – we are told that 80 per cent of the structures in the city are not safe, structurally they are not sound, it is something very serious. Now, I would not like to go into the reasons as to why or how these things have happened. They have happened over a period of time. The time has now come to do something about it. Now how could that be done, as you have 75 per cent of the city which is totally unplanned? We had taken an initiative in the Corporation during my time. We had got prepared 33 local area plans for the 33 municipal wards. The idea was that in

consultation with the resident population, we should be able to think about the various ways and means by which we can create wide roads, we can create spaces for common facilities, and also ensure that the structures are safe. Now, that proposal is at an advanced stage, maybe it is pending with DDA.

There is a talk of smart cities being created. In my view, there is a need to provide all these basic services by upgrading them, and in case we are able to upgrade services in existing cities like Delhi, for example, they can be easily converted into smart cities. If we think about the example of China, they have created many smart cities, but they are uninhabited – people have not gone there. So let us upgrade the civic services, basic services, in the existing cities, and convert them into smart cities. Thank you.

D.S. Mishra:

Thank you, Sir. With your vast experience, you touched upon almost all the aspects of municipal administration, starting right from solid waste management to drainage to sewage to slaughterhouse and e-governance. There was not a single aspect of municipal governance which was left – you touched upon the whole spectrum – so, the audience have been quite benefitted. How they have been connected with the Swachhta... including financial aspect of municipal governance. My colleague Jalaj has to leave for a meeting, so we will give five minutes if anybody has any specific query to him before he leaves.

Question and Answer Session

Q. I wanted to say how the landfill areas are completely choked and we need more and more spaces for landfills. Is there no way to deal with this? Elimination of landfills, so that we could really not require more land but create land for this.

Jalaj Srivastava: Within NDMC area there is no landfill... I'll just address one part of the question. One of the procedures is that we take, for example, a 5,000 tonne small landfill area. If you are able to put a biomethanation plant dealing with roughly 500 tonnes a day, and you also put up a, let us say, plastic-to-waste technology plant roughly of 1,000 tonnes a day, and let us say that the total fresh garbage coming in everyday is roughly 800 to 1,000 tonnes, then you are dealing with daily fresh garbage, which includes food and plastic and animal waste, and you are also able to scrape off the established landfill site. You can do that for, let us say give the company a three year period, and then you give it concessions of this area after you clean it up you will get a stake in the land for, say, thirty years. That entire

thing is in discussions with DDA – this has happened recently, but I thought I'll mention it. The point is that if I speak only about the NDMC selfishly, as I can, my total garbage is 250 tonnes, my total electricity requirement is in the range of 220 MWs a day – 110 at the lowest and 220 at the average. In other words, I can convert the entire NDMC area into a totally green municipality. Its own garbage plus solar, whatever, can cater to the entire electricity requirement of the area. Yes, it is there. In fact, I am very proud to announce that efforts are on – the Hon'ble Minister, Urban Development, inaugurated, or rather certainly announced, inaugurated the concept and announced on the 4th of January this year that there shall be one such waste energy plant of this kind. There is another one to be setup in Okhla, again on NDMC's concept, and a third one is under construction and would be commissioned sometime in June itself. So, it's all doable, and this kind of a thing I think we can, since my new assignment requires agricultural focus, forgive me for this: it's a rural aspect, a lot of pollution over Delhi–Haryana etc. happens because after the grain is given, all those stocks of crops are burnt. Now, why can't those million tonnes of bagasse and all these green stocks, all this several million tonnes, actually serve into giving cooking gas at the rate of a 225 rupees a cylinder, no subsidy. It can give you Rs.10 a kg worth of high compost, which is otherwise available in the market for roughly Rs.70 to 80 per kg., and it can give you organic pesticides. All this is available. My point is, from the rural areas all the so-called garbage, and everything from the urban areas, landfill areas, can be fruitfully used, if what Sir has started a few years back in those landfill sites in Bhalaswa, Ghazipur, etc., let them take shape.

