ACBSDG-2017

Awareness and Capacity Building Workshop

on

Advancing Sustainable Development Goals:

Role of Science, Technology and Innovation

July 27 - 28, 2017, IIC, New Delhi

BOOK OF ABSTRACTS

Organized by

Climate Change and Research Institute

in association with

UN Global Compact Network India and India International Centre

Supported by: SGAdesignlab

ACBSDG 2017

Workshop on Awareness and Capacity Building

Advancing Sustainable Development Goals:

Role of Science, Technology and Innovation

27th – 28th July, 2017

BOOK OF ABSTRACTS

Organized by

Climate Change Research Institute

In association with

UN Global Compact Network India

&

India International Centre, New Delhi

DR. HARSH VARDHAN

Union Minister, Science & Technology and Earth Sciences,
and Environment, Forests & Climate Change,
Government of India, New Delhi

Message

I am happy to learn that a National Level Awareness and Capacity Building Workshop is being organized on **"Advancing Sustainable Development Goals: Role of Science, Technology and Innovation (ACBSDG-2017)**" on 27-28th July, 2017. In September, 2015, the United Nation General Assembly unanimously adopted the 2030 Agenda for Sustainable Development that comprise of 17 Sustainable Development Goals (SDGs) and 169 targets. The Science, Technology and Innovation actions are seen as a key transformational force to change existing unsustainable pathways.

For implementation of Sustainable Development Goals, every country needs to judicially prioritize and adapt the goals and targets in accordance with the local challenges, capacities and available resources.

India with its strengths in Science & Technology is fully geared to address the challenges and recognizes that all sectors-government, civil society and the business community will need to start working together to tackle these ambitious goals.

I compliment the organizers of the ACBSDG-2017 Workshop.

(Dr. Harsh Vardhan)

Prof. D. P. Agrawal
Chairman Governing Council, CCRI
Former Chairman, UPSC New Delhi

Foreword

I am happy that **Book of Abstracts** of the awareness and capacity building workshop on 'Advancing and Sustainable Development Goals: Role of Science, Technology and Innovation' held on July 27-28, 2017 at India International Center, New Delhi has been prepared. I compliment the Climate Change Research Institute for taking this initiative jointly with UN Global Compact Network India and carving out a path in a manner that is useful for the society at large.

United Nations first came with a good governance agenda in 1980s to guide the nations on their optimal and sustainable utilization of natural resources. In this era of globalization and multilateralism the UN Sustainable Development Goals (SDGs) accepted in 2015, is more ambitious plan for global development than the Millennium Development Goals (MDGs) which ended in 2015. The 17 SDGs with 169 targets are covering a broad range of interconnected issues, with the main theme as *poverty alleviation*, since the poor are recognized as most dependent on the natural resources on earth and are therefore most vulnerable from climate change disasters. The acceptance of SDGs clearly indicates that there is zeal and thinking of the national governments to come together and solve this worldwide problem of sustainable growth.

Science, technology, and innovation (STI) are crucial for making progress on every one of SDGs. The STI could help in successful implementation of the SDGs at national, regional and global levels by helping the international community to achieve an innovative eco-system. Every country needs to judiciously prioritize, and adapt the goals and targets in accordance with local challenges, capacities and resources available. For example, providing clean drinking water at affordable cost in rural areas and sustainable water management are huge challenges even today before us.

Our cities are fast transforming into Smart cities. Technology plays a key role in making of a smart city. For sustained urban growth Green buildings require inputs from science & technology. I am glad to mention that the Institute has been taking many such initiatives for organizing awareness and capacity building workshops on Green Buildings and other emerging environment technologies for the benefit of schools and college students. This workshop initiative is unique and highly admirable. I am very happy to inaugurate the ACBSDG 2017 Workshop.

(Prof. D.P. Agrawal)

Preface

'*India has a potential to generate $ 1 trillion worth of business opportunities and 72 million jobs by 2030 for companies working in sustainable space, especially in sectors such as food and agriculture, energy, construction and healthcare*'

- Lise Kingo, Executive Director UNGC on April12, 2017 in N. Delhi

India along with other countries signed the declaration on the 2030 Agenda for Sustainable Development, comprising of seventeen Sustainable Development Goals (SDGs) at the Sustainable Development Summit of the United Nations in September 2015. The SDGs with 169 targets are more ambitious plan for global development than the Millennium Development Goals which ended in 2015.

Keeping with its mandate towards support to United Nations Global Compact (UNGC) and Advancing Sustainable Development Goals, a two days workshop on Awareness and Capacity Building on **Advancing Sustainable Development Goals: Roles of Science, Technology and Innovation** was held on July 27-28, 2017 in New Delhi. The main objective was to create a platform for describing and sharing ideas for formal or informal scientific research-based, academic, technological and innovative exchanges, which would focus on Sustainable Development Goals targets to;

- Discuss the role of Science, Technology and Innovation in Sustainable Development Goals.
- Deliberate on selected technology targets and opportunities for accelerating the progress.
- Reflect on emerging technologies and develop joint partnerships in the context of SDGs and Climate Change.

The workshop organized by the Climate Change Research Institute jointly with UN Global Compact Network of India (GCNI) and India International Center (IIC), focused on five SDGs namely, SDG 7, SDG 9, SDG 11, SDG 13 and SDG 17. Distinguished speakers and eminent experts from policy makers, academia, civil society and corporate sector in different sessions delivered the lectures aimed at capacity building among the students and management trainees. Youth attended in large number and the participants were exposed to innovative ways through scientific and technological inputs to achieve the SDGs targets.

The Climate Change Research Institute a not-for-profit registered body with a mission to disseminate science & technology research in the field of climate change mitigation and adaptation. It educates and informs youth in schools and colleges about the ecosystem changes and consequences of climate change. The Institute became a member of United Nations Global Compact (UNGC) in 2015 and participated in the UNGC Leadership Summit 'Making Global Goals Local Business' held at UN Headquarters during June 2016.

We present the 'Book of Abstracts' of the lectures delivered in the ACBSDG 2017 workshop. We feel highly privileged that Honorable Dr. Harsh Vardhan, Union Minister of Science & Technology and Earth Sciences, and Environment, Forest & Climate Change, has blessed the event. We express gratitude to Prof. D. P. Agrawal, Ex-Chairman, Union Public Service Commission for his inspirational inaugural address about the ambitious plan of SDGs highlighting the need for poverty alleviation by technological actions. We are thankful to Dr. Akhilesh Gupta, Head SPLICE & Scientist 'G' Department of Science & Technology for delivering the keynote address, distinguished Session Chairs and eminent Panelists for taking out time from their busy schedule to share their vision. We could not have had this workshop without the association of GCNI and IIC. We are thankful to all our patrons including SGA designlab for sponsoring it.

Dr. (Mrs.) Malti Goel
CEO, Climate Change Research Institute
1st September 2017

Awareness and Capacity building workshop on Advancing Sustainable Development Goals: Role of Science, Technology and Innovation

BOOK OF ABSTRACTS

Contents

Awareness and Capacity building workshop on Advancing Sustainable Development Goals: Role of Science, Technology and Innovation (ACBSDG 2017)

27th-28th July 2017,
India International Centre, New Delhi

Executive Summary

India attaches high priority to the 2030 agenda for Sustainable Development of United Nations adopted unanimously in September 2015 having great significance for the well-being and progress of the human kind. India has shown strong commitment to the holistic implementation of the 17 sustainable development goals (SDGs) mirrored in the flagship programs and priorities. The workshop organized on the theme **Advancing Sustainable Development Goals: Role of Science, Technology and Innovation (ACBSDG 2017)** on July 27-28, 2017**,** gave a unique and first of its kind platform for the multi-stakeholder consultations to create a suitable policy framework for realizing and discussing the on-going practices India. The invited speakers for this two days' workshop included eminent policy makers, leaders from various civil society groups, academic researchers, policy analysts, administrators, industrialists, bankers as well as corporate professionals.

The workshop was organized by Climate Change Research Institute (CCRI), in association with UN Global Compact Network India (GCNI) and India International Centre (IIC), the three distinguished organizations. The CCRI has distinguished in the field of environment and climate change research& education, is working on practical grounds to implement the change, mainly through its unparalleled research in the energy sector supported by the ideas and practices of science, technology and innovation. The GCNI is Indian network of United Nations Global Compact (UNGC) members, which include business & civil organizations, both public and private sectors for aligning stakeholders' responsible practices towards the Ten Universally Accepted Principles of UNGC. The IIC provides a platform for specialized cultural, scientific and intellectual exchange of new ideas and knowledge in the spirit of international cooperation.

The students and teachers from the Academic and Management Institutes in Delhi and around namely; *EMPI Business School*, *New Delhi*; *Amity Institute of Nano-Technology, Noida; Jagannath Institute of Management Sciences, Kalkaji*, and *Institute of Management Studies, Ghaziabad* participated. Students from *G.L. Bajaj Institute of Management and Research, G. Noida* also participated. Graduate and post-graduate students committed themselves to attend the complete two days of the workshop and enthusiastically interacted with the speakers during the workshop.

Dr. Malti Goel, Convener, ACBSDG 2017 highlighted significance of the theme of the workshop. The Workshop with invited participation aimed at capacity building among the youth and to create a platform for describing and sharing ideas for formal or informal scientific research-based, academic, technological and innovative exchanges which would focus on five Sustainable Development Goals

(SDGs) namely, SDG 7, SDG 9, SDG 11, SDG 13 and SDG 17. Some of the questions like, what role can STI play in achieving SDGs? How important is it to tap diverse stakeholder groups and have negotiation among each other to have a result oriented approach? How can CSR contribute in achieving these sustainable goals? What is the overall history of the processes that mobilize so many diverse stakeholder groups around the world, to work towards a common sustainable goal? And many others needed to address as stated in Goal objectives, as follows.

SDG 7: Affordable and Clean Energy **-** ensures access to affordable, reliable, sustainable and modern energy for all.

SDG 9: Industry, Innovation and Infrastructure **-** commits towards building resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

SDG 11: Sustainable Cities and Communities **-** works towards making cities and human settlements inclusive, safe, resilient and sustainable.

SGD 13: Climate Action **-**l mobilizes resources for taking urgent action to combat climate change and its impacts.

SDG 17: Partnership for the Goals – build partnerships to strengthen means of implementation for sustainable growth.

The Inaugural Session and Five Technical Sessions were held in the two days Workshop.

