World Sustainable Development Forum
DSDS 2013

teri

The Global Challenge of Resource-Efficient Growth and Development

13th DELHI SUSTAINABLE DEVELOPMENT SUMMIT

Supported by

Ministry of Environment and Forests
Government of India

PROCEEDINGS

World Sustainable Development Forum
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Contents

Foreword

Dr R K Pachauri
Director-General, TERI

The population of the world at the beginning of the 20th century was 2 billion. Today, we have a global population of over 7 billion, and in the next few decades we may be adding another 2 to 3 billion depending on the level at which stabilization of the population takes place. At the same time incomes have grown and consumption patterns have changed substantially. Modern science and technology has made it possible for goods and services to be produced at increasingly lower costs in the market place. However, in several cases this increase comes with a substantial increase in costs imposed on the environment, the ecosystems of this earth, and the natural resources that we utilize for production and consumption activities. As a result, several natural resources across the globe have been damaged or degraded to an extent that the services that they provide are being affected adversely. There are also challenges for some related to access and availability of a large range of resources such as fossil fuels, minerals, metals, and bio-resources of various kinds. Competition between communities and nations for access to these resources often leads to conflict and tension.

Against this background it is imperative that human society comes up with appropriate solutions for meeting the global challenge of resource-efficient growth and development. Response to this challenge would require the development and deployment of appropriate technologies, policies that aim to internalize the cost of negative externalities imposed on the environment, the strengthening of the institutions that would enable some of these measures to be implemented effectively and changes in lifestyles towards the same objectives.

The 13th Delhi Sustainable Development Summit which was held in New Delhi from 31 January to 2 February, 2013 focused on a range of these issues, so that the global society can come to grips with measures and methodologies by which we can attain resource-efficient growth and development. The Summit was attended by some of the most enlightened leaders from various walks of life and from different parts of the globe. A fusion of thought coming from such a large range of enlightened individuals and representatives of institutions of excellence has resulted in the proceedings of the Summit which are synthesized in the following pages. There is now every reason to ensure adherence to the definition of sustainable development, which while meeting the needs of the present generation should also ensure that the ability of future generations to meet their own needs is not compromised. Indeed, resource-efficient growth and development would ensure that the earth's scarce resources are not plundered and damaged to compromise on the welfare of future generations. The responsibility is ours and the solution to this monumental challenge is articulated in the following pages.

Acknowledgements

Dr Annapurna Vancheswaran
Director, Sustainable Development Outreach Division, TERI

The Delhi Sustainable Development Summit (DSDS) serves as a vital platform for nations of the world to discuss and debate strategies in the realm of sustainable development and explore avenues for synergy. The Summit allows representatives from different walks of life; namely, polity, economy, academics, and civil society to contribute to the formulation of effective policies that would benefit both the people and the planet.

The 13th edition of TERI's flagship event was inaugurated by the Hon'ble Prime Minister of India, Dr Manmohan Singh, for the fourth time in a row. The Summit was graced by the presence of current and former Heads of State, ministers from fourteen countries, over one hundred eminent speakers from across sectors and countries, and over a thousand delegates. HE Mr James Alix Michel, President of Seychelles, was conferred the ninth Sustainable Development Leadership Award for his outstanding contributions towards sustainable development in Seychelles and placing the issues of small island states on the global agenda.

The debates at the 13th edition of DSDS will help further the resolutions of the Rio+20 Conference delineated in the document entitled– *The Future We Want*, which desires inclusive and equitable economic growth, greater opportunities and reduction of inequalities across the globe. The theme 'The Global Challenge of Resource-efficient Growth and Development' provided an ideal setting for debate and discussion with a diverse array of disciplines and countries. The Summit witnessed relevant stakeholders, including the scientific community, deliberate the way forward on the path of resource-efficiency, both for developing as well as developed countries.

We are grateful to all the high-level dignitaries, speakers, participants, and delegates for contributing to the engaging discussions and making the Summit a success. Their views and insights will help take us all further along the path of sustainable development—'Towards the Future We Want'.

The 'In Conversation' sessions were inspiring and captivated the audience. Nobel laureate Prof. Carlo Rubia focused on strengthening the science–policy interface, while media mogul Mr Thomas Friedman spoke of capitalism, Mother Nature, and the inter-dependence of the world.

The Summit introduced a new feature, Thematic Tracks—a set of parallel break-away sessions to enable greater interaction and in-depth discussion on niche topics relating to the overall Summit theme. The response from the participants was heartening, encouraging us to continue this feature at the next edition of the Summit. The Thematic Track partners deserve a special mention for their great support, ideas, and encouragement in making these sessions a success.

DSDS 2013 would not have been possible without the magnanimous support of all our Summit partners, from across governments, bi- and multi-lateral organizations, and corporates. Not only did they provide the Summit with the necessary financial support to make our plans a reality, their encouragement and continuous guidance gave us the impetus to strive for greater ambitions and further improve the quality and success of the Summit. The Ministry of Environment and Forests (MoEF) deserves special mention for their continued support. The DSDS Secretariat and colleagues from across the Institute deserve credit for their untiring efforts, cooperation, and support.

Background Note

Over the past 50 years, voices of wisdom have been warning all of us that the inexhaustibility of the earth's resources cannot be taken for granted. In 1968, Garrett Hardin, a biologist, who had the talent and insight to comprehend what human activities were doing to the earth's commons, came up with the term, "The Tragedy of the Commons". The interpretation of the commons applies as much to the resources at the local and national levels as it does to common resources that we derive benefits from globally. Also, in the 1960s, the pioneering and daring work of Rachel Carson brought to the surface the dangers of externalities that excessive use of chemicals, pesticides, and toxic materials can cause to our ecosystems, the results of which were harmful to human health and even to the successful conduct of economic activities. Rachel Carson's work assumed relevance not only in North America, but also across the globe, such as brought out by the Minamata problem in Japan and unacceptably high levels of pollution as a result of rapid industrialization in the country.

In the developed world, pollution levels at the local level have been managed successfully, but an important problem remains and has even become increasingly serious. This relates to the continuing use of various finite resources, particularly the burning of fossil fuels and their effects on the earth's climate, the stability of the chemical composition of the oceans, the polluted underground water stream in several parts of the world, and threats to the earth's rich biodiversity. With a population of 7 billion people and a majority of humans living in towns and cities, human society is often unmindful of the impacts of its consumption and production decisions on the earth's resources, which include clean air, clean water, unpolluted oceans, healthy soil, and mineral resources, including fossil fuels. The realization has dawned on all of us that unless we come up with a pattern of growth and development, which uses all these resources efficiently, we are likely to reach tipping points beyond which results would be unacceptably negative and would compromise on the ability of future generations to meet their own needs while of course, adversely affecting the ability of the present generation to meet its needs. Such an outcome would go against the very basic definition of sustainable development, and could plunge human society into a decline of its overall well-being, with some of the poorest communities in the world suffering the worst impacts of these trends, which have now become a part of business as usual.

Stakeholders representing every section of human society must therefore come up with directions, strategies, and policies by which the human race moves towards far more efficient and sustainable management of its natural resources. To that end, Delhi Sustaintable Development Summit (DSDS) 2013 provided a unique platform to thought leaders and those responsible for decision making in every section of the society to deliberate on and design a set of directions and policies by which we reach a level of resource efficient growth and development, which would serve the overall, long-term interests of all living beings on this planet. The underlying reality that we face today clearly emphasizes the fact that we have only one planet and its resources cannot be depleted, damaged or degraded without adverse implications for people and the planet. Knowledge and enlightenment can show us the way, and that is what we hope DSDS 2013 has provided in ample measure.

Agenda

Day 1: January 31, 2013	
10:00–10:30 am	**Inauguration by Dr Manmohan Singh**, Hon'ble Prime Minister of India In the presence of: **HE Mr Donald Ramotar**, President of Guyana **HE Mr Anote Tong**, President of Kiribati **Dr Farooq Abdullah**, Hon'ble Minister of New and Renewable Energy, India **Ms Jayanthi Natarajan**, Hon'ble Minister of State (I/C) for Environment and Forests, India
10:35–11:50 am	**Leadership Panel 1: Defining the Future We Want** *The Rio+20 Summit resulted in a document entitled 'The Future We Want'. This has a large menu of activities and possible changes that the world is presented with for adoption and implementation. How can the current leadership pick up the relevant elements of this Agenda for implementation?* **Chair**: **Ambassador C Dasgupta**, Distinguished Fellow, TERI, India **Setting the Theme**: **Dr R K Pachauri**, Director-General, TERI, India **HE Mr Donald Ramotar**, President of Guyana **HE Mr Anote Tong**, President of Kiribati **HE Mr James Alix Michel**, President of Seychelles (video message)
12 noon–1:00 pm	**Lunch**
1:00–2:15 pm	**Ministerial Session 1: Ensuring Energy, Water, and Food Security** *Ministers from around the globe will discuss the importance of good governance of rapidly depleting natural resources as well as best practices and policies for the future.* **Chair**: **Mr Nitin Desai**, Distinguished Fellow, TERI and Former Under-Secretary General of the United Nations, India **HE Dr Mariyam Shakeela**, Minister of Environment and Energy, Maldives **Mr Arvinn Eikeland Gadgil**, Hon'ble Deputy Minister for International Development, Norway **HE Mr Marcin Korolec**, Minister of the Environment, Poland **The Hon'ble Jean-François Lisée**, Minister of International Relations, La Francophonie and External Trade, Québec **HE Dr Sultan Ahmed Al Jaber**, Assistant Minister of Foreign Affairs and Special Envoy for Energy and Climate Change, Ministry of Foreign Affairs, UAE **Concluding Remarks:** **Dr Robert D Hormats**, Under Secretary, Economic Growth, Energy and Environment, US Department of State, USA