K.S. Mehra: To add to what has been said... about the central landfill sites, the three in the city, are the only sites which would remain available throughout in the future also, for Delhi as we know, is a landlocked city-state, and the neighbouring states will certainly not like the garbage of Delhi to be taken to their places. We tried in the past, but we failed miserably. Various other options have also been thought about, but there is no solution, other than, removing the garbage lying on these sites and dumping them into engineered landfill sites. That means that the base should be prepared with thick plastic so that the leachate does not go down to the surface water – as of now it is going. So, the garbage lying there, has been there for 20 years, in some cases 30 years, I got the figures... and as I told you, it is about 20 million tonnes. So, what we can do is, that in a phased manner, say in 20 years 30 years, we can make a beginning right now, the trapped gases in these landfill sites could be extracted, they could be commercially exploited, which is being done at the Ghazipur landfill site by Gas Authority of India Ltd. – they are expecting methane gas, and they are commercially exploiting it now – the exploitation has already started. So, in other three landfill sites the same thing can be done, and after the garbage is in the inert form, it can be lifted and taken to low-lying areas for filling-up, and they can be converted into engineered landfill sites and used by setting up more and more waste-to-energy plants, because the MSW, that garbage is only going to grow in the coming years. It is not going to go down. Now, it is about 8,000

metric tonnes per day, which includes about 2,000 metric tonnes of C & D (Construction and Demolition) waste, for which we have separately setup facilities for recycling. So, likewise, in case we setup more facilities, in course of time it should be possible to deal with this problem.

Q: Both of you have touched upon very important aspects, but you have talked mostly about waste disposal, but you have not touched upon waste prevention. See, there are a lot of things which can be done to prevent waste, and for which I find that in this city no action is being taken. A very simple example that most of us are familiar with: toothpaste is sold in a packet – what is the need of the pack? Liquor bottles are being sold in cases that are not required. In this manner, if you actually do industrial engineering on products which are sold in the market, a lot of waste can be prevented. This in itself is an engineering, which I find in Delhi not much work is being done, and unfortunately both of you have also not covered it in your presentation.

Jalaj Srivastava: You are absolutely right that I have not covered it, and I do not think I have addressed it at all. Thank you so much.

Q: Good evening, I am Shruti Khanna, an M.Tech student. I am working on renewable energy. The project I am working on is clean energy initiative under Swachh Bharat Mission. As you people have been talking about clean energy right now, the problem that I am facing is I am trying to collaborate Swachh Bharat Mission with biogas installation. I am looking at stakeholders who are involved in toilet constructions in various areas, particularly the PSUs and Corporates who are constructing toilets in the village areas in the schools. So, when I approached them to look at this, the first problem that came was “what kind of benefit we would be getting”? I clearly said to them this can be another CSR activity for you, though the company I am working with has this biogas programme registered under gold standards in which they get monetary benefits through the carbon credits. So, that is somewhat less, not a huge amount, but they agreed upon that, saying “okay, we would be fine working on that, but what else do we get from this”? So, now the problem that I am facing is that PSUs say, “is the government ready to work on this”? I mean, are they ready to give funds? Is there a specific allocation for managing the waste? Swachh Bharat Mission has a separate component for Solid Waste Management, where they have kept 20 per cent viability gap fund or grants for this activity, but I don’t know what kind of allocation would they be providing for this kind of initiative. Can you throw some light on that because PSUs, when we approach them, say that you have to go to the State government or the municipalities or the urban local bodies to install such a plant, okay. They say that wherever we are constructing toilets, we are not responsible, or we cannot do this biogas – we cannot take

the responsibility of putting a biogas plant there. So, is it the responsibility of the government or the municipalities, and what kind of funding programme you have to support such kind of activity is what I want to know. There are two sub-parts of my question.

Q.: I do not know whether this question has been asked earlier; I was a few minutes late. Sanitation is everybody's concern. You know, it is a practical thing. So many things are theoretical which we cannot address right now. I remained in NDMC area, and I am living in MCD area now. I used to see people working all the time in the former area, and they were paid, in MCD also they are paid, but I don't know if they have shortage of staff in latter, and whether they are paid regularly. There is also no supervision. I am living in DDA house of South Delhi. The colony roads, you know, main roads, filthy, not cleaned for months together. I don't know what is happening, I don't know.

D.S. Mishra: Okay, we'll come to your question. Now, Jalaj has to leave... Thank you Jalaj. This is the concluding part. Then we'll take questions and answers.