Inaugural session: Began with lamp lightning. This was followed by the inaugural address presented by Prof. D P Agrawal, Former Chairman, UPSC. Dr. Akhilesh Gupta, Scientist 'G', Department of Science & Technology delivered the Keynote address. Shri Kamal Singh, ED UNGCNI gave welcome remarks. Dr. (Mrs.) Malti Goel presented Vote of Thanks.

Technical Session 1: Sustainable development Goals and Science, Technology & Innovation

The session was chaired by Mr. Parul Soni, Global Management Partner, Thinkthrough, Consulting Private Limited. Distinguished panelists in the Session were Dr. Hanumanth Purushotham, CMD, NRDC, Mr. Rahul Kumar, Project manager HelpMeSee foundation and Prof. Pranav N. Desai, CSSP, JNU. Prof Desai touched upon the relevance of Technology Facilitation Mechanism adopted at the UN Sustainable Development Summit in 2015 and described the International system of Innovation.

Technical Session 2: Energy access

The Session Chair was Shri V. S. Verma, former Member, CERC. In his opening remarks he highlighted the steps taken for providing energy access across the country. Mr. Dinesh Agrawal, former ED, NTPC and Mr. Jitendra Routray, ReNew Power presented their views on decentralized policy and decentralized grids, respectively to achieve energy access.

Technical Session 3: Industry, Innovation

This Session was chaired by Dr. Vineeta Dutta Roy, Professor, BIMTECH. Distinguished panelists for the session included, Ms. Bhavana Sethi, Chief of Sustainability, Jindal steel and power limited; Mr. Vineet Kumar, President, Cyber Peace Foundation. The discussion for this session mainly revolved around the sub targets namely; (i) facilitate resilient and sustainable infrastructure development through enhanced financial, technological and technical support, (ii) support domestic technology development, research and innovation for achieving industry diversification and value addition to commodities, (iii) increase access to information and communications technology and strive to provide affordable access to the internet.

Technical Session 4: Urban Infrastructure, Cities

Shri Vijay Kumar, Distinguished Fellow, TERI chaired the fourth Session. Prof. Sanjay Gupta, Head Transport Div. SPA New Delhi highlighted a very important discourse on achieving sustainable transportation system in the future smart Indian cities. Other distinguished panelists were Ms. Shabnam Siddiqui, Director – CEGET, UN GCNI Col Prakash Tewari, Executive Director- CSR, DLF Ltd. Col. Tiwari said that the CSR group of DLF foundation is committed more towards reviving the ecology of the cities as it also engages the local community groups in such activities.

Technical Session 5: Climate Change Action

Dr. (Mrs.) Malti Goel, CEO, CCRI chaired the Session on Climate Action and enlightened the audience about how the climate change mitigation pathways and SDGs are being integrated into the national policies, strategies and planning. She referred to her participation in the UNGC Leadership Summit held at UN Headquarters during June 2016, which gave new directions for achieving the targets. Besides the government, corporate and civil society have major role. She said in the Session today we have distinguished panelists included Mr. Sandeep Shrivastava, Head- Environment and Sustainability, Ambuja Cement, who described how CSR portals in Ambuja Cements are working towards social development in India. Mr. Chandan Bhavnani, Executive Vice President, Responsible Banking YES Bank Limited, gave a broad overview how a bank contributes in the CSR activities for sustainability.

Each technical session was followed by a lively question answer session.

The workshop succeeded in involving the youth, the future achievers of SDGs targets. It provided an exposure about the various sustainable development approaches and the role science & technology can play. It gave deeper insights into how one can shape the community engagement through various facets of sustainable development and how science and technological innovation are helping in it globally. Perspectives on how science in India can deliver technology products and services to the needs of different SDGs is an important contribution of this workshop, with multi-stakeholders view point. It is first awareness workshop to bring together aspiring industry and scientific community from different disciplines.

The **Certificates of Participation** in ACBSDG 2017 were awarded to the participating students from different universities and colleges.

SCIENCE, TECHNOLOGY & INNOVATION AND SUSTAINABLE DEVELOPMENT IN INDIA

Keynote Address
Dr. Akhilesh Gupta
Adviser & Head, Climate Change Program
Strategic Programs, Large Initiatives and Coordinated Action Enabler (SPLICE),
Department of Science & Technology, Technology Bhavan, New Delhi

Abstract: Science and technology have contributed significantly to the evolution of human society. Their impact has been growing as society becomes more and more advanced and matured with time. Science has opened new vistas of knowledge, transforming human interaction and social structures. Science and technology also offer enormous economic opportunities, which fuel economic growth.

The researchers in India made tremendous progress in recent years in terms of publication of their outcome in the journals. In the year 2000, India ranked 15th in terms of number of research papers in SCI journals whereas as per the latest data, India has secured 6th position in the world. As on date, only US, China, UK, Germany and Japan are ahead of India in this regard. India spends nearly 0.88% of its GDP on R&D whereas most of the advanced economies spend more than 2% of their GDP on R&D. In India, private sector investment into R&D is around 34% of Gross Expenditure on R&D (GERD) which is much less than the global benchmark of around 65-80%. The Full Time Equivalent (FTE) R&D professionals in India per million of population is very low (~200).

The Science, Technology and Innovation Policy of India -2013 aims to achieve 2% of GDP investment into R&D through several steps that include; quadrupling the FTEs in R&D profession; right sizing of GERD per FTE; stimulating investments of private sector into R&D and into sizing of FTE base and technology-led creation of jobs, inputs to high technology-led export and technology and innovation-led wealth creation.

There have been sincere efforts by STI community to address and evolve S&T led solutions to social and economic problems of the country. It is believed that at least half, if not more, of the economic growth of any country is directly attributable to science and technology. The Indian science sector has been making concerted efforts to deliver technology products and services to the needs of different socio-economic sectors included in the UN SDGs (Sustainable Development Goals). These sectors include; health care, agriculture, water, education and literacy, energy, habitat, environment, industry, etc. There is a range of government departments, institutions, organizations, NGOs, Civil society organizations contributing to such efforts. There are numerous examples and success stories.

With astounding growth of STI sector in the country; willingness and awareness of scientists, technologists and innovators to take up problems concerning common man and increasing convergence and collaboration between public and private sectors to address socio-economic issues, it is expected that science, technology and innovation would greatly contribute to sustainable development issues in the time to come, to help India achieving SDG goals by 2030.

ADVANCING SUSTAINABLE DEVELOPMENT GOALS: ROLE OF STI

Shri Kamal Singh
Executive Director, UN GCNI
Scope Complex, Laxmi Nagar, Delhi-110092

Abstract: Extended warm welcome to all the dignitaries and speakers and greeted the CCRI, for it is first of its kind workshop on the subject of *Awareness and Capacity Building on Accelerating SDGs: Role of Science, Technology and Innovation*. India is committed to SDGs with NITI Aayog taking the key responsibility, particularly with the States and advocated that the SDGs need to be integrated for the development of the State as well as Businesses. India is pursuing the SDGs and various stakeholders are showing their interest to tackle all the SDGs' challenges so as to achieve the targets by 2030.

The Global Compact Network India (GCNI) is an Indian arm of UNGC. It is helping to accelerate the pace of SDGs. At the country level, GCNI is advocating SDGs in terms of publications, advocacy and knowledge sharing and also helping the States to integrate their business models into SDGs.

Among the States, the Assam government is the first government who Integrated SDGs into their Development Agenda, Sikkim is another one and six more States are falling in this line namely; Kerala, Tamil Nadu, Telengana, Rajasthan, Madhya Pradesh and Uttarakhand. These States are moving ahead to integrate their entire development plans through SDGs for sustained future.

He complimented the CCRI for taking the lead in discussing role of Science, Technology and Innovation as the first step towards starting up a SDG program from the higher level of Corporate Sector to the level of Youth in colleges and academic institutions, who are not quite aware about it. It would inspire them to understand the role of science & technology and get SDG perspectives from India. I am happy that it will also help them to channelize their energies towards sustainable growth. It is good for our accountability in going forward with SDGs.

Technical Session I – Sustainable Development Goals and Science, Technology &Innovation

Session Chair
Mr. Parul Soni
Global Managing Partner, Thinkthrough Consulting Pvt. Ltd.
Building No. 30, Third Floor, Community Centre, Basant Lok, New Delhi-110057

Abstract: The Session topic is very apt, how Science, Technology and Sustainability can come together? The implementation of Sustainable Development Goals demands economic resources as well as inputs from science and technology. Many business houses in India are currently integrating SDGs in their Corporate Social Responsibility. There are also lots of companies and new business, which are just Start-Ups. However, the success rate is very low and only 10% of these Start-Up companies are going to go further for the profit and all the remaining 90% are in dying condition. The reason is that they do make a product, but do not create an ecosystem. The successful social media Facebook, Whatsapp and Instagram, have been successful because they created an ecosystem.

In this Session we shall cover the integrated aspect of sustainability, including how science & technology is shaping the world and shaping our entire life and how it will give rise to sustainability? He said various issues would be addressed by the three eminent speakers in this session, namely Shri H. Purushotham, CMD National Research Development Corporation, he would be talking about the role of NRDC and promotion of SDGs through innovation; Prof. Pranav N. Desai, Centre for Studies in Science Policy, Jawaharlal Nehru University, he would share his thoughts about Technology Facilitation Mechanism and Sustainable Development. Then we have Mr. Rahul Kumar, HelpMeSee on the campaign to end Cataract Blindness.

As majority of youth present are students of Management Studies, he advised them to begin with a Start-Up and take it to new heights. He said to get a sustainable environment and sustainable planet we have to initiate it now, each one of us will have to take the initiative for it. With this he invited panelist to share their vision.

PROMOTING SUSTAINABLE DEVELOPMENT GOALS THROUGH INNOVATION: ROLE OF NATIONAL RESEARCH DEVELOPMENT CORPORATION

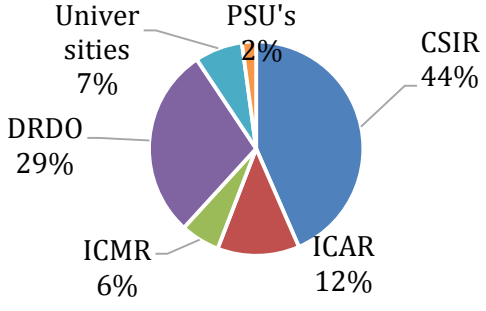
Dr. Hanumanth Purushotham
CMD, National Research Development Corporation
20-22, Zamroodpur, Community Centre, Kailash Colony Extn., New Delhi

Abstract: NRDC is a Technology Business Promotion Company, incorporated in 1953; as a Section 25 Company with a mandateto promote, to develop, and to commercialise indigenously developed technologies from universities, national R&D Institutions & individual inventors etc.We Specialize in Technology Transfer, IP Portfolio Management and Project Consultancy; we also catalyze conversion of lab-scale R&D into marketable technologies and offer support for technology up-gradation.