2:15–3:30 pm	**Leadership Panel 2: Defining the Future We Want** *The Rio+20 Summit resulted in a document entitled 'The Future We Want'. This has a large menu of activities and possible changes that the world is presented with for adoption and implementation. How can the leadership share their experiences and pick up the relevant elements of this agenda for implementation?* **Chair**: **Ambassador C Dasgupta**, Distinguished Fellow, TERI, India **HE Ms Tarja Halonen**, Former President of Finland **HE Mr Bharrat Jagdeo**, Former President of Guyana **The Hon'ble Jean Charest**, Former Premier of Quebec **The Rt Hon'ble Lord John Prescott**, Former Deputy Prime Minister and Member of Parliament, House of Lords, UK **The Hon'ble Charles Crist**, Former Governor of Florida, USA
3:30–3:45 pm	**Tea**
3:45–5:00 pm	**Corporate Perspectives on Resource-efficient Growth and Development** *Multinational corporations and industries use large amounts of natural resources for production of goods and services. Acknowledging that businesses cannot afford to ignore social responsibility, eminent personalities will stress on the need to usher in resource-efficiency in business.* **Moderator**: **Ms Bahar Dutt**, Environment Editor, CNN-IBN, India **Mr Michael Christiansen**, Chairman of the Board, Danish Cultural Institute, Denmark **Mr Krishan Dhawan**, Chief Executive Officer, Shakti Sustainable Energy Foundation, India **Mr William Hammink**, Mission Director, USAID, India **Mr Zubin Irani**, Senior Managing Director–Commercial Companies, United Technologies Corporation (UTC), India **Mr Mahesh Makhija**, Director, Business Development (Renewables), CLP India Pvt. Limited, India **Mr Peter Bakker**, President, World Business Council for Sustainable Development, Switzerland **Prof. Godfrey Boyle**, Professor of Renewable Energy, The Open University, UK
5:00–6:15 pm	**Accelerating the Transition to a Sustainable Economy** *Senior representatives, including the Presidents, of the multilateral development banks (MDBs) will address the audience on the transition to a Sustainable Economy and the role of MDBs* **Chair**: **Mr Roland Lance Ignon**, Co-Director, New York Office, Sitrick and Company, USA **Keynote Addresses:** **Mr Haruhiko Kuroda**, President, Asian Development Bank, The Philippines **Mr Donald Kaberuka**, President, African Development Bank, Tunisia **Panelists:** **Mr Rémi Genevey**, Executive Director, Agence Francaise de Developpement (AFD), France **Prof. François Mancebo**, Full Professor (Planning and Sustainability), Rheims University and Head of the International Research Center on Sustainability (IRCS) of Rheims, Rheims University, France

	Mr Dipak Dasgupta, Principal Economic Adviser, Ministry of Finance, Government of India **Mr Seethapathy Chander**, Director General, Regional and Sustainable Development Department concurrently Chief Compliance Officer, Asian Development Bank, The Philippines **Ms Mary Barton-Dock**, Director, Climate Policy and Finance, The World Bank, USA
6:15–6:45pm	**Creating a Sustainable Asia through Disaster Resilience and Green Growth** *Building disaster resilience and achieving green growth continue to challenge the region. ADB introduces two studies. "Investing in Resilience" recommends solutions for achieving disaster resilience and "Low-Carbon Green Growth in Asia: Policies and Practices" examines opportunities for countries to meet demands for low carbon development.* **Mr Haruhiko Kuroda**, President, Asian Development Bank, The Philippines **Dr Bindu N Lohani**, Vice President, Knowledge Management and Sustainable Development, Asian Development Bank, The Philippines
6:45–7:30 pm	**Reception and Launch of the 'Asia Leadership Programme on Sustainable Development & Climate Change'** **Venue**: Shahjahan
7:30 pm onwards	**Dinner of Hope** In support of TERI's commitment to lighting a billion lives. **Guests of Honour:** **Mr Digvijaya Singh**, Former Chief Minister of Madhya Pradesh & General Secretary, Congress (I), India **Ms Chandresh Kumari Katoch**, Hon'ble Minister of Culture, India Venue: Durbar

Day 2: February 1, 2013	
9:00–10:15 am	**Sustainability Challenges across Sectors** *Representatives from various sectors of industry and organizations will deliberate on the challenges faced in implementing sustainability measures as well as possible solutions to be adopted.* **Chair**: **Mr Roland Lance Ignon**, Co-Director, New York Office, Sitrick and Company, USA **Mr Finn Andersen**, Secretary General, Danish Cultural Institute, Denmark **Mr Glenn Schmidt**, Head of Steering Government Affairs, BMW AG, Germany **Mr Bittu Sahgal**, Editor, Sanctuary Asia and Sanctuary Cub Magazines, India **Mr Venkatesh Valluri**, Chairman & President, Ingersoll Rand, India **Mr Ali Tauqeer Sheikh**, Director Asia, Climate and Development Knowledge Network, Pakistan **Sir Jonathon Porritt**, Co-Founder, Forum for the Future, UK
10:15–11:15 am	**'In Conversation' with Mr Thomas L Friedman** **Chair**: **Mr Nitin Desai**, Distinguished Fellow, TERI & Former Under-Secretary General of the United Nations, India **Mr Thomas L Friedman**, Foreign Affairs Columnist, The New York Times, USA

11:30 am–1:00 pm	**Thematic Tracks**	**Venue**
	Making Individual Mobility Low Carbon and Sustainable	Shahjahan
	Thematic Consultation on Energy: Post-2015 Development Agenda and the Energy Future We Want for All (*By invitation only*)	Mumtaz
	Global Trends in Sustainable Production, Procurement, and Sourcing of Edible Oils	Jehangir
1:00–1:45 pm	**Lunch**	
1:45–3:00 pm	**Ministerial Session 2: Ensuring Energy, Water, and Food Security** *Ministers from around the globe will discuss the importance of good governance of rapidly depleting natural resources as well as best practices and policies for the future.* **Moderator**: **Mr Siddharth Varadarajan**, Editor, The Hindu, India **Lyonpo Dr Pema Gyamtsho**, Hon'ble Minister for Agriculture and Forests, Bhutan **The Hon'ble Marie-Hélène Aubert**, Adviser to the President of French Republic for International Negotiations on Climate and Environment, France **Dr Ryutaro Yatsu**, Hon'ble Vice-Minister for Global Environment Affairs, Ministry of the Environment, Japan **The Hon'ble Marcelo Ebrard Casaubón**, Former Mayor, Mexico City Government, Mexico **HE Mr Jean-Paul Adam**, Minister for Foreign Affairs, Seychelles **Ms Annika Markovic**, Environment Ambassador, Ministry of the Environment, Sweden	
3:00–4:15 pm	**Employment and Growth Benefits of a Green Economy** *There is now significant evidence of the complementarity of growth potential of green economic policies. Countries which have experience in this area can provide significant knowledge and information on the employment and growth benefits of a green economy.* **Moderator**: **Mr Mik Aidt**, Journalist, Danish Centre for Arts and Interculture, Denmark **Mr Martin Hiller,** Director General, Renewable Energy and Energy Efficiency Partnership (REEEP), Austria **Mr Dirk Fransaer,** Managing Director, VITO, Belgium **Ms Lise Grande**, UN Resident Coordinator & UNDP Resident Representative, India **Mr Heherson T Alvarez**, Commissioner, Climate Change Commission, Office of the President, The Philippines **Dr Bindu N Lohani**, Vice President, Knowledge Management and Sustainable Development, Asian Development Bank, The Philippines **HE Mr Nassir Abdulaziz Al-Nasser**, President of the 66th Session of the United Nations General Assembly and UN High Representative for the Alliance of Civilizations **Dr Richard L Sandor**, Chairman & CEO, Environmental Financial Products LLC, USA	
4:15–5: 45 pm	**Thematic Tracks**	**Venue**
	Low Carbon Sustainable Mobility for All	Mumtaz
	Mindset of Green Growth	Jehangir
	Governance and Management Challenges in Water-use Efficiency	Sheesh Mahal

5:55–6:00 pm	**Launch** *Reducing Inequalities: A Sustainable Development Challenge* A Planet for Life Series
6:00–6:45 pm	**Keynote Addresses** **Moderator**: **Mr Chetan Sharma**, Senior Journalist and Consultant, India **Title: Regional Climate Security** **Dr Larry Brilliant**, President & CEO, Skoll Global Threats Fund, USA **Title: A Global Framework for Sustainable Development** **Prof. Jeffrey D Sachs**, Director, Earth Institute & Special Advisor to the Secretary-General of the United Nations, USA
6:45–7:15 pm	**Danish Cultural Institute Award Ceremony** *Venue*: Durbar
7.15 pm onwards	**Reception hosted by the Danish Cultural Institute** *Venue*: Shahjahan

Day 3: February 2, 2013	
9:00–10:15 am	**Adapting to the Impacts of Climate Change and Mitigating Emissions of Greenhouse Gases and Associated Co-benefits** *The Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation brought out by the IPCC highlights the increase in frequency and intensity of extreme events in several parts of the world. This adds a new dimension to adaptation measures which would have to be undertaken to deal with the challenge of climate change. As yet funding for adaptation measures at the international level for the benefit, particularly of the least developed countries, is largely deficient. So also is adequate knowledge and experience with adaptation measures. Reduction of emissions of greenhouse gases carries a large number of co-benefits such as higher energy security, health benefits due to reduced air pollution and higher agricultural output. A recent ILO study has also focused on the employment benefits of a green economy.* *The session would focus on how the most vulnerable regions of the world can deal with the challenge of adapting to the impacts of climate change. The session would also develop a comprehensive rationale for measures by which these co-benefits can be fully realized while mitigating emissions of greenhouse gases.* **Moderator**: **Mr John Vidal**, Environment Editor, The Guardian, UK **Keynote Address**: **The Hon'ble Greg Selinger**, Premier of Manitoba, Canada **Dr Subho Banerjee**, Deputy Secretary , Adaptation, International & Regulatory Group, Department of Climate Change and Energy Efficiency, Australia **Dr Ugyen Tshewang**, Secretary, National Environment Commission, Bhutan **Dr Shuzo Nishioka**, Senior Research Advisor, IGES & Secretary-General, LoCARNet /LCS-RNet Secretariat, Japan **Dr Naoko Ishii**, CEO and Chairperson, Global Environment Facility, USA **Mr Carl Pope**, Senior Strategic Advisor, The Sierra Club, USA