I would like to make my own remarks. After hearing NDMC Chairman and MCD Municipal Commissioner focus on Delhi. Now I will take you to the all India scenario, a pan-India scenario. First, philosophical. Then I will do some reality check, so we come from philosophy to the ground. Then I will talk to you as a civil servant; I mean, I am sitting in the Ministry of Urban Development, responsible for the Swachh Bharat in the urban areas. And then I come to the citizens; I mean most of the people here are citizens – how they are going to be integrated to the whole concept of Swachh Bharat. So, this is how I will divide. I will not dwell upon many aspects of it, and will focus on Swachh Bharat, the concept that has been propagated by the Hon'ble Prime Minister.

Philosophically, all of us, having (belonging to) any faith, see purity of soul, purity of mind, and you say that a pure mind or pure soul can reside only in a pure body. A clean soul requires a clean body, and a clean body cannot reside unless there is a clean space. So, this is a requirement of the soul. Everyone wants a pure and very very clean area. None of us, I mean, let me tell you, will ever like to live in a place, or be dirty, which will be littered all around. This is our requirement. You go to any temple, gurdwara, go to any mosque, church, any place, you see that is in the purest form. God is never ugly. God is in the most puritan form, you make Him the best. Even after all the *chadhaava*, you clean it up and make it very clean. So, that is the philosophy, that is what is our requirement, that's what Gandhiji said, I mean, he was ready to say that cleanliness comes earlier to independence, political independence. You need to be clean first. He gave that as the foremost thing in all his writings, sayings and speeches. And we consider ourselves as the *Vishwaguru*, and as the *Vishwaguru*, we teach this concept to the rest of the world, but we do not inherit.

So, that is a reality check. We say that God is like this, and mind is like this, soul is like this, and they are all around, but when it comes to practise, we find litter all around. The gentleman there was sharing his experience from NDMC to MCD and DDA flats, and he said how bad he feels. So that is the reality. All of us are creating waste. We will create waste, and our estimate is that everybody creates 400 to 500 grams of waste. The total population of urban area was nearly 30 to 31.7 crores in the 2011 census. On the current population projection, we are creating something like 1,70,000 metric tonnes of solid waste every day. That is the total solid waste we are creating, and what is being lifted – Sir was mentioning some action being taken – it is nearly 68 per cent of that, that is 1,20,000 metric tonnes. The remaining 32 per cent, some 40,000 million tonnes of waste is littered all around. These are the figures that we quote- the actual figures may be even deadlier. We do not have the facility, the municipalities do not have the facility to take it around. +Then out of that, some 68 per cent, less than 30 per cent is being processed, rest is all landfill. How long will we carry this landfill? We are creating heaps of landfill, which is an ugly sight all around, and it is not for Delhi but the whole country. I mean, I have been Principal Secretary of Urban Development in the state of Uttar Pradesh, I have pursued very vigorously – in fact, Kanpur was adjudged the best solid waste managed project by the Government of India and we received the award from the Prime Minister for our Kanpur project; unfortunately what I did with so much of vigour and energy, that project is now not functioning.

I actually thought I did a wonderful thing, I mean we could do door-to-door lifting of waste, taking it to the site, processing that, and people came from Dubai, people came from all parts of the country and took lessons from here, and there it is working but in Kanpur it has stopped working. This is the reality. I mean, I pursued in many cities of Uttar Pradesh and many of our Solid Waste Management projects, because they were being funded through JNNURM, we had PPP model. It started functioning in eight cities while I was there; some of them were close to functioning, but now the situation is that even in Varanasi it has not taken off. I mean, we are going back; why is that? That is a question, and we need to answer. So, reality is that we are creating waste, and this waste needs to be taken somewhere, need to be processed, and unless we make sure that they are consumed, we'll have heaps of waste all around and we will not have only urban space... which is so costly. So we need to take this challenge. We need to see that this waste is converted to some other form and is consumed.