Some of the NRDC Achievements are as follows,

- Technology Transfer Business for the last 63 years
- Serving CSIR, ICAR, ICMR, DRDO, Universities and Institutes, PSU's
- 4900 technology license agreements signed and 1700 patents filed
- Exported technologies and services to 16 countries
- Wealth created about Rs 3000 Crores and employment generated for over ONE LAKH direct and indirect for last 10 years.
- More than Rs 100 Crores ploughed back to technology generators

A large number of initiatives have been taken by NRDC and it is currently assisting the Inter Ministerial Board set up by Department of Industrial Policy Promotion (DIPP) for approval of Start-Ups. It Partners with MoMSME-UNIDO Global Cleantech Innovation Programme (GCIP) for small and medium-sized enterprises for evaluating the award proposals for innovativeness.Skill development and capacity building programs are organized on "IP and Technology Transfer" under South-South cooperation for African countries. NRDC is implementing a bilateral S&T collaborative "Pilot Research Project on Tomato Production in Ghana" supported by MEA.NRDC is also the Indian Focal Point for BIMSTEC and UNIDO-BRICS Technology Platforms.



NRDC is sourcing technologies from different organizations. These initiatives are helping to achieve the SDGs targets especially in employment generation, industry, food security among others and finding implementation mechanisms for achieving the goals through regional cooperation.

TECHNOLOGY FACILITATION MECHANISM AND SUSTAINABLE DEVELOPMENT

Prof. Pranav N. Desai
Former Professor, Centre for Studies in Science Policy, School of Social Sciences, Jawaharlal Nehru University, New Delhi – 110 067

Abstract: The Technology Facilitation Mechanism (TFM) was officially adopted at the UN Sustainable Development Summit in September 2015 for the implementation of the 2030 Agenda for Sustainable Development. The successful implementation of these goals depends on the entire management structure and how efficiently they are delivered for the needs of the developing as well as the developed countries.

Evolution of the SDG Concept

It has taken much longer for the international community to establish the concept of sustainable development or to link physical environment with the socioeconomic or development dimensions. Before this transformation of social thought took place, the Earth was treated mainly as a geologic entity, and there was lack of biospheric or broad ecological view before 1968 or the UNESCO's Biosphere Conference. The first revolution in the western scientific thought is the Copernican revolution that displaced the Earth as the Centre of the universe. Similarly, the international environmental movement is treated as the second revolution that displaced man from the centre of the biosphere. The UNESCO and the IUCN were already established in the 1940s and in the 1970s this movement was followed by several international conferences and organizations like the United Nations Conference on the Human Environment (Stockholm) and the UNEP that enhanced the understanding of the concept of environment and the socioeconomic dimensions that culminated into the UNCED in 1992 or Rio Conference. In between, in the mid-1980s, the concept of sustainable development emerged with the report on 'Our Common Future'. However, it is essential to recognize the uncommon past or the unequal development between the developed and the developing countries or the hierarchical international innovation system in which this sustainable development is embedded entailing differential impact.

Structure of TFM

The SDGs replaced the Millennium Development Goals (MDGs) in 2015. The MDGs that had limited success was widely criticized for not recognizing the particular need of the developing countries, and it was accused of being dominated by the concerns of the developed countries and the major donor countries. The developing countries had to bear the burden of this 'sustainable development' without much recourse to the required technological infrastructure. It was the unstinted support of the group of 77 that TFM was created where India also played a significant role.

This mechanism is comprised of three components:

1. A United Nations Interagency Task Team on Science, Technology and Innovation for the SDGs (IATT), including the 10-Member Group of representatives from civil society, the private sector and the scientific community
2. A collaborative Multi-stakeholder Forum on Science, Technology and Innovation for the SDGs (STI Forum)
3. An online platform as a gateway for information on existing STI initiatives, mechanisms and programs

If the UNCSTD held in 1979, is any guide for shaping the architecture of the TFM, then ironically it was after this conference that the funding for science and technology declined. It was primarily based on the voluntary funding pledged by the member countries and could not collect adequate funding set against the target, and the funding request from the developing countries was not addressed proportionately. Hence, it is important that the funding is from the committed funding rather than the erratic voluntary supplies. It might be helpful to have actual decentralized decision making that is sensitive to the needs of the developing countries. This requires fair representation from the developing country experts in the ten member expert group. The WHO is conspicuously absent in the IATT, and that may dilute the health innovations. There are also apprehensions about excessive dependence on the private sector for meeting the development goals though the multi-stakeholder mechanism is desirable. Finally, technology should not be conceived simply as the hardware, but the inclusion of S&T human resource and training should also be treated as an essential component of this process. In this direction, the online platform for technology assessment and the inclusion of the academic community would play a significant role.

THE ROLE OF SCIENCE, TECHNOLOGY AND INNOVATION IN ACHIEVING SDGS: HOW HELPMESEE'S INNOVATIONS ARE MAKING A DIFFERENCE TO COMMUNITIES

Mr. Rahul Kumar
Manager, PR, Media & Communication,
HelpMeSee, Tower D&E, Unit E5, Qutab Hotel Compound,
Shaheed Jeet Singh Marg, New Delhi-110016

Abstract: The World Health Organization says that over 20 million people are blind due to cataract. It also says that cataract is responsible for 51% of global blindness, a figure that rises to over 62% in the case of India. With increasing life span, cataract is bound to increase among the elderly population. So, how does one tackle a health concern that only seems to be becoming bigger and poses numerous challenges at the ground level?

Besides the conventional ways of tackling the crisis of preventable blindness, HelpMeSee - the global campaign to ending cataract blindness - is deploying innovative technologies to good use in all the eleven countries that it is working in. Some of these technologies are particularly useful in far-flung and remote locations in the developing countries.

One of the biggest challenges in rooting out the backlog of cataract blindness is lack of awareness and proper identification of people with cataract. HelpMeSee is surmounting this challenge by reaching out to the cataract blind people through a door-to-door campaign using the REACH App. Frontline health workers use the REACH App to collect basic data along with a photograph which is stored on the cloud. The hospital uses this information to follow-up with patients right from their pre-surgical check-up to surgeries, the post-surgical check-up to the subsequent fourth-week follow-up.

Ignorance amongst communities is another challenge because many people believe that cataract blindness is a natural outcome of old age therefore cannot be treated. However, the frontline health workers while using the REACH App to record basic information are also creating awareness amongst the communities.

Plaguing the developing world in its fight against cataract is the 'lack of safe surgeries', a challenge addressed by HelpMeSee through its pre-sterilized, single-use surgical kit. The kit, with over 50 medicines and surgical instruments, is used only once for one patient and reduces the risk to a patient. At the same time, it also minimizes the spread of infection amongst other patients. Many partner surgeons of HelpMeSee have reported excellent results with the single-use surgical kit.

Besides the above-mentioned challenges that HelpMeSee is trying to overcome through the REACH App and the single-use surgical kit, another challenge that HelpMeSee has identified is the 'inadequate number of skilled surgeons' who can perform high-volume cataract surgeries. For this, HelpMeSee has developed a state-of-the-art virtual reality cataract surgical simulator that enhances the skills of surgeons and cuts down their training time, leading to faster deployment of

surgeons in affected geographies. The simulator not only speeds up the training of cataract surgeons but also enhances their surgical proficiency skills in different areas of a surgery.

These numerous innovations are helping HelpMeSee advance many of the Sustainable Development Goals, including SDG-3, Good Health and Wellbeing; SDG-17, Partnerships for the Goals; and SDG-1, No Poverty. The impact of HelpMeSee's intervention is also seen on SDG-5, Gender Quality; SDG-8, Decent Work and Economic Growth; and SDG-10, Reduced Inequalities.

Technical Session II – Energy Access (SDG – 07)

Session Chair
Shri V.S. Verma
Former Member, Central Electricity Regulatory Commission
B-01, Swati Apartments, 12, I.P. Extn., Patpargunj, New Delhi-110 092

Abstract: The subject of sustainability of energy availability is a very complex and comprehensive issue. The following factors are important in this connection:

- Energy availability to all at affordable prices. We would focus on electricity mainly.
- Introduction of renewable sources of energy and related issues in regard to sustainability and pricing.
- Make in India issues.

A substantial percentage of rural India still do not have access to electricity. The reason being non availability of the power grid, willingness of people to take electricity connection, cost of electricity including that of renewable energy and micro grid etc.

Govt. of India through various programs is addressing to these issues. There are issues relating to theft of electricity especially in urban as well as rural areas. Unless the theft of electricity is tackled any efforts in the direction of making the power available will not be sustainable. The awareness in general public would also need to be increased for achieving the goal.

Introduction of renewable sources of energy particularly solar power to have larger share of total demand has created problems of grid management. The alternate source of power generation has to pick up or back down depending on the availability of the solar/wind power. Further, the conventional power stations have necessarily to be upgraded for better metallurgy for dealing with the variable nature of power from renewable source of energy. There are issues relating to socializing of transmission charges, bearing of the fixed charges of the conventional power plants when they are asked to back down the generation etc.

India has a 'Make in India' mission, but a lot is yet to be done specially in the area of solar, wind and LEDs etc. New technologies are available to reduce emission of pollutants in the atmosphere for example, CO_2 can be converted to activated carbon, SO_2 to elemental sulphur, NO_2 to nitrogen etc through the use of cold plasma technology. Similarly technologies are also available to direct firing of coal without firing the support fuel oil. This will result into huge savings in fuel oil. These developments will go a long way in the direction of sustainability of energy availability. With this the Chairman invited the panelists to share their views.

CHALLENGES FOR ACHIEVING TARGETS UNDER SDG 7

Mr. Dinesh Agrawal
Former GM, National Thermal Power Corporation
New Delhi

Abstract: The Goal 7 of the SDG identifies the targets of i) ensuring universal access to affordable, reliable and modern energy services; ii) increasing substantially the share of renewable in global energy mix; iii) doubling the global rate of improvement in energy efficiency; iv) enhance international cooperation to facilitate access to clean energy research and technology; v) expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries.

This was necessitated by the facts that globally

- One in five people still lacks access to modern electricity
- 3 billion people rely on wood, coal, charcoal or animal waste for cooking
- The share of renewable energy in final energy consumption in 2014 was 18.3 per cent.