10:15–10:30 am	**Tea**	
10:30–11:45 am	**Choices before the BRICS and a New Economic Construct** *Mahatma Gandhi rightly emphasized efficient use of resources, and he also stated that growth speed is irrelevant if we are going in the wrong direction. The BRICS nations are registering, in general, high rates of economic growth, which would increase their appetite for energy and other resources to fuel development and growth. This would not only lead to constraints in supply of these resources but also problems of pollution and ecological risks. How should the BRICS nations evolve a new paradigm of growth and development by which they can avoid the pitfalls that some developed countries have fallen into?* **Moderator**: **Ms Suhasini Haidar**, Senior Editor, CNN-IBN, India **Dr Anindya Chatterjee**, Regional Director, Asia, International Development Research Centre (IDRC), India **Dr Prodipto Ghosh**, Distinguished Fellow, TERI, India **Mr Peter Kenmore**, Representative in India, Food and Agriculture Organisation (FAO), India **Ms Amina Mohamed**, Deputy Executive Director, United Nations Environment Programme, Kenya **Mr Adam Koniuszewski**, Chief Operating Officer, Green Cross International, Switzerland **Mr Khalid Malik**, Director, Human Development Report Office, United Nations Development Programme, USA **Mr Walter Vergara**, Chief, Climate Change and Sustainability Division, Inter-American Development Bank, USA	
11:45 am–1:15 pm	**Thematic Tracks**	**Venue**
	Reducing Inequalities: A Sustainable Development Challenge	Mumtaz
	Improving Long-distance Passenger Transport Systems: Introducing High Speed Rail in India	Jehangir
	Learning from Green Growth Initiatives in Asia	Shahjahan
1:15–2:00 pm	**Lunch–hosted by the Ministry of Environment and Forests (MoEF), India**	
2:00– 3:15 pm	**Sustainable Development and a New Knowledge Economy** *The 21st century is projected as evolving into a knowledge society. Rapid developments in telecommunications and various applications of electronics as well as the development and use of new material and new sources of energy require unprecedented levels of energy and innovation. How can the world create knowledge and innovation to ensure efficient use of resources and a pattern of sustainable development for global society as a whole?* **Chair**: **Dr Leena Srivastava**, Vice-Chancellor, TERI University and Executive Director (Operations), TERI, India **HE Dasho Paljor Jigmie Dorji**, Special Advisor, National Environment Commission, Bhutan **Ms Helen Mountford**, Deputy Director, Environment Directorate, OECD, France **Prof. Hironori Hamanaka**, Chair of the Board of Directors, Institute for Global Environmental Strategies (IGES), Japan **Dr S Wasaka**, Executive Director, New Energy and Industrial Technology Development Organization (NEDO), Japan **Dr Lee Yee Cheong**, Chairman, UNESCO International Science, Technology and Innovation Centre, Malaysia **Mr Brice Lalonde**, Executive Coordinator of United Nations Conference Rio+20, USA **Prof. Stephen Mulkey**, President, Unity College, USA	

3:15 –3:45 pm	**'In Conversation' with Nobel Laureate Prof. Carlo Rubbia** **Chair**: **Dr R K Pachauri**, Director-General, TERI, India **Prof. Carlo Rubbia,** Scientific Director, Institute for Advanced Sustainability Studies, Germany
3:45–4:45 pm	**Chalking the Resource-efficient Path for Africa** *Leaders from Africa will discuss the importance of resource-efficiency in the development path of the continent. It is imperative to adopt resource-efficiency in the present stages of development, in order to ensure a resource-secure future.* **Chair**: **Dr Ligia Noronha**, Executive Director (Research Coordination), TERI, India **Dr Pradeep Monga**, Director, Energy and Climate Change Branch, United Nations Industrial Development Organization (UNIDO), Austria **HE Prof. Daniel Samba Mukoko**, Vice Prime Minister & Minister of Budget, Democratic Republic of Congo **Mr Mahama Kappiah**, Executive Director, ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE), Cape Verde
4:45–5.30 pm	**Global Green Growth Institute (GGGI)–TERI Initiative for Green Growth and Development in India** *GGGI-TERI initiative is envisaged to be a trans-disciplinary research framework that will include three activity areas pertinent to sustainable development; these include an integrated systems modelling, rural development and green growth, and urban development and green growth. The initiative will examine issues at the national, sub-national, and local levels. The session will include the signing of an MoU between GGGI and TERI.* *Signing of the MoU between GGGI and TERI will take place in the presence of HE Mr Bharrat Jagdeo, Former President of Guyana and Mr Montek Singh Ahluwalia, Hon'ble Deputy Chairman, Planning Commission, Government of India.* **Guest of Honour**: **HE Mr Bharrat Jagdeo**, Former President of Guyana **Chair**: **Dr R K Pachauri**, Director-General, TERI, India **Mr Suresh Kumar**, Principal Secretary, Department of Science, Technology and Environment, Government of Punjab, India **Dr S S Negi**, Director, Department of Environment, Science and Technology, Government of Himachal Pradesh, India **Dr Bharathi S Sihag**, Principal Secretary, Forests, Environment and Scientific Technology, Government of Himachal Pradesh, India **Dr Karan Avtar Singh**, Principal Secretary, Department of Industries and Commerce, Government of Punjab, India **Dr Jason Eis**, Deputy Director–London Office, Global Green Growth Institute, UK

5.30 pm–6.05 pm	**Valedictory Session and Presentation of the First Georgescu-Roegen Awards** **Chair**: **Dr V Rajagopalan**, Secretary, Ministry of Environment and Forests, India **Special Address** **Mr Salman Khurshid**, Hon'ble Minister of External Affairs, India **Valedictory Address** **Mr Montek Singh Ahluwalia**, Hon'ble Deputy Chairman, Planning Commission, Government of India **Vote of Thanks** **Dr R K Pachauri**, Director-General, TERI, India

Inaugural Session

PRIME MINISTER'S ADDRESS

Dr Manmohan Singh
Hon'ble Prime Minister, India

I am very happy to be present here today in the midst of such a distinguished gathering on the occasion of the inaugural session of the Delhi Sustainable Development Summit 2013. I would particularly like to extend a very warm welcome to the numerous foreign dignitaries who have come to Delhi from all over the world to attend this event.

Since 2001, the Delhi Sustainable Development Summit has evolved into a unique gathering in the global sustainable development calendar, attracting and providing a platform for some of the best minds and leaders from all over the world who have an abiding concern for protecting the fragile ecosystems of our planet. I congratulate The Energy and Resources Institute and Dr Pachauri for this initiative and for their unstinted commitment to sustainable development.

The world community met in Rio last year on the occasion of the 20th anniversary of the path-breaking Rio Summit of 1992. Rio+20 was a poignant reminder that the ambitious goals that we had set for ourselves at the Rio Earth Summit in 1992 remain far from being realized. It also served to remind us that a meaningful consensus on environmental and ecological issues is perhaps harder to achieve today than it was some 20 years ago.

But, it is not as if we have achieved nothing during this period. We have witnessed an extraordinary and welcome growth of environmental consciousness in the world and we can take great satisfaction from the fact that sustainable development today is an accepted and integral part of international discourse. The global environmental agenda and the global development agenda are now closely inter-linked, with the economic, environmental, and social pillars of sustainable development providing a sound framework. The Rio principles of 1992 are still seen as relevant and fundamental, and were reaffirmed at Rio+20.

We, in our India, take due satisfaction in this development. Some 40 years ago, Prime Minister Indira Gandhi was one of the few leaders of the developing world to be present at the Stockholm Conference. Even then, she had made our commitment to environmental protection clear. But she had also pointed out that our challenge was ensuring development for all. It is a matter of some satisfaction to us that recent discourse has seen an implicit understanding that unless we find pathways for development that address the concerns of all, rather than the interests of a select few, our objective of global sustainable development will remain elusive.

In this context, the theme of this year's sustainable Summit, "The Global Challenge of Resource-efficient Growth and Development", has a particular resonance. Humanity has traditionally put its faith in advances of technology to resolve problems of resource scarcity. However, there is now a growing realization that there may be no easy alternatives for some resources, particularly environmental resources. Resource efficiency is, thus, a necessary condition for sustainable development, and a key element of the economic pillar of sustainability.

In addition, there are genuine concerns that in an unequal world, scarcity of resources would affect the poor more adversely, and key resources may become accessible only to a small section of people on this planet, leading to the exclusion of a large number of people who live in poverty and persistent deprivation. Resource efficiency is, thus, a critical element of inclusive growth and development agenda. The challenge is to build resilient and efficient economies, which will eradicate poverty and also ensure that the poor, already living on the

margins of survival, are not made even more vulnerable. As a corollary, we should enhance efforts to develop technologies that ensure efficiency gains, which allow for more equitable distribution and use of these available resources. A global growth model, which is both inclusive and sustainable, would also assist developing countries to pursue their national development objectives.

Climate change has become the face of many challenges in our pursuit of sustainable development. This problem can only be tackled through coordinated global action. It is, therefore, crucial to look at sustainable development from a global rather than a purely national perspective. Nevertheless, given the varying levels of development across the world, it is important that our responses be predicated on the principle of equity and common but differentiated responsibilities. I am happy that the recent Doha climate conference reaffirmed these principles. They should form the bedrock of future arrangements post-2020 and we should ensure that the development aspirations and poverty reduction efforts of the developing countries are not constrained.

The adoption of a second commitment period till 2020 under the Kyoto Protocol for emissions reduction by the industrialized world is also a welcome development. But, real progress cannot be achieved if developed countries are not willing to enhance their ambition levels.

For its part, our country is committed to meeting its domestic mitigation goal of reducing the emissions intensity of our GDP by 20–25 per cent by year 2020 compared with 2005 levels. We have already taken several major steps on the path of low carbon growth. Now is the time for the richer industrialized countries to show that they too are willing to move decisively along this path. If they fail to do that in the commitments they will make under the Kyoto Protocol and other agreements, then it will be difficult to persuade governments, industry, and the general public in India and other developing countries to step up the pace at which they are moving on this path.