Then comes the Swachh Bharat Mission, 2nd October 2014. Taking it as a challenge, the Prime Minister of the country (he knows it is a difficult task); Sir you mentioned that the politicians of the country would not like to even touch it – he takes it up that in the next five years, we go on a mission approach, and we will do this, in next five years we will make the country clean. That itself is a very big commitment, and the Prime Minister cannot make a commitment unless the citizens of that country make that commitment. And for the first time a whole paradigm shift, a whole change in the thinking. Sir mentioned that there is a limitation on how many municipal workers are there, and how he introduced the biometric system. We have been thinking that somebody will come and clean our space. Somebody will

come and lift our garbage and take it to some other place. We will not do anything. We will only create garbage. A very important question, Sir, you mentioned that we also need some kind of a reengineering. We were discussing at some forum, first thing as individuals, we have to think, a new shift, how do we reduce creation of waste. It is very very important. If I am making 500 grams, can I make some effort, and make that 500 into 400, 400 into 300? Countries have tried, cities have tried, and they have succeeded. We can also do it. That is the thinking that needs to be done at some level. What is it we need to do to reuse the same thing? We can't be so wasteful, we cannot keep doing use and throw; we need to reuse things, which has been part of our cultural heritage, we have been using it, say the same shirt we wear for ten years, while somebody may just use it a few times and throw it – it is a garbage now, it is a problem now. So, how you can reuse that and how you can recycle that. After use, reuse in some other way, maybe some inferior use, in some other way. Can you recycle it? These are some of the challenges

What is that we as individuals can do? I think people have at least started observing this. There is a change in the public – now, while you are throwing some garbage, you see if somebody is watching. Our Hon'ble Minister, Sri Venkaiah Naidu, he spoke to a number of people who are very important in different segments of the society – religious leaders, spiritual leaders, educational leaders, market leaders, NGOs; I mean, different people who are very very important people, people from cinema, films, sports, they are the opinion makers – he spoke to them and they started taking things on their own. Our Prime Minister started a chain – he announced the name of nine people, nine to eighty-one... it becomes another chain. This is the beginning, and the beginning is in a very modest way, but if it catches on, if the citizens become aware, if we stop throwing things, if we start keeping our garbage in one place... Sir, you mentioned about segregation, even Jalaj mentioned segregation, and it is very challenging. We have tried in our own colonies, even in some other, private, colonies, and it doesn't work, because it needs some kind of a change in mind-set. But the challenge is still there and we need to address the challenge. Even if they do not cooperate, there are technologies available, like waste-to-energy. Anything which is beyond 200 tonnes, it can convert into what Jalaj mentioned, something which is on plasma technology, they have started a project and the project is going to be commissioned sometime in the month of June. The date is also fixed, but as it has not come out, I will not mention the date, but sometime in the month of June that is going to work. Sir has mentioned about the project of Jindal's, where it is incineration, just burn it, burn it at a very high temperature. This is a different technology, plasma technology. The third technology is paralysis technology, where again you burn in a different way. You first burn in an inert atmosphere, then you burn in the presence of oxygen, and it is a different format, and you convert the whole thing into energy. It is not going to be so cheap; the energy cost is nearly Rs.6 to Rs.7, but we are making efforts. Let me tell you, we in the Ministry are making efforts, we are working with the Central Electricity Authority to make this as a renewable purchase obligation on part of the Electricity Board. Remember for solar the cost was something like Rs.12 to Rs.13 – now, it is nearly 6.50, and it will go further down. But there

was a RPO through which those who are electricity suppliers were forced to buy that electricity at that rate – there was a fixed percentage that they had to buy from that. We are doing the same thing for this waste-to-energy also and it is already in a very advanced stage. We are going to obligate the Central Regulatory Authority that they have to buy certain percentage of that. It is going to be a very small amount; for the whole country, total waste conversion will not fetch you even 1,000 MW, and it is possible only when the total tonnage is more than 200 tonnes or more, possible only in a city of more than 1 lakh population.