In India, situation is no different. About 237 million people do not have access to electricity. 19706 villages are without electricity as of Sep 2016. Yet India made significant progress in achieving the record low tariffs of Rs 2.44 for solar and Rs 3.46 for wind based electricity generation. India also aim for target of 175 GW renewable energy capacity by 2020.

Challenges for achieving targets under SDG goal 7 are enormous. First, for ensuring universal access to affordable, reliable and modern energy services, there is need to address the issues of i) Making electricity affordable and removing the subsidies; ii) Introducing the system like prepaid card; iii) Promoting off grid rooftop solar/ wind power; and iv) Deploying smart grid or micro grid etc. It was highlighted that the experiment of prepaid card has been successful on various occasions and people prefer to pay very high price for domestic consumption in residential societies DG set electricity when the grid electricity is not available.

Second, for increasing substantially the share of renewable energy in the global energy mix, there is need to address the issues of increasing the share of renewable energy in the transport sectors, a major player in energy consumption, apart from increasing the share of renewable power. Countries like Germany ran on renewable energy for quite few days.

Third, for doubling the global rate of improvement in energy efficiency, there is need for benchmarking all industries with the global energy intensity. At the domestic side, government initiative of distributing LED lamp has paid off in a significant manner prompting similar approach for promoting the ceiling fans and air conditioners.

Right to Development is a fundamental right – like right to education, right to health, right to mobile phone. It was also highlighted that the "right to development" declaration by United Nations declaration in 1986 is a human right and it redefines development as a participatory process 'in which all human rights and fundamental freedoms can be fully realized.'

Energy is central to nearly every major challenge and opportunity the world faces today – security, climate change, food production, jobs or increasing incomes and therefore is inherent in human rights just like right to education, right to food etc.

Energy Access is identified as in Goal 7 of SDGs, therefore constitutes a core component of the sustainable development agenda for growth.

ENERGY ACCESS AND SUSTAINABLE DEVELOPMENT

Mr. Jitendra Routray
Head, Corporate Social Responsibility (CSR)
Renew Power, New Delhi

Abstract: About 1.3 billion people in the world still have no access of reliable source of energy and out of this 95% have no access of electricity. About 2.7 billion people depend on fossil fuels for cooking and energy inaccessibility is a barrier in the path of development. According to the 2011 census 400 million people in India were living without access to the electricity. The situation is improved but many regions receive only 6 hours average supply per day of electricity.

ReNew Power has identified a village in Uttar Pradesh, which had only 5-10% electricity access. The program which is running through us is Warf Stanford Smart Grid Adapted by Renew Group (SWARG) and in this our intervention is for electricity, we have created three micro grids which provide electricity to 200 households out of 308 and these households are getting 5-6 hours electricity from our micro-grid. It is an ongoing program till now, we have established 28 kW and we are targeting to cover the village with our micro grids. It would cover two light points and one fan per household. The electricity is provided to them in the evening, so that students can study, women can do there evening work and can use their pumps in agriculture etc. These are the challenges which they are facing. Keeping this in view, we have designed this program and our primarily intervention is to access electricity to each community and how the electricity will help Sustainable Development.

Supplying 100% electricity is the way to achieve the SDGs in a holistic manner. Electricity for lightings of roads, it will ensure safety at night, hospitals, community centres, anganwadi's etc. will also be facilitated. We are incurring the installing cost and the maintenance cost will be borne by the community according to the need, and which is likely INR 100 per household per month. In case they use more electricity then they will have to pay more. Renewable energy has created various opportunities for economic growth and is critical to the overall rural development.

Technical Session III – Industry (SDG – 9)

Session Chair
Dr. Vineeta Dutta Roy
Associate Professor and Head,
Corporate Social Responsibility (CSR),
Birla Institute for Management Technology, NOIDA

Abstract: The Sustainable Development Goals, 2030 identify clear areas of social and economic challenges on the planet today, provide a comprehensive road map to addressing those problems and set a time frame for nation states to adhere to. They provide hope that if nation states commit to attaining these goals, there is promise of a transformed world in a certain span of time. A world that is prosperous and peaceful for all of its current inhabitants and sustainable for its people of the future generations.

Leveraging Corporate Social Responsibility for meeting the Sustainable Development agenda presents a powerful opportunity for businesses to play their part.

Over the past decade, India has been witness to efforts in this direction and it is not a coincidence that India now has a new model of demonstrating responsible and inclusive business leadership. With the revisions in the Companies Act in 2013, pertaining to Corporate Social Responsibility policy, public private partnership has been visualized as changing the developmental landscape in the country.

Corporate India has responded with alacrity, aligning its social projects and programs to the mandate of the Government, currently in the fourth year of its implementation, and the act seems to be bringing about a positive change. What is required perhaps is a concerted sustained effort for some more time.

TOWARDS SUSTAINABLE DEVELOPMENT GOALS

Ms. Bhavna Sethi
Chief of Sustainability, Jindal Steel & Power Limited
Jindal Centre. 12 Bhikaji Camp Place, New Delhi-110066

Abstract: The Sustainable Development Goals (SDGs) included new areas over and above Millennium Development Goals, such as Climate Change, Economic Inequality, Innovation, Sustainable consumption and Peace &Justice. Otherwise known as the Global Goals, they are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity.

Globally, investment in infrastructure and innovation are crucial drivers of economic growth and development. With over half the world population now living in cities, mass transport and renewable energy are becoming ever more important, as are the growth of new industries and information and communication technologies. Technological progress is key to finding lasting solutions to both economic and environmental challenges, such as providing new jobs and promoting energy efficiency. Promoting sustainable industries, investing in scientific research and innovation, are all important ways to facilitate sustainable development.

India's position

Basic infrastructure like roads, mass transportation, information and communication technologies, sanitation, electrical power and safe drinking water remain a concern in many developing countries. Economic growth, social development and climate action are heavily dependent on investments in infrastructure, sustainable industrial development and technological progress.

Indian Government's allocation for incubating Innovation is 0.18%, while for USA it is 3.5%. India's investment in Research and Development hover around 1% of GDP and the target of government is to raise it to 2% of GDP.

The targets for SDG 9 are to enhance scientific research, upgrade the technological capabilities, encourage innovation and increase R&D spending with greater participation of the private sector.

At Jindal Steel Private Limited

Being a core sector company, it's in our interest to provide sustainable infrastructure to the community. As an organization we have always believed that we can attain sustainable growth only through sustained development of the community across the world. All our products are basic building blocks to this goal.

The JSPL is installing most energy efficient steel production technologies. As a result, over the years, JSPL has made huge investments in innovative technologies viz. *Coal Gasification for Steel Production, Speed Floor technology, Neo Oxygen furnace, longest Rail development* among others and has increased in R&D spending. For supporting sustainable mass transportation across the country and the world, company has also invested in Rail head hardened technology which enable faster,

heavier trains that carry more people and goods. JSPL and its subsidiaries received 62,903 E-Certs for achieving better energy efficiency in the production process as compared to notified target in PAT cycle 1.

Excellent infrastructure amenities like Educational & Skill development institutions, Hospitals, Roads, Sanitation Infrastructure for the communities have been built.

An overview of major CSR projects was presented. The JSPL spends nearly 30% of its CSR funds every year in developing infrastructure.The Group runs through demonstrated capabilities - Industry plays a critical role in innovation and research, which are crucial for job creation, poverty eradication, gender equality, and greater access to education and health care thus contributing to achieve the SDGs.

Few Marquee interventions by the group are; O.P. Jindal Global University, Sonepat; O.P. Jindal University, Raigarh; many Community Colleges; Institutes ofRoads and Power Technologies and Hospitals etc.

HOW DO WE SECURE THE ECOSYSTEM OF CYBER WORLD?

Dr. Vineet Kumar
President, Cyber Peace Foundation
Secretariat: B-55, (MIG) Birsa Munda Rajpath,
Harmu Housing Colony, Ranchi Jharkhand -834002

Abstract: Cyber World and the SDG are both interconnected. How to create a secure and peaceful ecosystem? The security demands protection from hacking so the data are not vulnerable. How to achieve security in the Digital India and Internet of things (IoT)? Few years down the line all the things like cars, refrigerators, washing machines, lights and many other household gadgets will have the internet connections, and all these would become hackable in the near future.

As per a survey 30 million devices will be connected to internet by 2020. All these will be sensors enabled. We have 240% more cyber crimes from the past 100 years. Cyber World is 5th dimension of the space. Countries are preparing their own army and targeting other countries in Cyber World. The Industry, Innovation, Infrastructure all these things are connected with the SDG 9. Robots will be working in the industry operations, technical equipment and do everything for us in near future, so how we make sure that they are secure. Technology and Innovations are coming in and this is ever evolving area of smart phones, smart grid, driverless cars. The challenge is how to stop driverless cars from getting hacked. In Ukraine the smart grids were hacked therefore the city faced the blackout. Everything is going to be interconnected 24x7, all the data and networks of the world. In Iran, a pen drive was used to create a blast and a steel plant was also hacked by some persons. Everything is hackable in cyber space.

According to 2011 census, we are 2nd in the world in social media scams. We ranked 3rd in Asia with ransomware attacks and we had 7 attacks per hour. Now it is changing, we are no. 1 and it is around 14 attacks per hour. We have a project on deploying sensors of cyber-attacks, and have placed around 70 sensors across the country. Some sensors are industry specific sensors, cards specific censors, innovation specific sensors. We are put up IoT sensors and are tracking which kind of attacks are happening.

The model that we follow for securing of the cyber ecosystem is public-private-social and academia partnership, building a cyber security network in India and building a inter-disciplinary system for this particular cluster. The model promotes the innovations and these innovations are funded by industry and government. Industries are also making CSR committees for the sustainability. We also need to make a Committee of Experts for the Cyber Space to give a secure and peaceful society of Cyber World.

Technical Session IV – Urban Infrastructure – Cities (SDG – 11)

CITIES AND HUMAN SETTLEMENT: CHALLENGES AND OPPORTUNITIES

Session Chair
Shri S. Vijay Kumar
Distinguish Fellow, The Energy and Resource Institute
Darbari Seth Block, India Habitat Center Complex,
Lodhi Road, New Delhi-110003

Abstract: Urban areas currently account for 60-80 per cent of global energy consumption, 75 per cent of carbon emissions, and more than 75 per cent of the world's natural resources.