When we talk about efficient use of resources, we have to also focus on many other areas which are crucial in ensuring the sustainability of the earth's ecosystems. Biological diversity is an important environmental resource for developing countries, which touches the lives of common people. We have to ensure that this is preserved and used carefully, gainfully, and sustainably. Last year, India hosted the 11th Conference of Parties to the UN Convention on Biodiversity in Hyderabad. An important outcome was the recognition of biodiversity as a driver of sustainable development and environmental protection and an agreement to create institutional mechanisms that would facilitate financial and technological flows to developing countries for protecting biodiversity. We hope that the decisions taken will be fully implemented.

We in India are fully conscious of the need to conserve our resources through their utilization in a truly sustainable manner. We believe that efficient use of resources has to begin with ensuring the efficiency of use of human resources, and this requires building skills, capabilities, and systems by which countries can ensure higher efficiency in every human endeavour. In Hyderabad last year, I announced an allocation of $50 million as part of the Hyderabad pledge to strengthen the institutional mechanisms for biodiversity conservation in India.

> *We have witnessed an extraordinary and welcome growth of environmental consciousness in the world and we can take great satisfaction from the fact that sustainable development today is an accepted and integral part of international discourse*

In the field of climate change, our National Action Plan on Climate Change is now an important part of our development strategy, both nationally and at the level of states. One of its eight missions mandates the establishment of 20,000 MW of power generating potential using solar energy within the next 10 years. I also recall launching from this very platform in 2008 TERI's programme on 'Lighting a Billion Lives'. I am informed that this programme has now benefitted around 2,000 villages in the country where families and households are using lanterns charged by solar energy to provide them with clean, reliable, and pollution-free lighting. This programme has also been extended to countries in Africa and other parts of Asia. The involvement of the private sector has helped in expanding this approach through market-based dissemination of solar lanterns and other forms of decentralized lighting systems based on photovoltaic technology. We invite our international partners to work with us to exploit the tremendous potential of renewable energy technologies in our country.

One resource of particular concern to us in India and in many other developing countries is that of fresh water. The depletion of groundwater has already become a major problem in many districts in our country. Meeting the rising urban demand for fresh water implies rising costs as supplies have to come from great and greater distances. Projections of water demand and availability give an alarming picture of rising scarcities. We need, therefore, to focus attention on water conservation and water efficiency with the sort of zeal that today drives energy conservation and efficiency in the use of energy.

I would also like to mention that protection of the environment and promoting development need not amount to a zero sum game. What is required is regulatory regimes that are transparent, accountable, and subject to oversight and monitoring. Indeed, regulatory regimes are often the basic necessary condition to ensure that environmental and economic objectives are pursued in tandem.

Our experience has shown that success in sustainable development efforts is also dependent on the degree of use of innovative mechanisms. Adequate attention should, therefore, be given to the importance and economic value of ecosystem services in development strategies and policies, particularly while addressing the needs of the vulnerable and poor and marginalized communities. Concepts like Green National Accounting are useful tools that could help us ensure that goods and services are produced with minimal ecological and social impact.

Growing populations, changing consumption patterns, and the consequent pressure on precious natural resources are real challenges that we face in our pursuit of economic growth and the amelioration of poverty. The present global inequities built into the global economic order are patently unsustainable. At the same time, we also have to share the ecological and economic space of only one earth. This, in turn, will demand reengineering our economies in ways that are both frugal and innovative in their use of scarce resources. This is where we must look for solutions in the future. India looks forward to working closely with the global community in this endeavour. With these words, I wish the Summit all success in its deliberations and I look forward to specific recommendations for pursuing a resource-efficient and sustainable development strategy.

Welcome Addresses

Mr Arcot Ramachandran
Chairman, TERI

Mr Ramachandran welcomed the distinguished leaders and the Honourable Prime Minister to this year's Summit, acknowledging the encouragement and inspiration that has been accorded to the Summit, and to the ideas that TERI stands for.

Mr Ramachandran highlighted the importance of the Summit and its evolution as a major global event on issues of crucial importance to humanity. Elucidating on the theme for the Summit, he spoke of the economic, technological, social, and political challenges that need to be defined and towards whose alleviation a framework needs to be conceptualized. Mr Ramachandran asserted his belief that a resource-intensive path of development is not sustainable for human society as a whole, and spoke of the urgent need to curtail consumption and change production patterns to something that is more economically and ecologically tenable in the long term. Speaking of the benefits of such a development paradigm, Mr Ramachandran described how a highly resource-efficient society would help reduce income inequalities, stop environmental degradation, and associated problems such as climate change, and expressed hope that a coordinated approach involving governments, businesses, civil society, and the academia will be able to elicit such an impact. He encouraged businesses and civil society to focus on issues that will be relevant to human society five to ten years in the future, and of the importance of laying the foundation for the solutions of future problems in the present.

Dr R K Pachauri
Director-General, TERI

Dr R K Pachauri, Director-General of The Energy and Resources Institute, delivered the welcome address in the presence of the Honourable Prime Minister of India, Dr Manmohan Singh; His Excellency Dr Donald Ramotar, President of Guyana; His Excellency Mr Anote Tong, Present of Kiribati; Honourable Minister for New and Renewable Energy, Dr Farooq Abdullah; and Honourable Minster of State (Independent Charge) for Environment and Forests, Ms Jayanthi Natarajan; among other dignitaries and stalwarts of industry.

Introducing the theme of the Delhi Sustainable Development Summit (DSDS) 2013, the Global Challenge of Resource-efficient Growth and Development, Dr Pachauri mentioned that the current path of resource-intensive growth being followed and adopted by countries throughout the world is not sustainable.

Dr Pachauri described the history of academic and policy initiatives into studying resource shortages, beginning with the Club of Rome's landmark 1970 publication, *The Limits to Growth*. The book was subject to considerable dispute, but served its purpose of sharing global concerns about the finiteness of key resources, and the fact that their depletion could act as a constraint on future growth. Dr Pachauri described the first major event that highlighted the acute global shortage of critical resources, the 1973 oil crisis. A significant consequence of this was a shift towards more efficient industrial processes in Japan and parts of Europe. Moving on to the next decade, Dr Pachauri described how sudden increases in crude oil supplies and reductions in demand resulted in the 1980s oil glut, where oil prices crashed during the mid-1980s in a trend that continued for the entire decade.

Dr Pachauri explained that resource depletion is not limited to energy resources alone. Sharing the findings of a recent UNIDO-commissioned study that looked at the extraction of natural resources in 19 Asian countries, Dr Pachauri described how the amount of natural resources being extracted in these 19 countries has doubled in the last 25 years, especially those resources that play a key role in the construction industry. He advocated that nations conduct detailed analyses of how growing resource scarcities could prove to be the source of stress and conflict in the future. Dr Pachauri touched upon another crucial factor in resource extraction, the impact on the environment, from cutting down trees to high carbon emissions during industrial processes. He explained that extracting resources in ecologically fragile areas do not merely negatively affect the local ecosystem; they can have the livelihoods of the nation's poorest in a terrible way. It was for these reasons, Dr Pachauri felt, that this year's theme was particularly prescient.

Dr Pachauri then welcomed the leaders from all sections of society who had come from around the world and invited them to focus on the challenges of resource scarcity and help arrive at a solution. He laid emphasis on the participation of leaders from small island states and Africa, whose views and concerns are of great value. Dr Pachauri highlighted the work being done by TERI in building models and implementing solutions that would ensure efficient resource use in India and across the world.

Dr Pachauri highlighted some of the activities TERI has been involved in recently, such as developing renewable energy base solutions particularly for rural applications like the Lighting a Billion Lives (LaBL) campaign, developing a two-stage biomass gasifier for decentralized electricity generation, and an ongoing project to develop a renewable energy based solar cooling system, which potentially transform the rural landscape in developing countries. He further elucidated on TERI's biotechnology programmes, which have developed mycorrhiza-based solutions that substitute chemical fertilizers with bio fertilizers, and bio pesticides called BIALKIOL that work as effective substitutes for chemical pesticides.

TERI's activities in the construction sector were highlighted next; Dr Pachauri described the GRIHA Rating System—developed in conjunction with the Ministry for New and Renewable Energy (MNRE) and Dr Farooq Abdullah—for sustainable buildings, and stated that all structures constructed for use by TERI showcase the latest in resource-efficient sustainable architecture. Dr Pachauri invited the Honourable Prime Minister to visit TERI's offgrid renewable energy based retreat complex in Gurgaon or the TERI University complex in Vasant Kunj, New Delhi, that displays model resource-efficient practices. Dr Pachauri stressed the need for policy interventions to help foster resource-efficient buildings throughout the country in the forthcoming decades.

In conclusion, it was announced that DSDS 2014 would be held on 6–8 February 2014, with the theme 'Attaining Water, Energy, and Food Security for All' and that the next year's Summit would be larger and organized over expanded facilities, given the growing demand for participation from around the world.

Sustainable Development Leadership Award

TERI is proud to honour His Excellency Mr James Alix Michel, President of the Republic of Seychelles, with the Sustainable Development Leadership Award 2013, in recognition of his outstanding contributions towards sustainable development in Seychelles and placing the issues of Small Island States on the global agenda. TERI commends President Michel for his visionary and strong leadership in the implementation of sustainable environmental, economic, and social programmes during challenging times, and acknowledges the exemplary standards that this sets for everyone else in the global community.

President Michel co-chairs the Global Island Partnership (GLISPA), which brings together world leaders to promote action on the conservation and sustainability of islands. Under his leadership, GLISPA has mobilized political support for the blue economy and marine protected areas within island regions of the world. Sustainable development that reduces the vulnerability of Small Island States to climate change, food, and energy crises remains at the forefront of President Michel's agenda. His exemplary leadership appeals to the conscience of world leaders for the future of humanity.

The Award was accepted by HE Mr Jean-Paul Adam, Minister of Foreign Affairs, Seychelles, on behalf of the President.