The beauty of this is, it converts the whole thing into energy, the paralysis process, and what is left out is only 5 to 6 per cent, and that also can be converted into some useful form, can be used for road construction, maybe in some other format, some kind of a construction industry... so that also work is going on. Converting this waste into compost, because if there is less than 200 tonnes of waste per day, then this can be converted to compost, and it comes out with a product which is not only good in NPK (Nitrogen-Phosphorous-Potassium); I mean it does not have it in very high quantity, but at the same time it binds the soil – it improves the capacity of the soil to absorb NPK, so the total cost of fertilizers, nitrogenous potash and phosphatic fertilizers goes down. The total subsidy outgo of the Ministry of Fertilizers, will go down. Now, the Ministry of Fertilizers, in principle, has agreed to provide a subsidy for these waste-to-compost. So we are in the process of getting orders from the government, and once that is done, this waste-to-compost will become a beneficial proposition to the companies who will work in this. Why is the Kanpur project not working? One reason is whatever compost they were producing, they were not able to sell it. Now with the subsidy, which is coming from the subsidy of urea, if it goes to the compost coming out of waste, it becomes profitable. The compost will be lifted, it will be tagged together with the fertilizer, which is a urea fertilizer, or maybe some other fertilizer, by KRIBHCO or IFFCO or some other company that is dealing with fertilizer. If they do that, it becomes very easy proposition for them to sell that. Now, the challenge is, and we are working on this – let me share that in the Ministry of Urban Development we are working with the Ministries of Fertilizers, New and Renewable Energy, other sister departments, like Ministry of Environment and Forest. We are working on the municipal solid waste rules with the BIS (Bureau of Indian Standards), on the C & D, because the C & D is also a major component of solid waste, so the C& D you can convert into bricks, so the BIS is laying down standards for that so that this becomes usable for the construction industry. So that also we are working. We have already mandated to the CPWD, but it will be used even in the public, even private people they are going to use it once these are standardised. But the challenge is somewhere else. A large number of our people who do not have the facility of toilets. We have to construct something like 1 crore 4 lakh toilets in the next three and a half years. That is, before October 2019. And we have taken that as a challenge.

We had a whole one week in the month of April for a special campaign through which we identified those people who do not have toilet facilities. Some six lakhs sanction has already been granted. This is individual toilets- people who do not have toilet at all in their home and go for open defecation or they have the toilets, but those toilets are unsanitary toilets. We will convert it to flush and water or may be, if there is no flush, so you can use this but the technology with changing technology this can be used as clean, sanitary toilets. But everybody does not have the space for the toilets, so those people have to be addressed through community toilets. And we have kept a target of nearly 2.5 lakhs toilet seats. In addition, there is a floating population like in the market place, temples, public places, we require public toilets. That again requirement is nearly 2.5 lakhs. The Ministry has come up with projects for nearly Rs.70,000crores for the next 3-4 years. GoI is going to pay around 18,000 plus, of nearly 19,000 crores of rupees over this three and a half years. But the public toilet is going to be completely public funded, through say CSR. We are moving towards an environment where each and every individual starts feeling sanitation is not the responsibility of the sanitation worker but it is my responsibility. I have to do something for it. I have to make sure that my place is clean, my area is clean, and I need toilet, I need to use toilet, not only I get the toilet but I need to use that toilet for my own benefit, for my own health, for the health of my whole family. So, this is precisely the Swachh Bharat Mission. Swachh Bharat mission addresses to toilets, for the individuals, for the community, public toilets and the solid waste management starting from collection, transportation, and scientific processing of that.

We are working on different propositions how we can make it profitable or at least I mean those organisations who are engaged in this, they can run it with no profit, no loss.

Now I come to what citizens can do. There is a Swachh Bharat Kosh. Swachh Bharat Kosh is a Kosh created by Ministry of Finance. Any Corporate, any individual can contribute there. There is income tax benefit there. And that Swachh Bharat Kosh, like right now, majority of the fund has been sanctioned. More than 100 crores were collected and that has been sanctioned for the school sanitation programme. The Prime Minister said that during the month of May and June when the schools are closed, every school must have the toilet facility. A lot many girls do not go to the schools or they are dropping out from the schools because there is no toilet facility. So, we must have toilet facility in all the schools. In fact, many of our public sector undertakings have contributed to this and there is programme all over the country- it is not only creating a new toilet but also upgrading the existing toilet so that it becomes usable. This is a good experience. There is one place which all of us visit, and that is the toilet. I mean, you may not visit the temple, you may not visit a market place, you may ensure that everything comes home, but you cannot avoid going to the toilet- public toilet or whatever. You need to go there. To have a good experience, all these school toilets are going to be improved and where there are no toilets, new toilets are being constructed. The Swachh Bharat Kosh is something which can be a good tool from where a lot of funding can be there. Two, you can create an environment and spread awareness. The