Challenges and Opportunities

Since cities are relatively dense and compact, *and organized*, unique opportunities exist for cities to lead the greening of the global economy, by increasing resource productivity and innovation while creating major financial savings and addressing environmental and social challenges. The physical infrastructures that provide cities with transportation, water and energy and handle waste determine how resources flow through urban systems. When sensitively planned and appropriately supported by sustainable infrastructure, compact cities have the potential to constitute the world's most efficient settlement pattern. Densification reduces spatial footprint and makes shared infrastructure viable. These in turn reduce emissions and resource use. Over the long term, cities can strengthen resilience by reducing dependence on carbon intensive growth and stimulating efficiency in resource use. Compact and organized cities with well-defined governance and regulatory systems allow new technologies and innovations to be developed, tested and implemented more efficiently.

Sustainability of resource flows

A typical modern city has a linear metabolism, extracting resources from (and creating wastes) beyond its boundaries, using the resources (along with energy) within its boundaries to support urban activities, then depositing the resulting wastes back onto the external environment. Natural ecosystems, by contrast, have a circular metabolism that produces no waste and coexists with its immediate environment. Opportunities for reconfiguring urban infrastructures for more circularity can be created by applying material flow analysis to the assessment of resource stocks and flows. Applying such analysis to cities links urban systems to the wider regional flow of ecosystem services (including water supplies, flood protection, and air quality) and natural resource extraction (such as fossil fuels or building materials).

Greening of cities

The challenges in achieving circular, location-specific urban metabolic processes lie partly in being more energy and resource efficient and partly in making regulatory,

management and governance choices that enable ever-increasing use of renewable resources and energy sources. Incentives and regulations in the building and construction sector offer the most obvious opportunities for cities to promote green materials and technologies and promote energy saving. Cities are also the critical spatial platform for the formulation and implementation of policies across sectors. They can catalyze a modal and efficiency shift by targeting investment at well-planned greener transport infrastructure that meets the needs of all users, especially those using non-motorized transportation.

Current initiatives in India are Smart Cities, AMRUT, NRuM as follows.

- *Smart Cities:* Scheme design allows for innovation; however "smartness" under the scheme has been related to the amenities and services, and as such innovation may be misdirected; "smartness" should be related to the resource and energy management and sustainability.
- *AMRUT:* Primarily focused on "basic services"; Use of "outside experts" and Project Development and Management Consultants (PDMCs) *may* provide scope for bringing in science and knowledge for increasing sustainability and circularity. Scope for innovation mainly in frugal engineering. Preparation of Urban Planning and City Development Plans including Master Plan using GIS may improve spatial planning but needs to be expanded to incorporate resource flows.
- *NRuM:* Mainly provides gap filling and facilitates convergence. May promote synergy but not innovation or resource and energy management beyond levels provided in existing schemes. Need for systematic intervention at State scheme level.

Conclusions

Need for a national (and sub-national) vision and supporting policies encompassing

- Resource and energy use-efficiency and optimizing resource flows and promoting circularity (through laws as well as programmatically)
- National, provincial and local level governance (facilitation, regulation and management); and
- Knowledge and capacity building for all stakeholders to promote science-based decision making
- A pro-poor and socially equitable planning outlook which ensures inclusivity in both planning and service provision.
- Partnerships between government, industry and communities and incentives for private investments in R&D, innovation and high-risk projects.

SMART AND SUSTAINABLE MOBILITY IMPERATIVES FOR CITIES

Prof. Sanjay Gupta
Head, Transport Division, School of Planning and Architecture
4, Block-B, Indraprastha Estate, New Delhi-110002

Abstract: Growing urbanization trends seen in Indian cities in recent decades coupled with increasing income, increasing urban sprawl and increasing motorization tendencies are resulting in immense transport challenges in terms of increasing traffic congestion and pollution levels, alarming road safety levels and other related externalities severely impacting the quality of life. Recent policy initiatives undertaken by the government such as National Urban Transport Policy (2006) and Green Mobility scheme (2017) are aimed to create sustainable mobility environment by emphasizing on moving people rather than vehicles.

Relevance of creating smart growth development in Indian cities by creating compact cities well served by mass transport systems and supported by green modes such as NMT's was printed out. Urban sprawl in Indian cities particularly in mega cities due to market driven factors related to insufficient land supply for expansion and prevailing land markets are resulting in longer trip lengths and increased dependence on personalized forms of transport. He highlighted that some of principles of transport panning such as compact development with adequate mixes, higher densities, priority to mass transport, emphasis on non -motorized modes, efficient freight deliveries, clean vehicles, transit oriented development, appropriate neighborhood design facilitating walking etc. which need to be pursued vigorously for achieving sustainability in terms of economic, social and environmental aspects.

In the context of 100 smart cities which have been shortlisted by the government there is the need to incorporate sustainable mobility principles in these plans emphasizing on rail based mass transit systems for mega cities supplemented by buses and para transit as an integrated transit system policy. Facilitation of green mobility environment by encouraging electric vehicles penetration with supportive infrastructure and adopting A-S-I (Avoid- Shift – Improve) framework for management of urban mobility in our cities are other requirements. An appropriate integrated land use- transport strategy needs to be encouraged in the cities in India, which would promote compact spatial structure in our towns and cities supported by appropriate transit system in order to minimize carbon footprints contribution by the transport sector. In all our transport planning efforts the equity aspects should be of paramount importance ensuring the benefits of transport system development reaches to all cross section of our society. In addition the transport system economics is equally important in ensuring sustained patronage by facilitating affordable fares to users as well as offering conducive operating environment for the operators. There also needs to be larger thrust placed for using big data analytics and intelligent transport systems which could promote adoption of innovation mobility management solutions such as app based cab services, parking management systems, traffic & incident management systems, transit & para transit management systems and freight management systems.

MAKING URBAN INFRASTRUCTURE INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

Col. Prakash Tewari
Executive Director, Corporate Social Responsibility (CSR), DLF Ltd.
4th Floor, Gateway Tower, DLF Cyber City, Phase-III, Gurgaon-122002, Haryana

Abstract: With the constantly developing millennium city as it is popularly known, Gurgaon needs some immediate interventions in multiple spheres to make it the most desired city. DLF Foundation has devised the **Gurgaon Rejuvenation Project** to combat certain concerns the city faces. The various causes that deserve immediate attention are air pollution, waste management, water and vector-borne diseases.

Air Pollution

Starting with the air pollution, we have a roadmap that primarily aims at reducing the pollution and carbon footprints and bringing relevant changes. The poor air quality may comprise of various reasons like road dust and vehicular pollution. With the leading corporate sector in Cyber Hub, there is an inflow and outflow of at least 1.2 lakh cars. Hence, the most obvious solution is encouraging the concept of a car pool.

We will initiate methods for air quality to be further be ascertained by measuring the same in various areas. One of the key objectives will be to create awareness among people through surveys and camps for at least contributing to the vehicular pollution which rests with us.

The agenda would further include various initiatives like tree plantation, road cleaning and encouraging use of public transport and carpooling.

Waste Management

For waste management, the key problem areas are; waste generation, inefficient collection, transportation and finally disposal of the same. Hence, composting at the condominium, society and sector level will be encouraged. The process of segregation of wet and dry waste and further composting it to form manures for plants within the residential area will decrease the inflow at plants like Bandhwari preventing it to be further cluttered. Further, we also encourage the use of STP water for plantation purposes.

We already started the pilot project at H block Silver Oak DLF phase 1, where waste management will be at the source and currently with 70 percent waste managed, we intend moving to 100 percent. This three months experiment will be a model for various other locations.

Water

For water related issues the foremost action will be to revive the Najaf Garh Jheel. We need to solve problems of exploring demand for water and countering the ground water depletion. One of the biggest challenges that the city has is in terms of

the poor drainage that further leads to water logging and in some areas even flooding.

There needs to be a solution that has to be put in place for the erratic water supply. Our efforts will be centered on providing safe drinking water to various residential sectors. The most imperative steps here will be the sensitizing of the stakeholders for helping in solving these basic issues without which Gurgaon cannot really be a millennium city in the true sense.

Vector Borne diseases

One recurrent issue that we face every year is vector-borne diseases. Hence we formed a National Core Group for Control of Vector Borne Diseases aiming to effectively involve a large number of companies in addressing the issue of vector borne diseases through CSR and workplace interventions across the country.

These diseases have been the major contributors to increased levels of morbidity particularly in the breeding season and it is well within our control. If all parameters are in place it makes it a lot easier to combat this too. Ensuring no water is left to collect and helping in initiatives like Mission Stop Dengue, we wish to create the right kind of awareness.

We wish to Rejuvenate Gurgaon!

URBAN INFRASTRUCTURE AND SUSTAINABLE CITIES

Ms. Shabnam Siddiqui
Director, Centre of Excellence for Governance, Ethics and Transparency
UN Global Compact Network India
SCOPE Minar, Core-3, (ONGC Office) 5th Floor, Laxmi Nagar, Delhi-110092

Abstract: At the dawn of the twenty-first century, one of the most persistent and challenging problems facing Indian cities is inadequacy of urban infrastructure and the subsequent deterioration in the urban environment. In recent decades India has adopted a few key strategies for urban environmental infrastructure development and improvement.

According to SDG 11, some facts and figures of sustainable cities and communities are that half of humanity (3.5 billion)/ people lives in cities today and it is expected that by 2030 almost 60 per cent of the world's population will live in urban areas. It seems that 95 per cent of urban expansion in the next decades will take place in developing world. 828 million people live in slums today and this number is rising day by day which attract the attention of a nation towards improved and sustainable infrastructure. Rapid urbanization is exerting pressure on fresh water supplies, sewage, living environment, and public health. The high density of cities can bring efficiency gains and technological innovations while reducing resource and energy consumption.

The target set under SDG 11 ensures that by 2030, people's access will increase to adequate, safe and affordable housing with basic services. They will be provided access to safe, affordable, accessible and sustainable transport systems by improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.

In addition, by 2030, it will enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all the countries; Significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters (water-related disasters) with a focus on protecting the poor and people in vulnerable situations; Reduce the adverse per capita environmental impact of cities; Provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities; Substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters and develop &implement holistic disaster risk management at all levels in line with the Sendai Framework for Disaster Risk Reduction 2015-2030.

SDG 11 also ensures support to positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and

regional development planning; support least developed countries (through financial and technical assistance) in building sustainable and resilient cities by utilizing local materials and strengthen efforts to protect and safeguard the world's cultural and natural heritage.

UN-Habitat is the United Nations program working towards a better urban future. Its mission is to promote socially and environmentally sustainable human settlements, development and achievement of adequate shelter for all. Habitat III offered a unique opportunity to discuss the important challenges of how cities, towns, and village can be planned and managed, in order to fulfill their role as drivers of sustainable development, and how they can shape the implementation of the Sustainable Development Goals and the Paris Agreement on climate change.