Leadership Panels

Leadership Panel 1: Defining the Future We Want

Chair: **Ambassador C Dasgupta**
Distinguished Fellow, TERI, India

Setting the Theme

Dr R K Pachauri
Director-General, TERI, India

Panelists

HE Mr Donald Ramotar
President of Guyana

HE Mr Anote Tong
President of Kiribati

HE Mr James Alix Michel
President of Seychelles (video message)

> *Sustainable development requires the redressal of social and economic inequalities. Social issues are as much at the heart of sustainability as ecological issues.*
>
> HE Mr Donald Ramotar
> President of Guyana

In its 13th year, the Delhi Sustainable Development Summit (DSDS), organized by The Energy and Resources Institute (TERI), continued to bring together the best and brightest from across governments, the private sector, and non-governmental organizations to debate, discuss, and ultimately decipher the major issues of climate change, sustainability, resource efficiency, development, and green growth. Following the footsteps of the then-recently concluded United Nations Conference on Sustainable Development (UNCSD), also known as Rio+20, the DSDS 2013 began with a panel discussion on how people from across the world, hailing from diverse economic, cultural, and social backgrounds can arrive on a consensus on the kind of pan-global vision for a future to aim towards, as the target for green growth and sustainability. Later, discussions during DSDS 2013 delved into the specifics of achieving that vision, but one needed truly visionary leadership to define the target beforehand.

The first leadership panel consisted of world leaders whose nations are on the forefront of the fight against climate change and are vanguards of the sustainable development movement. Director-General of TERI, Dr R K Pachauri, began the proceedings with a presentation whose core message was that knowledge and information should be the drivers of action. Referring to *The Future We Want* outcome document from Rio+20, Dr Pachauri stated that post the near unanimous acknowledgement of the fact that a green economy, imbibed with the core principles of sustainable development and poverty eradication, would lead to environmental sustainability and better management of resources, a coordinated approach between nations of diverse backgrounds, experiences, and economic capabilities would be needed to achieve the future envisioned by so many. He further summarized the findings from a study conducted by the United Nations Industrial Development Organization (UNIDO), which found that material consumption is also correlated to increasing carbon emissions, implying that achieving the future we want would require a substantial altering in current lifestyles and models of development. Towards the end, Dr Pachauri highlighted the work done by an initiative between TERI and China's National Centre for Climate Change Strategy and International Cooperation (NCSC) that aims to introduce low-carbon development in emerging economies.

The President of Guyana, HE Mr Donald Ramotar, reaffirmed the policy of his predecessors, stating that climate change was the most challenging issue being faced by numerous nations at the current date and is bound to play a significant role in defining the future we want. His Excellency brought attention to Guyana's acclaimed Low Carbon Development Strategy, which places strong emphasis on saving Guyana's natural resources, especially its ecological resources in the form of its lush tropical rainforests. The President highlighted a very important point in the discussion, stating that sustainable development requires the redressal of social and economic inequalities, elucidating that social issues are as much at the heart of sustainability as ecological issues.

President of Kiribati, HE Mr Anote Tong, reiterated that cooperation and building a global community is essential to addressing issues such as climate change, resource inefficiency, and sustainability, which are by their very nature trans-national in their scope and effect. Talking about the agendas of the numerous world leaders and international delegations present at DSDS 2013, President Tong stated that individual and national priorities should not be their sole focus, rather, the only way to address global challenges is to resolve them together as a global community. President Tong further highlighted Kiribati's commitment to ecological ocean conservation through the initiative of a 400 sq. km marine zone, dedicated for ocean conservation, which is also a UNESCO World Heritage Site. The President of Seychelles, HE Mr James Alex Michel, was unable to attend this year's Summit and sent his regards through a video message, in which he highlighted the work being done in Seychelles for environmental conservation and acknowledged India's contributions in the Convention on Biological Diversity.

Leadership Panel 2: Defining the Future We Want

Chair: **Ambassador C Dasgupta**
Distinguished Fellow, TERI, India

HE Ms Tarja Halonen
Former President of Finland

HE Mr Bharrat Jagdeo
Former President of Guyana

The Hon'ble Jean Charest
Former Premier of Quebec

The Rt. Hon'ble Lord John Prescott
Former Deputy Prime Minister and
Member of Parliament, House of Lords, UK

The Hon'ble Charles Crist
Former Governor of Florida, USA

> *The MDG programme may be criticized by some but it is a very substantial step forward for social justice at a global level*
>
> HE Ms Tarja Halonen
> Former President of Finland

HE Ms Tarja Halonen described her roles at the forefront of numerous global conferences and summits on climate change and resource allocation over the last two decades. She described how the wording in some of the reports that emerged from these global summits was very soft and spoke on the tyranny of the GDP in such discussions. She mentioned how ideas such as inclusive social justice are sacrificed in favour of GDP. She advocated new indicators because gross GDP is not the same as well-being. She expressed that nations should aim to balance three modern indicators — economy, ecology, and social justice.

Speaking of the United Nations Millennium Development Goals (MDGs), Ms Halonen spoke of the atmosphere of strong commitment and sense of new beginnings at the UN Millennium Summit in 2000. She noted that while the MDGs programme may be criticized by some, it is a very substantial step forward for social justice at a global level. Ms Halonen added that the MDGs programme does not end in 2015, rather work on some of the goals, such as exterminating extreme poverty, will continue well into the future. She described the work being done by world leaders for a framework to solving these problems post-2015. Ms Halonen also touched upon the Sustainable Development Goals (SDGs) devised at the Rio+20 Summit. She spoke of the importance of ecological conservation and stressed that it must be undertaken on a massive scale.

Ms Halonen identified a theme that has been underutilized and underestimated in global summits recently, namely that of human capital. She spoke of three particular demographics of human capital on whom the focus should be; the poor, who are misunderstood, underestimated, and whose input is necessary if we are to eliminate global poverty; young people, who might have had access to the best educational resources that a country has to offer but who need to be inspired and integrated into the problem-solving matrix; and finally, women, who constitute half the global population and whose capacity is yet to be tapped effectively in many parts of the world.

HE Mr Bharrat Jagdeo spoke of the comprehensive nature of the Rio+20 Summit report, and how the biggest challenge, as outlined in that document, is that of getting environmental externalities factored into calculations of poverty, well-being, and GDP. He spoke of how even if economists were to devise complex calculations for inculcating environmental factors into these indicators, it would still not directly affect the common person. He stressed on the need for solutions that would keep the world growing while helping people find jobs and helping protect the environment and ecology.

Mr Jagdeo expressed happiness at the US President Barack Obama's re-election, and specifically his appointment of John Kerry as Secretary of State, which Mr Jagdeo held as a portent of changes in US governmental policy. He thanked the President and the Secretary of State for focusing on the issue and asked them to lend their support in this global fight. Mr Jagdeo stressed on the importance of creating a framework and targets, and building an efficient organizational structure. Expressing his views on ecological conservation, Mr Jagdeo advocated the construction of a 15-km wide, 1,000-km long green belt in Central Africa to stop the advance of the Sahara Desert. He also advised that climate change mitigation and adaptation strategies should use locally sourced sustainable resources, giving the example of using mangroves to build sea defences to stop seawater rise in his nation of Guyana. A recurring theme during his speech was the idea of creating a centralized global body that would guide nations on the path to sustainable development by creating global sustainable standards for various industries; for example, automobiles and cell phones. He concluded that a single knowledge portal for all sustainable development information would be a more efficient use of a resource.

The Hon'ble Charles Crist highlighted the disparity between India and Canada, the total population of the latter (34 million) is within the margin of error of the former (India, 2nd in the world at 1.3 billion). However, he pointed out ways in which Canada is experiencing the impact of climate change more rapidly than most other nations, giving the example of new maritime routes connecting Russia and Canada in the Arctic due to the melting of polar ice. Mr Charest was serving as the Canadian Minister

for the Environment during the United Nations Conference on Environment and Development at Rio in 1992, and offered insights into the differences between the Rio and Rio+20 conferences. Mr Charest noted that there was a lot of optimism going into the Summit in 1992, whereas the Rio+20 Summit in 2012 happened at a very bad time geopolitically, coming on the heels of a major financial and economic crisis in recent history. He added that since many major players, such as the US, Russia, France, and China were in the midst of a political transition, the conference was complicated further. He spoke of how the Rio+20 document highlighted an important global problem in poverty and went on to describe how 1 person out of 5 on Earth is in extreme poverty, 1 out of 14 is undernourished, and 7 out of 14 are over-nourished. He addressed the objectives of green growth as defined at Rio+20, the need for developing countries to merge growth and social justice, and the important role of empowering women in ensuring green growth and alleviating families from poverty.

Mr Charest addressed the institutional framework and the impact this had on his governments, and other local, regional, sub-national states. Looking at the positives, Mr Charest noted that it was regional governments, cities, and states, who carried out the implementation of the declaration. Mr Charest pointed out that most change and accomplishments occur at a sub-regional level, and most decisions and laws that impact the environment are enacted by regional governments as opposed to national governments.

> *"The need for developing countries to merge growth and social justice, and the important role of empowering women in ensuring green growth and alleviating families in poverty must be highlighted"*
>
> The Hon'ble Jean Charest
> Former Premier of Quebec

Ministerial Sessions













Ministerial Session 1: Ensuring Energy, Water, and Food Security

Chair: Mr Nitin Desai

Distinguished Fellow,
TERI and Former Under-Secretary General of the United Nations, India

HE Dr Mariyam Shakeela
Minister of Environment and Energy, Maldives

Mr Arvinn Eikeland Gadgil
Hon'ble Deputy Minister for International Development, Norway

HE Mr Marcin Korolec
Minister of the Environment, Poland

The Hon'ble Jean-François Lisée
Minister of International Relations, La Francophonie and External Trade, Québec

HE Dr Sultan Ahmed Al Jaber
Assistant Minister of Foreign Affairs and Special Envoy for Energy and Climate Change, Ministry of Foreign Affairs, UAE

Concluding Remarks

Dr Robert D Hormats
Under Secretary, Economic Growth, Energy and Environment, US Department of State, USA

Mr Nitin Desai introduced the theme for the session, 'Energy, Water, and Food Security', and highlighted its central role in sustainable development. He highlighted that energy and water are essential basic resources and regulating and maintaining them require a host of other administrative capabilities such as land management and biotic resource management, including human settlement management. He stated that in this sense, they are strategic resources. He pointed out the essentiality of food security, that is before providing a nation with other resources, it is critical to ensure that they are fed. He, thus, highlighted that food security is central to the goal of sustainable development and is intimately connected with water, energy, and the ecology.