multiplier effect will run into thousands, lakhs, crores, and the whole country. It will swamp, it will take the whole country. So that kind of responsibility- let me be clean, let everybody around me be clean, what is it that I can do? The last weekend I was going to a Mall and I saw a car ahead of me..it was a very good car...must have been a very rich person; and he just brought the screen down and he threw a polythene bag...perhaps with a pizza or burger or whatever, as it was all in an aluminium foil. He just threw the whole thing. Cleanness does not distinguish between rich and poor. It is all in your mind. A poor man can be clean and a rich person can be absolutely unclean. So, can you create that environment? I appeal to all of you, and through you to many others..thatmultiplier factor...can you appeal to everybody that they can do whatever small or big to create an environment where litter is not thrown outside? We need to contribute to the Swachh Bharat Mission let us not say that Swachhata is the responsibility of the Government, Swachhata is the responsibility of the Minister, Swachhata is responsibility of some individual..Swachhata is the responsibility of all of us and when the country is clean, we will all feel proud of it. Like whenever we go out, we all come back and say I have seen Singapore, it is so clean, I have seen Europe so clean, I have seen this place so clean and we come back and we start uncleaning our own space. With these words, I would like to conclude. The floor is now open to questions.

Q. Mr. Mishra, you are doing a very important job, you are doing very well, my compliments, but I have a few suggestions. Our Indians are generally very good. What you ask is motivation. For example, we have got urban cities. Why not we use mechanisation for the cleaning of big roads? Chandrababu Naidu did in Hyderabad when he was there earlier, and he was very successful. And as a Chief Minister, he used to go in the night and check and Hyderabad was wonderful at that time. I am suggesting please go for mechanisation for cities like Delhi, Bombay, where the major roads are there. But again my friend who talked about the DDA you have to provide a different type of mechanism and then people can come forward to take care. You have to think about it. When we are thinking of Swachh Bharat, we are first looking at how to make our places outside clean. It is people participation but partly, we have to use mechanisation. For example, parks we can keep them very clean. And finally I am suggesting one more thing our hierarchy, it works by authority. You have IAS, you have got District Collector, he is a very important person or like Mr. Mehra, the Municipal Commissioner of Delhi you have to give some authority to them, some budget, some plan and then they can motivate a different group of people for example if I am in a particular area, we can come forward to participate in that. And the last point I am telling, a place like Gurgaon, it is so dirty all the roads are very dirty, anytime you can just have a look. Why not those roads are made and then you can give responsibility to that area to maintain the roads? People will maintain, I assure you that. Please make a beginning otherwise the government cannot succeed in this 4-year programme, it will remain only partly done. You have to motivate the people.

D.S. Mishra: Excellent Sir, I can't agree more with you. I have taken a note of your suggestions. Thank you.

Q. When we talk of many cities, one of the things we noticed was that Singapore there is a lot of education of the public and enforcement. Without some enforcement people throw garbage and they see no penalty. They will continue to do that. I know it is farfetched, but how to increase education?

Ans. Your idea is absolutely fine, Sir, unless we create facilities, unless we start penalising people it will not work.

Q. At least some signage...

Ans. Sir, signage is going to come it is going to be a part of the behavioural change campaign. There is going to be a massive campaign all across the country, multiple media will be used but penalty we cannot start with. Once we start penalising people, I don't think it will work.

Q. I would say that the people when they are in metro, how can the same citizens in metro keep the metro clean because in metro they know there is a discipline and right outside any hospital or any street they just eat and throw just like you said. We were in Andaman Nicobar just last week and they had imposed Rs.200 fine for littering, which is the same as we have in USA. Any place you litter, there is a \$200 fine. People do follow those rules.

Ans. Thank you, Ma'am, for this every 50 metres you require some garbage can.