Global Compact Cities Program (GCCP) is the urban arm of the United Nations Global Compact. The Cities Program is working to achieve fair, inclusive, sustainable and resilient cities and societies. GCCP found out various urban challenges such as inadequate infrastructure, embedded corruption etc., and suggested the strategies to overcome these challenges through a focus on --

- Ten Principles of the United Nations Global Compact
- The Global Sustainable Development Goals

GCCP is driving a cross-sectoral task-force approach known as Melbourne Model to sustainable urban development at the city level. It is based on a simple but effective model of collaboration between government, business and civil society organizations which were developed and trialed in Melbourne then piloted in eleven cities across the globe.

GCCP's Cities Programs support multi partner sustainable urban development project system which enables the development of partnered projects that have high impact, high value and can attract easy financing. UN Global Compact – Cities Program's member cities and regions are encouraged to participate in a supported two-year capacity building process to develop innovative high impact projects.

One of the daunting challenges facing India in the wake of unprecedented urbanization during the last few decades is the planning and management of physical infrastructure and the urban environment. As urbanization gathered pace in most countries in the region, the problem of inadequacy of infrastructure services and deteriorating urban environment became enormous. Faced with dwindling public finance, the inadequacy of the top-down conventional urban planning and development approach became apparent in deteriorating urban fabrics. Unlike the European and North American experience, where urbanization was preceded by industrialization and rapid economic development, Indian urbanization is taking place against the background of a weak economic base and low rate of industrialization. The growing urban population is mainly absorbed in the low-paid informal sector, while others are essentially unemployed. Many households living in vast urban areas are living below the poverty line and this trend may continue in the near future.

It is stressed that strategies for planning and managing the urban environment should acknowledge social and economic realities and the dynamics of the spatial expression, and act on this recognition in order to counter the problem of poor services and environmental deterioration.

The Centre for Excellence for Governance, Ethics and Transparency (CEGET), a subset of UN-Global Compact Network India (UN-GCNI), since 2015, has been playing a lead role in promoting governance and ethics in business and is committed to establish a robust framework of governance and ethics in smart city development in India. The CEGET's approaches are centered on three objectives i.e. Develop of pragmatic approaches around 10th UNGC principle to challenging business decisions through creation of a Knowledge Hub; Provide enabling platforms to businesses, policymakers, civil society, industry associations, UN agencies and academia; Improve organizational decision making through a stakeholder management framework that integrates transparency and integrity.

CEGET has undertaken several initiatives and consultative processes in this regard including its association with Pune Smart City Development Corporation Limited (PSCDCL) for creating a support system for smart city implementation. A clear plan for implementation of the various initiatives, backed by a strong process flow and system of policy, guidelines and compliances along with clear definition of structure, accountability and deliverables makes a robust system for Governance and Transparency. In other words, governance and transparency cannot operate in vacuum. To remove corruption and promote transparency in businesses, CEGET has developed a business case for transparency and ethics in businesses for Smart cities and it was cemented by the identifying nine pillars and these will help varied stakeholders to ensure ethical and transparent business practices.

The challenges that cities face can be overcome in ways that allow them to continue to thrive and grow, while improving resource use and reducing pollution and poverty. The future we want includes cities of opportunities for all, with access to basic services, energy, housing, transportation and more. Drawing cooperation from the committed partners, relevant stakeholders (as discussed above) and urban actors at all levels of Govt. as well as the civil society and private sectors and with a constant transparent approach a city can be transformed into a smart city.

The SDG 11 has close relation and linkages with other SDGs (SDG 1- No Poverty; SDG 3- Good health & well being; SDG 5- Gender Equality; SDG 6- Clean water & sanitation; SDG 9- Industry innovation and Infrastructure; SDG 10- Reduced inequalities; SDG 12- Responsible consumption & production; SDG 16- Peace & Justice "Strong Institution") and hence integrating SDG 11 with other SDGs becomes necessary for ensuring a sustainable city & community.

Technical Session V – Climate Action (SDG – 13)

CLIMATE CHANGE INNOVATIONS AND SDGs

Session Chair
Dr. (Mrs.) Malti Goel
CEO, Climate Change Research Institute
Former Adviser, Government of India
S-83 Panchshila Park, New Delhi-110 017

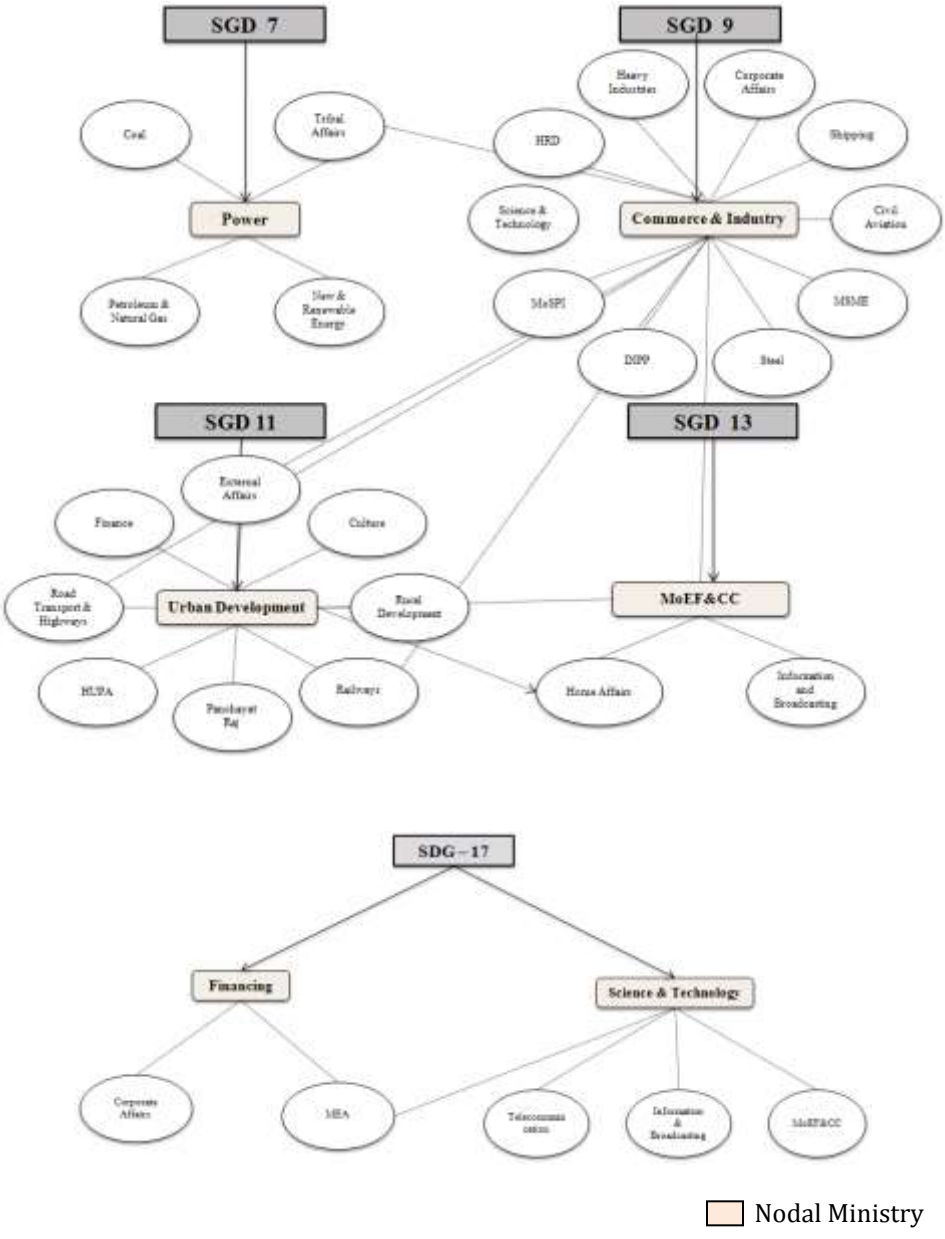
Abstract: The main theme of Sustainable Development Goal 13 is: Take Urgent Action to Combat Climate Change and its Impacts. Science is at the core of climate change phenomenon. Scientific assessments of global climate change are made by Intergovernmental Panel on Climate Change (IPCC), a representative organization of scientists from member countries. The IPCC made predictions about future climate and its first report brought out in 1990 was discussed in the Rio Earth Summit held in 1992. The United Nations Framework Convention on Climate Change (UNFCCC) became an international environmental treaty (also known as a multilateral environmental agreement) that was opened for signature at the Earth Summit held in Rio de Janeiro in 1992 and came into force in 1994. Kyoto Protocol aimed to "stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system."

In the Rio+20 Summit held in 2012 an Agreement to work towards Sustainable Development Goals (SDGS) was one of the main outcomes, as MDGs were to expire in 2015. India committed to the 2030 agenda for Sustainable Development which the United Nations adopted unanimously in September 2015. India also became 62nd country to ratify the Paris Agreement on Climate Change on 2nd October 2016, which was signed by 191 countries during the 21st Meeting of Conference of Parties (COPs) held in Paris. Paris Accord is unique as each country has submitted it's Nationally Determined Contributions (NDCs) as plan of action and a rigorous monitoring and compliance is expected to these NDCs.

India along with other countries has signed the declaration on the 2030 Agenda for Sustainable Development, comprising of seventeen Sustainable Development Goals (SDGs).With the breadth of 17 Goals and 169 Targets to be achieved by 2030, a concrete action plan has to be initiated. The SDGs are transformational, universal and inclusive. The implementation of SDGs needs each country to judiciously prioritize, and adapt the goals and targets in accordance with local challenges, capacities and resources available. NITI Aayog has developed the SDG Implementation Plan for India giving Targets, Interventions and identifying the Nodal and other Ministries. The interactive responsibilities of the various government departments for the five SDGs under discussion show considerable variations, inter-linkages and the ministries having major responsibilities.

In addressing Climate Change Action, two important issues need to be highlighted; first is targeted objectives to achieve SDG13 requiring**;** (i) Constant innovation in the field of research and technology to find innovative solutions, (ii)

Achieving energy sustainability, (iii) Resource efficiency (reducing GHG emissions and the resource intensity of consumption etc.), and (iv) Inclusive growth (helping eradicate poverty by acquiring new skills).



Nodal and other Ministries having interactive role in achieving SDG's targets

The second is, our preparedness for 4th Industrial revolution. All previous three industrial revolutions viz. one - liberated humankind from animal power, two - made mass production possible, and three - brought digital capabilities to billions of people respectively. The fourth industrial revolution is fusion of physical, digital

and biological worlds - Nano + IT + Bio. This fusion is giving rise to new challenges, including what it means to be human.