HE Dr Mariyam Shakeela highlighted the numerous problems being faced around the world by nations because of climate change and sustainable development, giving special reference to her island archipelago of the Maldives in the Indian Ocean, which is at the frontlines of the battle against climate change, facing imminent disaster from rising sea levels. She elaborated that the time for scepticism and indecision has passed, and said that the changes being witnessed had neither been foreseen nor anticipated by our ancestors. She addressed the issue of depleting global resources, and food, water, and energy security and their role in local, national, and global stability. She advocated for the provision of affordable food and inexpensive water and decreasing dependence on unsustainable fossil fuels based energy, believing that it would instigate large-scale environmental and social change. She stated that believing that a strong economy or geography and terrain will leave a nation immune to the effects of climate change is a mistaken notion. She urged the people present to embrace the philosophy of common but differentiated responsibilities. She advocated cross-sectoral and cross-cultural partnerships among business leaders, policy-makers, legislators, and experts to drive integrated planning and policy interactions. Her Excellency added that enhanced resource efficiency could be effectively achieved through consumer education. She advised that every region has its own unique opportunities and challenges, and there can be no panacea to addressing these multiple and diverse challenges. She also highlighted that in a globally connected society, the impacts of climate change in one region will affect the security and prosperity of others around the world. She elucidated the issues faced by the Maldives because of climate change in the areas of food, water, and energy security. Her Excellency then outlined the plans being implemented towards making the Maldives a carbon neutral country by 2020, which includes initiatives to reduce the consumption of fossil fuels and to have the islands designated a UNESCO biosphere reserve within the next five years. She urged administrations and people who are sceptical of climate change to realize that the effects are already palpable, stating that the problem is universal and requires a collective effort to solve. She concluded her speech by thanking the delegates present and Dr Pachauri for creating this global platform for various stakeholders to interact and exchange ideas.

Mr Arvinn Eikeland Gadgil elucidated the idea of the difference between theory and practice, describing theory as when one understands everything but nothing works and practice as when everything works and nobody understands why. The status quo in the global climate agenda, Mr Gadgil stated is a combination of theory and practice, nothing works, and nobody understands why. He explained that the purpose of this Summit ought to be finding a link between theory and practice. He described the issue of energy deficiency for 400 million people in India and expressed optimism at the willingness of entrepreneurs and administrators to take on the challenge. He spoke of the need for good and fair governance, one that repairs the damaged trust between people that rises out of rising inequalities in a country. He spoke of bridging the gap between those who consume nature and those who tend to it, and added that fair governance would involve politicians who can plan for the long-term as opposed to thinking in election cycles. He described the work being done by the Norwegian government for helping developing nations manage their natural resources efficiently and in a way that prevents increasing inequality. Mr Gadgil further added that the

havoc wreaked by economic policies in the last two decades have necessitated further discussions about redistributing wealth, and ended by stating that fair governance is good governance.

HE Mr Marcin Korolec began by stating that the goal of a government is set not just to develop the economy, but also improve living standards. Increases in global population necessitate the creation of jobs. He added that a new paradigm of social and economic development would involve economic growth based on a value chain of real products and services. He also advocated the preservation and utilization of indigenous knowledge with the latest technology. Speaking of energy, Mr Korolec stated that Poland reduced their greenhouse gas emissions by 30 per cent using new efficiency-oriented systems. He urged all nations to take their responsibilities towards climate change seriously, stating that the Polish government is taking strides in reducing pollution and has implemented numerous programmes to help wastewater management and water management. Speaking of the UN Climate Summit to be held in Warsaw in 2014, Mr Korolec said that it was his ambition to make significant progress with a new global instrument to implement climate mitigation with legal force by 2020. He then added that access to technologies is necessary for ensuring the survival of 7 billion people. He concluded by describing the leadership required to actualize this vision.

The Hon'ble Jean-François Lisée focused his talk on energy and climate change, describing that many feel it is too late to prevent climate change and the discourse should be adaptation-oriented. Speaking of his experiences with Québec, he spoke of the bipartisan willingness present there, and described it as a green province in a brown country. He spoke of how provinces and states in the US and Canada have implemented climate change mitigation policies including lowering emission standards for cars and starting a cap-and-trade system in North America. He also advocated the electrification of transport systems, stating his objective of having 95 per cent of Quebec's public transit system electric by 2030 and a reduction in emissions by 25 per cent by 2020. He concluded by stating that even if it does not work, there is the satisfaction of having done everything we could have to mitigate it.

HE Dr Sultan Ahmed Al Jaber began by stating that the close relationship among water, energy, and food can no longer be underestimated. He advised addressing surges in these needs with increase in populations in the future. He said that while much is being spoken and written, there have been few comprehensive, holistic initiatives. Dr Al Jaber advocated treating water, food, and energy as one interconnected entity as a way to address the issue in a viable way. He said that maintaining the balance between expanding economies and limited resources is crucial to achieving sustainable growth. He said that by addressing these issues as a single one will help human development and improve resource security, which will ease geopolitical tensions, stating that disparate systems in the world are all linked and connected. He added that in order to achieve sustainable growth and balance between limited resources and economic growth will require enablers, such as a framework that builds relationships between the public and private sector, and investments to deliver such active and action-oriented solutions that can be applied on a massive scale. He said that while some might find the scale of the solution daunting, the UAE is viewing it as an opportunity to diversify their economy. He described initiatives by the Abu Dhabi government to address energy, water, and sustainability issues in January 2013 through which the government policy-makers, scientists, businesspersons, and financiers would address the challenges and provide action-oriented solutions. He also addressed the need for for-profit organizations to have strong CSR programmes, giving the examples of the UAE government's support of rural programmes in Tonga, the Seychelles, and Afghanistan and their efforts at addressing the problems of water desalination.

Describing how the Middle East accounts for 20 per cent of global oil supply and 50 per cent of the world's desalination capacity, Dr Jaber expressed that the UAE understands the crucial relationship between energy and water. He finally expressed the need to maintain frameworks that would incubate, support, and create the right environment and approach for innovation.

Dr Robert D Hormats acknowledged the complexity of the problems at hand and summarized them into three points, (i) urgency to act immediately in the fact of impending climate change, (ii) increasing creativity in policies and incentives, and (iii) acting locally and decisively. He elucidated that international economic policies have to focus and learn from one another, and focus on cities or provinces throughout a state rather than just the capital. Another area, Dr Hormats suggested deliberating on during the Summit was, infrastructure and transportation. In places such as China and India, there are many buildings that have not

> *Every region has its own unique opportunities and challenges, and there can be no panacea to addressing these multiple and diverse challenges. In a globally connected society, the impacts of climate change in one region will affect the security and prosperity of others around the world.*

HE Dr Mariyam Shakeela
Minister of Environment and Energy, Maldives

been built up to standard and have no environmental standards. Implementing better environmental standards today will make a big difference 20 or 30 years from now. Dr Hormats also raised the issue of resource efficiency in terms of labour productivity, in the triple bottom-line, and in other areas. Another area of improvement, particularly, is the brand image. While talking about the relationship between food, water, and energy Dr Hormats mentioned how the agriculture sector consumes over 70 per cent of the planet's extraction of fresh water—40 per cent of this is wasted and is not utilized at all. He then briefly touched upon the issue of post-harvest food losses, and advocated greater cold chain storage, efficient, and better infrastructure to help prevent this. He concluded by encouraging stakeholders to contribute to good environmental practices, companies can view the impact of their actions and realize that sustainable business is indeed good business.

> *In places such as China and India, there are many buildings that have not been built up to standard and have no environmental standards. Implementing better environmental standards today will make a big difference 20 or 30 years from now*

Dr Robert D Hormats
Under Secretary, Economic Growth, Energy and Environment, US Department of State, USA

Ministerial Session 2: Ensuring Energy, Water, and Food Security

Moderator: Mr Siddharth Varadarajan
Editor, The Hindu, India

Lyonpo Dr Pema Gyamtsho
Hon'ble Minister for Agriculture and Forests, Bhutan

The Hon'ble Marie-Hélène Aubert
Adviser to the President of French Republic for International Negotiations on Climate and Environment, France

Dr Ryutaro Yatsu
Hon'ble Vice-Minister for Global Environment Affairs, Ministry of the Environment, Japan

The Hon'ble Marcelo Ebrard Casaubón
Former Mayor, Mexico City Government, Mexico

HE Mr Jean-Paul Adam
Minister for Foreign Affairs, Seychelles

Ms Annika Markovic
Environment Ambassador
Ministry of the Environment, Sweden

Chaired by Mr Siddharth Varadarajan, Editor of one of India's most respected English-language newspapers and a leading expert on foreign policy and governance, the second ministerial session of the Delhi Sustainable Development Summit (DSDS) 2013 focused on the need to ensure global food, water, and energy security. The panel for this ministerial session consisted of prominent government representatives from nations that covered the global spectrum of socio-economic topographies, all of whom will need to find ways to adapt and grow in the face of climate change and ensure food, water, and energy security for their denizens. The panel set out to identify best practices that would help define the need for resource efficiency on a global dimension. The representatives of various nations brought insights and practices from their own various and unique governance experience to highlight ways in which energy, water, and food security can be achieved across the board.

Lyonpo Dr Pema Gyamtsho of Bhutan highlighted his country's success at providing 95 per cent clean water and 80 per cent clean electricity to its population and emphasized the need for a diversified energy portfolio. He suggested a mixture of coping mechanisms for water-saving measures, investment in water storage capabilities, mix of renewable technological options, and funding mechanisms to conserve and preserve forest areas as a means of climate protection and energy security.

The Hon'ble Marie-Helene Aubert highlighted the need to raise global awareness to follow a sustainable path and renew the green revolution initiative to help people in poor communities. She emphasized that lifestyle changes need to be more sustainable.