Q. I just want to give you a little insight in to my experience. I have lived for 41 years in USA as a paediatrician and came back here now to just do some seva, and I happen to go to in the four months to many schools , giving health talks, about sanitation, cleanliness and all that and I do feel that that is one areas where we have to educate, educate, educate. No matter what we do, unless we educate and once the children learn this, they go on to tell their parents, their friends, everybody. That is one thing. Second thing I was surprised and shocked in Malviya Nagar there was a school in which I went to give a talk, these Rotary people were there and they said they have built 4 toilets because the school did not have in Delhi, in Malviya Nagar, any toilets! It was a surprise. One more suggestion, I would say that recycling, in USA we do have a very very strong recycling rules. So we have hardly any garbage really collected from any household because newspapers, bottles and cans, there are barrels full of that. If we try to do that, in here when I come back for real I see when I come here visiting, little children going through the garbage, collecting plastic, and all that, it really tears my heart that all the filth and infections that they are catching now with the cost of that, it is also going to add to mortality and it is going to be so bad so we should not allow the garbage to be spread. The garbage chambers are there but the garbage is all over the

place not inside in those areas and nobody should be allowed, especially little children going through the garbage to collect those plastics and cans because they think that they can make money on that. I mean these are just a few thoughts.

Q. I appreciate that you are talking about toilets and the kind of effort that you are making all across the country but the basic thing that I have seen is happening is that you are all making pit latrines, which is contaminating the ground water. Which is stunting the growth of all the kids and the rural areas...I mean there are research reports from World Health Organisation and everywhere why are we encouraging pit latrines? Why can't we have bio registered toilets which would be eco-friendly, green solutions to the problems? What is the logic behind all these pit latrines that everybody is going after? Everybody wants to have numbers.

K.S. Mehra: Sir, we had introduced what is known as bio toilets in a few areas in the old city of Delhi, It started off very well and the experiment appeared to be successful but very soon we realised that the volume was so heavy that they also failed. And this was based on the technology developed by DRDO. The DRDO had developed a technology of toilets being used in Siachin, so we had set up these toilets. Another experiment that we did was for the urinals- waterless urinals- we set up two of them and again, initially it was very good – no smell, no water was required, but eventually, because the volume is so heavy in the old city areas so I think it did not work out.

Q. I think it can be done, it can be worked out.

K.S. Mehra: No, in case we do have the money, you see all these things require money. We should have a lot of money. There are many reasons why we do not have the money. We are collecting property tax from only ten lakh properties, government does not give us funds, they give us at the fag end of the year so they are not utilised. So, these are issues which need to be addressed by the Government.

Q. Mehra Saab, you are creating a bigger problem than you are solving.

K.S. Mehra: Certainly, we need to address these issues in the very beginning. And it is very essential that these public urinals, the toilets, they are connected to the sewer lines. It is not there. So eventually it goes into the open in the main drains on the main roads, muck is flowing on the roads.

Q. In rural areas you don't have the sewers, you don't have the electricity, there is technology....everything is available...(people speaking simultaneously, not clear)

D.S. Mishra: Sir, let me tell you in the smart cities which are going to come, we are going to have all these technologies what you are talking about we are going to have all those things.

Q. What he is saying, same question I am also asking, that you have a separate component called solid waste management under the Swachh Bharat Mission in which you have allocated 20% viability gap fund for grants for solid waste management. So can't that be utilised for the kind of project that I am working on?

D.S. Mishra: That 20% is the viability gap funding for solid waste management project. Because somebody sets up a plant for converting this compost...for converting this solid waste into waste...waste to compost...or converting from waste to energy. So for this project he needs to invest some money so this 20% is going for that. It is not for the research. It is for the viability gap funding for the project which is going to consume that money. That is the point.

Q. That is what I am asking, if I have a ready project with me then can't I get going.

Ans. Sure enough, sure enough, and you will not get it from the Government of India but this money, the whole project, will be run by the municipalities. The municipalities are going to float tenders. Let's say Ghaziabad comes up with a project, a solid waste management project, which may not be for the whole city, may be for a part of the city, a segment of the city, if you win the contract, you can get that 20% funding under this viability gap funding.

Q. So ultimately I will have to come to Mr. Mehra to ask for funds, right?

Ans. Ultimately, it is the municipality that is responsible.