Science, technology and innovation (STI), as referred to in the UN and OECD contexts, have been recognized as one of the main drivers behind productivity increases and a key long-term lever for economic growth and prosperity, along with the concerned issues of environmental sustainability. Inter-Ministerial coordination is becoming vital.

India has a vast program in the Energy sector from giving thrust to renewable energy growth (175GW by 2022), improvement of energy efficiency (GDP intensity of emissions to reduce by 33-35%) and carbon dioxide sequestration & utilization research (to increase CO_2 sinks by 2.5-3 billion per annum). The government is giving new push to use of electric vehicles.

In response to these, individual organizations are expected to evolve new programs, create scientific monitoring of greenhouse gases at source, create better understanding of impacts and vulnerability, voluntary measures to be initiated for reducing CO_2 footprints, introduction of new technology, identify technology development priority and achieve technology transfer under market conditions. With these remarks the Chairperson invited the eminent panelists to present their views.

CLIMATE ACTION AT AMBUJA CEMENTS

Shri Sandeep Shrivastava
Vice President, Environment and Sustainability, Ambuja Cement limited
228, Udyog Vihar, Phase-I, Gurgaon-122016

Abstract: Sustainability is not just a part of strategies but is "a way of life" at Ambuja Cements Limited. This has helped us to reach the level of maturity in the industry as we are today. Ambuja has been taken initiative to include SDGs in the 2020/2030 vision and targets and sustainable performance management. These operations planning are guided and monitored through the formal policies approved by the Board, and executed with enforcement from the top management. Carbon mitigation (SDG13) remained in the core of our business strategy.

Core values at Ambuja

As part of the business strategy, the company has adopted a set of core values defined to guide the everyday operations. These values are "Focus on Customer, Deliver Results, Act with Integrity, Ensure Sustainability, Care for and Respect People", or otherwise known as CRISP values. CRISP along with Health & Safety as an overarching value are business oriented values. They are the key drivers for superior and sustainable performance, embedding our core values into our performance management system to accelerate our journey towards the common culture.

Key initiatives addressing SDG 13

Climate change has been identified as one of the significant sustainability risk for our business and strategies are prepared and constantly updated to mitigate the adverse effects from this risk. Our efforts coincide with the stages of cement manufacturing process, and thus, can be termed as "Preventive" that affects the upstream value chain, "Preserving" that affect the operations as well as downstream value chain, and "Protecting" that affect the community and end of life stage of the cement manufacturing process.

In our "Preventive" measures, Ambuja has implemented various solutions like sourcing alternative fuel and raw material like synthetic gypsum; fly ash for blending, sourcing of renewable energy like solar power; water supply management etc for help preventing excess CO2 emissions out of fossil fuel/ raw material burning. Our sustainable supply chain measures, help in reducing the impact of sourcing on environment. Our journey with various measures can be accessed in our Sustainable Development Report 2016, on the following link "http://www.ambujacement.com/Sustainability/sustainability-reports".

In our "Preserving" measures, Ambuja has set the benchmarks and success stories of reducing our environmental impact in the manufacturing process. These measures include co-processing industrial and other municipality waste in the kilns, use of alternate fuels, automated emission inventory management systems, water resource and energy management and efficiency measures. Ambuja has always

promoted possibilities with innovation and unconventional methods, like transportation through sea and rail routes, also raw material movement through mechanical over land conveyors to reduce road transport distance.

In our "Protecting" measures, Ambuja and our CSR arm Ambuja Cement Foundation (ACF) have played significant role in creating awareness and developing knowledge of the customers and the community regarding the climate change risks and measures to adapt to the climate change effects. While ACF has worked closely with the community to develop numerous water resource infrastructures, Ambuja has made significant contribution in saving water consumption at the end of our product consumers (builders/contractors etc.)

Ambuja is the first Indian cement manufacturer that has been certified as 5.5 times water positive in 2016, and has conducted Life Cycle Assessment (LCA), and Environmental Product Declaration (EPD) for the Portland Pozzolana Cement (PPC) produced at all its plants.

Amongst the success of all the above initiatives, Ambuja is focused on achieving its business vision *"To be the most sustainable and competitive company in our industry"*. Hence, Ambuja will continue innovation to improve and adapt to the dynamic effects of any risk.

EMBEDDING 'CLIMATE ACTION' INTO THE DNA OF YES BANK

Mr. Chandan Bhavnani
Executive Vice President, Responsible Banking,
YES Bank Ltd., New Delhi

Abstract: Based on the national climate-change commitments and underlying policies of 21 emerging-market economies in SDGs Global Finance opportunities is about USD 90 trillion by 2030 and for Paris Accord 2015, NDCs Global Finance opportunities is USD 23 trillion for the developing countries.

The Investment opportunities in Energy Efficiency sector are USD 600 billion annually over the next 20 years. In Green building construction, additional investment of USD 296 billion per year, in Renewable Energy, USD 900 billion between 2016 and 2030, and in Green Bonds Issuance, it will reach a record high and could rise up to USD 206 billion in 2017.

India's NDCs are to achieve 40%cumulative electric power installed capacity from renewable energy sources by 2030, reducing emission intensity of its GDP by 33-35% from 2005 levels by 2030, creating carbon sink of 2.5 - 3 billion tonnes of CO_2 by additional forest cover. For these NDC's estimated budget requirement is about USD 2.5 trillion till 2030.

India's Development Priorities are, financial inclusion to 100 million families, livelihoods for extra 10 million job seekers each year, supply of clean water and energy to 1.3 billion inhabitants and clean energy target of 175 GW.

YES BANK, empowering business through Professional Entrepreneurship, has 1,020 branches, 20,851 employees, 1,796 ATMs, Advances INR 1.39 Lakh Crore, Balance Sheet INR 2.22 Lakh Crore and Deposit base INR 1.5 Lakh Crore.

Sustainable Development at YES BANK, RESPONSIBLE BANKING's vision is to be the benchmark financial institution for inclusivity and sustainability, mission is to link CSR and sustainable development with stakeholder value creation through innovative business solutions and services and outcome is to deliver internal & external measurable positive socio-environmental impact and enhance YES BANK's influence in CSR and sustainability space.

We have 360° Framework and Innovating pathways to sustainable development with transparency & accountability. We facilitate sustainable finance towards positive impact of CSR and sustainable development. Yes Bank is doing policy advocacy thought leadership. It includes, Knowledge Reports – Climate Finance, Water, Renewable Energy, Energy Efficiency; Thought leadership at UNEP-FI, UN, RE-INVEST; and Policy advocacy within financial sector.

Yes Bank as Market Creator has taken new initiatives and these are as follows.

(i) Green Bonds - YES BANK pioneered India's 1st Green bond in 2015
(ii) Credit Enhancement - India's 1st rated, listed and secured credit enhanced bond in the solar power sector underwritten by YES BANK

(iii) Regular Financing to Sustainability - YES BANK is the 1st bank to partner with SIDBI under the World Bank initiative and Bureau of Energy Efficiency
(iv) Blended Finance - YES BANK is undertaking a pilot project in transformational blended finance
(v) Innovation through Technology - YES BANK has used technology and innovation, as mission critical pillars, to offer a superior banking experience

In sustainable finance the way forward for YES BANK are;

(i) E-mobility – Circular Economy –Water Efficiency – Energy Efficiency
(ii) Partnerships – Green Climate Fund, The World Bank and Natural Capital Financial Alliance
(iii) Product Development – Biodiversity Fund and Blue Bonds
(iv) Policies – Climate Stress Testing of Bank's Portfolio and Embedding natural capital externalities

Some of the achievements of YES BANK towards mainstreaming sustainability amongst stakeholders are highlighted as below.

- 1st Indian Banking sector signatory to UN Global Compact
- 1st Indian Signatory in banking sector to the CDP
- 1st Indian Signatory in banking sector to UNEP
- 1st Indian Signatory to the NCFA
- 1st Indian Bank to release externally assured GRI G4 '*Comprehensive*' Sustainability Report
- 1st& Only Indian Bank to be listed in DJSI Emerging Markets Index for 2 consecutive years
- 1st Indian Bank to receive ISO 14001:2015 certification
- Launched India's 1st Green Bonds

In the end…

"Youth should have a clear picture of what they want to become in life. They should have a clear aim and a well-defined destination. Most people prefer to travel in well-laid roads, for it is safe and easy. Very few decide not to follow the path and dare to create a path of their own."

- Dr A.P.J. Abdul Kalam

ACBSDG 2017

Awareness and Capacity Building Workshop on Advancing Sustainable Development Goals: Role of STI

India International Centre, Seminar Hall-2, New Delhi-110003

Programme Agenda

27th July 2017		
9:30 – 10:00 Hrs	Registration	
TIME	**SESSION TITLE**	**SPEAKERS**
14:30 – 15:30 Hrs 14:30 pm – 14:50 pm 14:50 pm – 15:10 pm 15:10 pm – 15:20 pm 15:20 pm – 15:30 pm	**INAUGURAL SESSION** Inaugural Address by Chief Guest Keynote Address Address Thank You Note	 **Prof. D P Agrawal** Former Chairman, UPSC **Dr. Akhilesh Gupta** Scientist 'G', Department of Science and Technology **Mr. Kamal Singh** Executive Director, UN Global Compact Network India **Dr. (Mrs.) Malti Goel** CEO, Climate Change Research Institute
15:30 - 15:45 Hrs	TEA / COFFEE BREAK	
10:00 – 11:15 Hrs **Presentation time - 20 minutes each**	TECHNICAL SESSION I **Sustainable Development Goals and Science & Technology Initiatives**	**CHAIR** **Mr. Parul Soni** Global Managing Partner, Thinkthrough, Consulting Private Limited (TTC) **PANELIST** **Dr. Hanumanthu Purushotham**, CMD, National Research Development Corporation (NRDC) **Prof. Pranav N. Desai, JNU** Presentation on – 'Technology Facilitation Mechanism and Sustainable Development' **Mr. Rahul Kumar,** HelpMeSee
17:15 Hrs	High Tea	
28th July 2017		
9:30 – 10:00 Hrs	Registration	