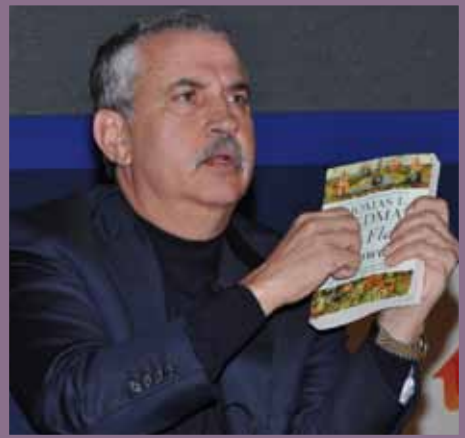
Dr Ryutaro Yatsu said that there is a need for a low-carbon leapfrog development pathway. Japan faced a severe energy crisis due to the recent Fukushima nuclear disaster, but since then has been trying to widen the scope of renewable energy options in the country through Nationally Appropriate Mitigation Action (NAMA) and Joint Crediting Mechanism (JCM). He focused on collaboration and partnerships between institutes, companies, and the academia as a way towards sustainable development.

The Hon'ble Marcelo Ebrard Casaubón proposed the need for globally effective action and focused on transfer of resources and technologies between cities as a measure to bridge the gap between developed and developing nations. Ms Annika Markovic focused on education, international cooperation, and political will to resolve issues related to resource security. She stressed on capacity building, integrating sustainability into small-and large-scale farming, and developing market-based mechanisms as key aspects.

HE Mr Jean-Paul Adam gave a small island perspective of climate change and spoke of the impact of action in these areas, highlighting the need for wider renewable energy options in small islands through knowledge sharing. He focused on the Blue Economy—protecting the oceans, which is otherwise a neglected resource.

> *Today, there is great need for a Small Island perspective in terms of climate change*
>
> HE Mr Jean-Paul Adam
> Minister for Foreign Affairs, Seychelles

Keynote Addresses and Conversations



Keynote Addresses

Moderator: **Mr Chetan Sharma**
Senior Journalist and Consultant, India

Regional Climate Security

Dr Larry Brilliant
President and CEO, Skoll Global Threats Fund, USA

A Global Framework for Sustainable Development

Prof. Jeffrey D Sachs
Director, Earth Institute, and Special Advisor to the Secretary-General of the United Nations, USA

"The need of the hour is for good global governance that can act against the challenges posed by these problems, and assist numerous organizations that are spending their time and resources on bringing about a safe resolution to these issues"

Dr Larry Brilliant
President and CEO,
Skoll Global Threats Fund, USA

Regional Climate Security

Dr Larry Brilliant
President & CEO, Skoll Global Threats Fund, USA

Dr Larry Brilliant shares an intimate relationship with India and to the cause of sustainable development in the nation. He first visited India 40 years ago, lived in various cities for over 10 years and is well versed in Indian culture; he is even a fluent Hindi speaker. In his third appearance at the Delhi Sustainable Development Summit (DSDS), Dr Brilliant chose to elucidate the issues that have the potential to cripple humanity, despite its impressive track record of achievements in the last century or so, such as climate change, water security, and pandemics. Dr Brilliant spoke of the need for good global governance that can act against the challenges posed by these problems, and of the numerous organizations that are spending their time and resources on bringing about a safe resolution to these issues, usually by communicating the importance of action to as large as an audience as possible. Another way Dr Brilliant spoke of assisting people who have been affected by issues caused by one or more of the factors mentioned was through social entrepreneurship.

Dr Brilliant illustrated his personal experiences of dealing with the effects of climate change in 1970, when he first came to India to help in operations during the aftermath of the Bhola Cyclone, a natural disaster that saw nearly half a million deaths and remains the deadliest tropical cyclone in recorded history. Dr Brilliant spoke of abandoning a rock-and-roll documentary he was working on, and going as fast as he could from Glastonbury to Bhola Island with goods and money he had collected for assisting in relief operations. Following his work at the Bhola Cyclone relief centres in India, Dr Brilliant set off for Nepal and spent the next 10 years living in the subcontinent. For Dr Brilliant, Bhola Island would always hold an important place in his life as it was the beginning of a series of catastrophic events around the world. Following the Bhola Cyclone relief operations, Dr Brilliant worked with the WHO on eradicating Small Pox across India. Dr Brilliant stated that the Small Pox eradication programme was a tribute to India's tenacity and ability to address the issue in the midst of so many other crises. Dr Brilliant encountered Bhola Island again while working on water conversation and climate change. He used the island as an example of larger issues that could affect the rest of the subcontinent and the rest of the world. Speaking of climate change induced sea-level rise and glacier melt, he said that the island's slow disappearance is a canary in the coalmine moment for the nations of the subcontinent. Highlighting the threats of global climate change in the region, Dr Brilliant reminded everyone present of the horrors visited upon Pakistan by the devastating floods of 2010, and elaborated that flooding Himalayan rivers combined with a sea-level rise of 20 metres is enough to completely submerge the nation of Bangladesh and the 150 million people who live there. Dr Brilliant pointed out the consequent problem of climate refugees, the conditions they may have to face, and how their migration into neighbouring India might have a substantial impact on the social and political structure in India.

Speaking on the need for effective governance at both the global and regional level, Dr Brilliant spoke of the need for cooperation and the importance of communicating the need for caution in dealing with the Earth to as many people as possible. Dr Brilliant concluded by strongly advocating people to work together and build a strong community that could be there to help in the event of future climate events and catastrophes.

A Global Framework for Sustainable Development

Prof. Jeffrey D Sachs
Director, Earth Institute, and Special Advisor to the Secretary-General of the United Nations, USA

Prof. Jeffrey D Sachs started the session with a comparison between a frog and the human race. Quoting studies, he said that a frog was likely to jump out of the water if heated fast enough. However, through gradual increase in the temperature of water, it was possible to kill the frog. His question then was — how fast will be the human race jump? This analogy formed the basis of his session. Using an example of the USA, he pointed to the weather extremities and natural disasters experienced in just the last year. However, the politicians have been slow to respond. He pointed out that the three landmark treaties addressing climate change, biodiversity, and desertification, while brilliantly crafted have failed in being implemented.

Highlighting the paradox of technological innovations, Prof. Sachs mentioned that the problem contains within itself the solutions to those problems. Risks are the counterparts of technological know-how. Using the example of Millennium Development Floods (MDGs), he emphasized on the need for clear plans of action and defined goals to address the problem of climate change with the active participation of civil society.

“The three landmark treaties addressing climate change, biodiversity, and desertification, while brilliantly crafted have failed in being implemented. The paradox of technological innovations is that the solutions are hidden with the problems themselves”

Prof. Jeffrey D Sachs
Director, Earth Institute, and Special Advisor to the Secretary-General of the United Nations, USA

In Conversation with

Chair: Mr Nitin Desai
Distinguished Fellow, TERI, and Former Under-Secretary General of the United Nations, India

Mr Thomas L Friedman
Foreign Affairs Columnist, The New York Times, USA

Mr Thomas L Friedman
Foreign Affairs Columnist, The New York Times, USA

Mr Thomas L Friedman spoke of the interconnectedness of commerce in the modern world as the current impact of globalization. Using the Greek crisis as an example, he highlighted the influence that seemingly unimportant events in faraway lands can have on us. He called this interdependence and stated that the world has gone from being connected to hyper-connected and from inter-connected to inter-dependent. He spoke of the evolution of the Indian middle class, and the changes he has seen in the middle class in India in the 20 years he has been visiting this country. He attributes these changes to education, and notes that a similar process is being followed in China. He mentions the disenchantment with politics of people in the middle class. He drew comparisons between some of the problems being faced by the United States and India, particularly in the area of political discourse, which has been hijacked by radical elements on both sides of the political spectrum. This has prevented any decision taking, as radicals do not have the incentives to work towards taking right decisions.

Mr Friedman described the two major forces that shape the world today are markets and multinational corporations. However, he describes the lack of empathy towards the natural world. Describing the subprime crisis that eventually snowballed into the recession, he displayed how we cared more about maintaining the equilibrium of the market than that of the planet. He described how various generations in American and world history had to fight for certain values and against possible futures. Noting that this generation has had recreational value as opposed to sustainable value, he advocated that people should bring sustainable value back into the planet. The consequences of not doing this can be worse than what would have happened had the USA lost the Cold War or the Second World War.

> *The Greek crisis can be taken as an example for understanding how seemingly unimportant events in faraway lands can have an affect on us*
>
> Mr Thomas L Friedman
> Foreign Affairs Columnist,
> The New York Times, USA

In Conversation with

Chair: Dr R K Pachauri
Director-General, TERI, India

Prof. Carlo Rubbia
Scientific Director, Institute for Advanced Sustainability Studies, Germany

Prof. Carlo Rubbia
Scientific Director, Institute for Advanced Sustainability Studies, Germany

After sharing the Nobel Prize in Physics in 1984 with Simon van der Meer for their work that led to the discovery of the W and Z Bosons, which are the carriers of one of the four fundamental forces of the universe (in their case, the Weak Nuclear Force), Prof. Carlo Rubbia turned his attention towards climate change and the challenge of sustainable development. In order to glean his invaluable thoughts on these and other topics, Prof. Rubbia was interviewed by Dr R K Pachauri during the Delhi Sustainable Development Summit 2013.

Dr R K Pachauri began by emphasizing the advantages of an interdisciplinary approach in the field of sustainable development. He highlighted that the results from an amalgamation of a number of disciplines would be better suited to effectively tackle problems being faced by the world, which tend to transcend boundaries. He pointed out that development organizations and government departments are today functioning in thought-based silos. Prof. Carlo Rubbia provided an insightful analysis of the options available to tackle a multiplicity of challenges that hinder the path of sustainable development. He mentioned a number of transformational technologies that can help nations and industries reduce their greenhouse gas emissions. Amongst the major options highlighted were techniques such as Carbon Capture and Sequestration (CSS), hydrogen-based fuels, and scaling-up the use of renewable energy resources.