Q. Can I speak, please? I have three points to make. First and foremost, a suggestion on the packing content issue- extra packaging and so on and so forth. There are two things that happen when you do not have that extra packaging- one is that you are improving the purchasing power of the community. You are paying less for the content. The second problem that you don't generate is the waste. The example of a toothpaste was given- the tooth paste, if you look at the product cost, the packaging and the consequence of that packaging adds to about 25%. So you improve, you cannot change the income of people, you can change the purchasing power. I did this in Egypt in the 90s, it was extremely successful. The second point I want to make is on the individual household toilets. It is very nice that we talk about all these technologies- DRDO and so on and so forth. DRDO does not work when the temperature is less than 30 degrees centigrade. This is a fact. You cannot do it. And to run a small DRDO toilet, you will have to spend around one and a half lakhs in areas where you do not have any power to generate the one kilowatt heat that they require. It is very nice for very specific things but it just doesn't work when you need it. This is one fact, and this is the truth. You can check up with DRDO, they themselves will say so. On the issue of individual household toilets, more so in the rural areas where I spent almost last 25 years of my work, we do not have anything except pour and flush technology anywhere in the world today. Anything else is so complicated, so complex, it is impossible to see through in areas where you do not have any power. But, having said that, even the simple pour and flush technology, the pits, they do clean up the water if you have enough leech/lead distance,

earth in itself is a filter and a purifier. So if you have enough leech distance there is nothing wrong in the technology itself. You have the same problems if you have DRDO technology and the overflow that goes out from DRDO is as bad or may be worse at times than what will go in a pour and flush. But the problem here is different. The problem is there is no standardisation. There is no mechanism by which you can manufacture. Last, on the solid waste to power, the two problems are very serious in any technology. In the case of plasma, if you are not in an area like Delhi, we need an eight megawatt kick up power to start a four megawatt power plant. 99% of the places you don't have the kick-up power. Second problem, anything based on that, whether insulation, all of them have toxic gases being released at the end of the day. Thank you for your time.

I think we will take the last question, and Sir, I will just mention that our Ministry has got a website, we have developed a website for Swachh Bharat, it is swachhbharaturban.gov.in. So you can visit our website, see various things, and also if you have suggestions to make, you can make your suggestions there and we will definitely look into it and see what can be done.

Q. Firstly my apologies, I am a very regular person at IIC, I had come at 6.30. I am ArunVirmani, very involved with MCD, NDMC, Connaught place, for the last 40 years or so. Now I keep going to USA which I am going. Just one point- Sir, you had mentioned about signage. I am very particular about signage, having done a lot of work for it even in the railways. Signage should be user friendly. First of all, it is not available, then it is not user friendly. Why? Because in India you all people have drivers, I have no drivers so far so he knows it. But a person like me is very particular, you enter Punjabi Bagh you don't not know which way to go, there is no signage. Where signage is there, it is not user friendly. Now I would like to say that whoever is going to do this future this thing, there must be some involved person, some thinking person who would be able to suggest this should be written here so that people get the right guidance. I am available for that because I think from the whole part. I will leave it at that. Just one example- everywhere, the maps are there. Even in America I find some mistakes, the North is always on the top, and supposing this is North side, if the Map is here and the North is here, then it is ok. But if you put the same thing on this side, and you try and imagine like this, you will be disoriented, rather than being oriented. This was my experience in 1982 when I did something for New Delhi Station, it continues. Supposing you don't have a North Pole to put this thing, then you put the Map in this direction, so North may not be on the top. It depends upon the situation. I hope I have been understood. I have found this, I am available, that is all my passion.

D.S. Mishra: I think everybody wants to contribute to the Swachh Bharat Mission so dear to all of us. Now it is almost seven o'clock. One day, definitely, the country is going to be Clean India.

Mahesh Kapoor:

Before I request Mr. Gupta to propose a vote of thanks, may I request Mr. Prabhat Kumar to give a memento to our two guest speakers on the dais.

Vote of Thanks by **Anand P. Gupta:**

Thank You very much for sharing your thoughts with us and giving us a hope that the time has come and the government is very serious and that we can look forward to having a Swachh Bharat by the end of September 2019. You mentioned that already a large number of toilets have been built now, I wanted to ask, I am getting the opportunity now, that what is the feedback so far that those toilets are being used as toilets, are being maintained and also the feedback on the effectiveness of the campaign that you have already started.

Thank you very much.

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