10:00 – 11:15 Hrs Presentation time 30-min each	**<u>TECHNICAL SESSION II</u>** **"Energy Access – Sustainable Development Goal-7**	**<u>CHAIR</u>** **Shri V.S. Verma,** Ex-Member, CERC **<u>PANELIST</u>** **Mr. Dinesh Agrawal** Former GM, NTPC Limited **Mr. Jitendra Routray** Head – CSR, ReNew Power
11:15 – 11:30 Hrs	High Tea	
11: 30 – 13:00 Hr Presentation time 30-min each	**<u>TECHNICAL SESSION III</u>** **Industry , Infrastructure– Sustainable Development Goal-9**	**<u>CHAIR</u>** **Dr. Vineeta Dutta Roy**, Birla Institute of Management Technology **<u>PANELISTS</u>** **Ms. Bhavna Sethi,** Chief of Sustainability, Jindal Steel & Power Limited **Mr. Vineet Kumar** President, Cyber Peace Foundation
13:00 – 14:00 Hrs	**Lunch**	
14:00 – 15:30 Hrs Presentation time 20-min each	**<u>TECHNICAL SESSION IV</u>** **Urban Infrastructure- Cities – Sustainable Development Goals-11**	**<u>CHAIR</u>** **Shri Vijay Kumar,** Distinguished Fellow, TERI **<u>PANELISTS</u>** **Prof. Sanjay Gupta** Head Transport Div. SPA New Delhi, "Smart and Sustainable Mobility Imperatives for Cities" **Col Prakash Tewari (Retd)** Executive Director – CSR, DLF Ltd **Ms. Shabnam Siddiqui** Director- CEGET, UN GCNI
15:45 – 17:15 Hrs Presentation time 30-min each	**<u>TECHNICAL SESSION V</u>** **Climate Change Action – Sustainable Development Goals-13**	**<u>CHAIR</u>** **Dr. (Mrs.) Malti Goel,** CEO, Climate Change Research Institute **<u>PANELISTS</u>** **Mr. Sandeep Shrivastava** Head- Environment & Sustainability, Ambuja Cements Ltd **Mr. Chandan Bhavnani,** Executive Vice President, Responsible Banking, YES Bank Limited
17:15 – 17: 30	**Concluding & High Tea**	

Awareness and Capacity building workshop on
Advancing Sustainable Development Goals:
Role of Science, Technology and Innovation

ACBSDG 2017

27th-28th July 2017,
India International Centre, New Delhi

Distinguished Speakers

Dr. (Mrs.) Malti Goel
Climate Change Research Institute

Shri D.P. Agrawal
Ex-Chairman, Union Public Service Commission

Mr. Kamal Singh
United Nations Global Compact Network India

Dr. Akhilesh Gupta
Department of Science & Technology

Mr. Parul Soni
Thinkthrough, Consulting Pvt. Ltd.

Prof. Pranav N. Desai
Jawaharlal Nehru University

Dr. H. Purushotham
National Research Developme Corporation

Shri V.S. Verma
Ex-Member, Central Electricity Regulatory Commission

Mr. Dinesh Agrawal
Ex-General Mangaer, National Thermal Power Corporation Ltd.

Distinguished Speakers

Mr. Jitendra Routray
ReNew Power

Dr. Vineeta Dutta Roy
Birla Institute of Management Technology

Ms. Bhavna Sethi
Jindal Steel & Power Ltd.

Dr. Vineet Kumar
Cyber Peace Foundation

Shri Vijay Kumar
The Energy and Resource Institute

Prof. Sanjay Gupta
School of Planning and Architecture

Col Prakash Tewari (Retd)
Delhi Land and Finance Ltd.

Ms. Shabnam Siddiqui
United Nation Global Compact Network India

Mr. Rahul Kumar
HelpMeSee

Mr. Sandeep Shrivastava
Ambuja Cement Ltd

Mr. Chandan Bhavnani
Yes Bank Ltd

Awareness and Capacity building workshop on Advancing Sustainable Development Goals: Role of Science, Technology and Innovation

ACBSDG 2017

27th-28th July 2017,
India International Centre, New Delhi

A. National Advisory Committee

1. Prof. D. P. Agrawal, Chairman, GC, Climate Change Research Institute
2. Dr. (Mrs.) Malti Goel, CEO, Climate Change Research Institute
3. Shri Kamal Singh, Exe. Director, UN Global Compact Network India
4. Shri V.S. Verma, Former Member, Central Electricity Regulatory Commission
5. Shri Gautam Sen, Former Exe-Director, Oil and Natural Gas Corporation
6. Prof. A.K. Maitra, Former Director, School of Planning and Architecture
7. Dr. M. Sudhakar, Director CMLRI, Ministry of Earth Sciences
8. Prof. G.D. Sharma, Former Secretary, University Grants Commission
9. Dr. B. C. Sabata, Senior Scientific Officer, Department of Environment, Delhi Govt.

B. Organizing Committee

1. Dr. (Mrs.) Malti Goel, CCRI
2. Mr. Deep Chandra Papnoi, UN GCNI
3. Dr. Neha G. Tripathi, SPA, New Delhi
4. Shri L.K. Bansal, CCRI
5. Miss Shipra Maheshwari, CCRI
6. Mrs. Tamanna, UN GCNI
7. Mr. Rahul Kumar, CCRI
8. Mr. Alok Kumar, CCRI
9. Mr. Sanju, SGA Design Lab

Awareness and Capacity building workshop on Advancing Sustainable Development Goals: Role of Science, Technology and Innovation
(ACBSDG 2017)
27th-28th July 2017

List of Participants

Sr. No.	Participants
1	Prof. D. P. Agrawal, Former Chairman, UPSC
2	Dr. (Mrs.) Malti Goel, CCRI, and Former Adviser, DST, Govt. of India
3	Mr. Akhilesh Gupta, FNAE, FIMS, Department of Science and Technology
4	Shri Kamal Singh, Executive Director, UN GCNI
5	Ms. Shabnam Siddiqui, Director-CEGET, UN GCNI
6	Mr. Dinesh Agrawal, Former GM, NTPC
7	Shri Parul Soni, Global Managing Partner, Thinkthrough Consulting Pvt. Ltd.
8	Shri Hanumanth Purushotham, CMD, National Research Development Corporation
9	Prof. Pranav N. Desai, JNU
10	Shri V.S. Verma, Ex-Member, CERC
11	Shri Vijay Kumar, Distinguished Fellow, TERI
12	Prof. Sanjay Gupta, Head, Transport Division, SPA
13	Mr. Rahul Kumar, HelpMeSee
14	Mr. Jitendra Routray, Head-CSR, Renew Power
15	Dr. Vineeta Dutta Roy, Associate Professor and Head Corporate Social Responsibility, BIMTECH
16	Ms. Bhavna Sethi, Chief of Sustainability, Jindal Steel & Power Ltd.
17	Dr. Vineet Kumar, President, Cyber Space Foundation
18	Col. Prakash Tewari, Executive Director – CSR, DLF Ltd.
19	Shri Sandeep Shrivastava, Head, Environment and Sustainability, Ambuja Cement ltd.
20	Shri Chandan Bhavnani, Executive Vice President, Responsible Banking, Yes Bank
21	Ms. Aastha Sawhney, IMS, Ghaziabad – UC Campus
22	Ms. Sheetal Malik, IMS, Ghaziabad – UC Campus
23	Shri Ashis Dash, Director, FIMI
24	Ms. V. Vijayalalitha, Asst. Professor, EMPI Business School
25	Prof. D.K. Avasthi, Director, Amity Institute of Nano-Technology
26	Shri L.K. Bansal, CCRI
27	Mr. Gautam Sen, Former Executive Director, ONGC
28	Prof. A.K. Maitra, Former Director, SPA
29	Mr. Vivek Kumar, Senior Manager, Emagr India
30	Shri Suresh Goel, Consultant, SGA
31	Dr. Neha G. Tripathi, Asst. Professor, SPA
32	Ms. Maitreya Mishra, JSPL
33	Mr. Anand Shukla, OXFAM
34	Mr. Pratiush Prakash, OXFAM

35	Mr. Chandra Ramakrishnan, Avian Media Pvt. Ltd.
36	Mr. Sharat Sahay, Avian Media, Pvt. Ltd.
37	Ms. Oliviya Brar, UN GCNI
38	Ms. Tamanna, UN GCNI
39	Ms. Ankita, UN GCNI
40	Shri Deep Chandra Papnoi, UN GCNI
41	Mr. Deepak Chauhan +2, Raja Films
42	Ms. Shipra Maheshwari, CCRI
43	Mr. Rahul Kumar, CCRI
44	Mr. Sanju, SGA
45	Mr. Alok, SGA
46	Mr. Brijmohan Maurya, CCRI
Students from different Universities	
47	Mr. Yash Vijay Bogawat, Amity Institute of Nano-Technology
48	Mr. Samarla Prany, Amity Institute of Nano-Technology
49	Mr. Veeru Jaiswal, Amity Institute of Nano-Technology
50	Mr. Prakhar Sahay, Amity Institute of Nano-Technology
51	Ms. Tarab Fatima, Amity Institute of Nano-Technology
52	Mr. Mohit Bhardwaj, EMPI Business School
53	Mr. Nishant Gupta, EMPI Business School
54	Ms. Yashi Rustagi, EMPI Business School
55	Ms. Ankita Sinha, EMPI Business School
56	Ms. Bhawana Varshney, EMPI Business School
57	Mr. Ankit Saxena EMPI Business School
58	Ms. Gitumani Deka, EMPI Business School
59	Mr. Shivam Sachdeva, JIMS Kalkaji
60	Mr. Shubham Aggarwal, JIMS Kalkaji
61	Ms. Sheetal Kuhar, JIMS Kalkaji
62	Ms. Nirali Tyagi, JIMS Kalkaji
63	Ms. Sakshi Thirani, JIMS Kalkaji
64	Mr. Haider Aaqil, JIMS Kalkaji
65	Mr. Lakshay Sethi, JIMS Kalkaji
66	Ms. Neha Maheshwari, JIMS Kalkaji
67	Ms. Bhavya Dhiman, JIMS Kalkaji
68	Mr. Harsh Sharma, JIMS Kalkaji
69	Mr. Aman Mishra, JIMS Kalkaji
70	Ms. Ishita Bansal, IMS Ghaziabad – UC Campus
71	Mr. Devansh Gill, IMS Ghaziabad – UC Campus
72	Mr. Ajay Singh, IMS Ghaziabad – UC Campus
73	Mr. Ishan Mughal, G.L. Bajaj Institute of Management
74	Mr. Abhinendra Singh, G.L. Bajaj Institute of Management

contact

Climate Change Research Institute

C-85 Shivalik, Malviya nagar
New Delhi 110017, India
Contactus@ccri.in
Email: maltigoel2008@gmail.com,
URL: www.ccri.in