Prof. Rubbia further highlighted cost, availability, and storage as key issues that need to be addressed for scaling-up the use of renewable energy resources. He stressed on the importance of finding immediate solutions to store various forms of energy, especially solar energy. He also advocated the introduction of coherent energy policies to reconcile the sustainability path. On being asked about the future of nuclear energy, he mentioned that nuclear energy based on uranium is not a long-term solution. We need to ensure the generation of nuclear energy through thorium as it leads to less waste and is more efficient. He concluded by highlighting the need to catalyse innovation in the area of science and technology to fuel resource-efficient growth and development.

> *....development organizations and government departments are today functioning in thought-based silos.*
>
> Prof. Carlo Rubbia
> Scientific Director,
> Institute for Advanced
> Sustainability Studies, Germany

Plenary Sessions

Plenary Sessions

Corporate Perspectives on Resource-efficient Growth and Development

As large multinational corporations grow to become larger than some nations, the resources they own and their judicious use of those resources have the potential to alter the pattern of development and growth for millions, even billions of people on the planet. The session on 'Corporate Perspectives on Resource-efficient Growth and Development' looked at ideas and viewpoints from people in diverse industrial sectors and explored the role that the private sector will play in the emerging years in ensuring resource-efficient growth and development. The session emphasized the importance of businesses adopting resource-efficient practices that would ultimately have a positive impact on the business' triple bottom-line and engender greater consumer loyalty as a consequence. A key refrain, oft repeated in the Summit in 2013 was a quote from Gandhi, who said that while the Earth has enough to provide for everyone's need, there is not enough for a single man's greed. This ideal was referenced by many of the speakers during the session as the categorical changes required to achieve sustainable growth were elaborated. The speakers agreed that the transition would involve a reduction in emissions, developing new microeconomic systems, and substantial knowledge and technology sharing. The role of businesses in leading this change was also touched upon as many speakers suggested that due to the ideological conflicts that have resulted in a lack of concentrated political will for green growth, it has become necessary for businesses to lead by example. The sustainable development movement will require contributions from the middle class, especially in developing economies such as India, who, as the biggest consumer of goods in an economy, need to be educated about the need for sustainable development and importance of reducing, reusing, and recycling products as much as possible. Instances were mentioned where the determination to make a positive impact resulted in corporate efforts that saw green growth. The speakers highlighted the fact that a transition towards green growth and development models makes business sense, as the economic benefits of such a transition are numerous. The opportunities in the renewable energy sector in a nation of 400 million people currently in energy poverty need not be highlighted. There was a consensus that the transition towards green growth will require inputs from all vertices of the golden triangle, governments, corporations, and consumers. Synergizing the common goals of these three disparate stakeholders is ultimately for the benefit of everyone. The role of businesses in this process would be invaluable. It was also highlighted that the measure of success in India business houses needs to be modified as the natural capital and social gains of a corporation should also be factored into the evaluation of its performance.

A key refrain, oft repeated in the Summit in 2013 was a quote from Gandhi, who said that while the Earth has enough to provide for everyone's need, there is not enough for a single man's greed

Moderator: **Ms Bahar Dutt**, Environment Editor, CNN-IBN, India

- **Mr Michael Christiansen**, Chairman of the Board, Danish Cultural Institute, Denmark
- **Mr Krishan Dhawan**, Chief Executive Officer, Shakti Sustainable Energy Foundation, India
- **Mr William Hammink**, Mission Director, USAID, India
- **Mr Zubin Irani**, Senior Managing Director–Commercial Companies, United Technologies Corporation, India
- **Mr Mahesh Makhija**, Director, Business Development (Renewables), CLP India Pvt. Limited, India
- **Mr Peter Bakker**, President, World Business Council for Sustainable Development, Switzerland
- **Prof. Godfrey Boyle**, Professor of Renewable Energy, The Open University, UK

Accelerating the Transition to a Sustainable Economy

The session on accelerating the transition to a sustainable economy emphasized the need for economic growth coupled with inclusive development. The keynote speakers spoke about their regions' perspective on sustainable development and highlighted some of the key challenges facing their respective.

Mr Haruhiko Kuroda highlighted the need for a transition to a more resource-efficient economy, which would not only improve the environment, but also lead to spillover effects in terms of job creation. He also highlighted the need to build institutional capacity.

Mr Donald Kaberuka, while lamenting over the fact that nothing has changed in the last 21 years since the Earth Summit in Rio, highlighted that Africa, with the lowest carbon emission as well as the lowest adaptive capacity, is the most vulnerable continent, especially with regard to issues relating to agriculture, land, and biodiversity. He proposed a structure, which focused on inclusion and resilience building to address some of Africa's challenges

Ms Mary Barton-Dock highlighted the need to create incentives and disincentives that lead to a change in the behaviour of both consumers and private companies to be able to transition towards a greener economy.

Mr Dipak Dasgupta spoke about the need to have a cross-purpose conversation between the concerns of developed and developing countries. He spoke about the need for collective public action to fund true public goods and governance that focused on reducing inequality.

Mr Rémi Genevey spoke about official development aid and explained how it has outlived its usefulness in the context of Millennium Development Goals (MDGs).

Prof. François Mancebo said that environmental and social objectives cannot be attained via the invisible hand of the market, and that instead they would require more polycentric approaches that include informal institutions.

Mr Seethapathy Chander highlighted the need for translating words into specific actions for addressing global challenges by channelizing resources towards renewable assets.

Chair: Mr Roland Lance Ignon, Co-Director, New York Office, Sitrick and Company, USA

Keynote Addresses

- **Mr Haruhiko Kuroda**, President, Asian Development Bank, The Philippines
- **Mr Donald Kaberuka**, President, African Development Bank, Tunisia

Panelists:

- **Mr Rémi Genevey,** Executive Director, Agence Francaise de Developpement (AFD), France
- **Prof. François Mancebo,** Full Professor (Planning & Sustainability), Rheims University and Head of the International Research Center on Sustainability (IRCS) of Rheims, Rheims University, France
- **Mr Dipak Dasgupta,** Principal Economic Adviser, Ministry of Finance, Government of India
- **Mr Seethapathy Chander,** Director General, Regional and Sustainable Development Department concurrently Chief Compliance Officer, Asian Development Bank, The Philippines
- **Ms Mary Barton-Dock,** Director, Climate Policy and Finance, The World Bank, USA

> *"There is need for a transition to a more resource-efficient economy, which would not only improve the environment, but also lead to spillover effects in terms of job creation"*
>
> Mr Haruhiko Kuroda
> President, Asian Development Bank,
> The Philippines

Creating a Sustainable Asia through Disaster Resilience and Green Growth

The session focused on the prospects for emerging Asian economies maintaining their current growth trajectories while simultaneously reducing their carbon emissions. The session stressed on the necessity for Asian economies to make the transition in the immediate rather than distant future cautioning that a delayed shift could exacerbate mitigation costs, making the process anywhere between two to five times as expensive.

Mr Haruhiko Kuroda discussed the necessity of multi-governmental, multi-sectoral, and multi-disciplinary collaborations as a pre-requisite for achieving a state of disaster-resistance at a national level. He further elaborated that many Asian economies are already adopting development models that utilize competitive green industries and green technologies, and that these development models and experiences have the potential to be replicated and adapted on a larger scale throughout the Asian region. Dr Bindu N Lohani explored whether measures to strengthen disaster reliance are actually being implemented. He highlighted the magnitude of the problem, stating that Asia recorded over 1.7 million hazard-related deaths between 1970 and 2010. With the widespread economic growth prevalent in the Asian region, disaster losses are rising more rapidly than the region is expanding economically. Factors such as the demographic pressures of urbanization, informal settlements, and climate change are additional forces that will continue to strain the region's limited resources and make disaster resilience difficult to attain. Dr Lohani added that pricing carbon is in itself an insufficient measure and it will not engender the flow of finance and technology across national borders within Asia. Asian economies must be willing to cooperate and align their goals in order to make low-carbon products and services cost-effective.

- **Mr Haruhiko Kuroda,** President, Asian Development Bank, The Philippines
- **Dr Bindu N Lohani,** Vice President, Knowledge Management and Sustainable Development, Asian Development Bank, The Philippines

"Pricing carbon is in itself an insufficient measure and it will not engender the flow of finance and technology across national borders within Asia"

Dr Bindu N Lohani
Vice President, Knowledge Management and Sustainable Development,
Asian Development Bank,
The Philippines

Sustainability Challenges across Sectors

The problem statement presented to the panelists was the question, are we, as consumers, fully aware of sustainability? The panelists attempted to address the question while also discussing challenges and opportunities from across the various sectors they represented, ranging from large multinational corporations to the media to governmental and intergovernmental organizations. The session chair, Mr Ronald Lance Ignon, responded that while large swathes of people are often reduced to the simplistic category of consumers, sustainability requires the adoption of a broader perspective. Mr Finn Andersen demonstrated the necessity of cross-cultural influences and collaboration in sustainable development. He presented Copenhagen as a case study and provided numerous examples of the measures being taken by the city as it aims to be the first carbon-neutral city in the world by 2025. Mr Bittu Sahgal spoke of inter-generational colonization, drawing parallels with the geographic colonization of India in the past, and the ill-effects of environmental damage and species loss. He emphasized the current lack of a mechanism to calculate ecosystem cost in the context of resource efficiency, intergenerational equity, and happiness, and urged immediate action. Mr Ali Tauqeer Sheikh spoke about the seven challenges of sustainability — carbon budget, physical impact, economic costs, time frames, more adaptation and less mitigation, and people and institutions. He stressed on the need for studies to be conducted across various industry sectors at national and sub-national levels.

Mr Glenn Schmidt focused on how sustainability could be looked at in terms of new revolutions with regard to technologies. He pointed out how from 1995 to 2012 BMW had been able to reduce its carbon output by over 30 per cent ensuring sustainable and low-carbon growth while still maintaining a high-standard of excellence and producing high-quality products. Mr Venkatesh Valluri elaborated on three general aspects of sustainability — the convergence of technology; innovation and industry; and collective ownership. He also emphasized on the need for businesses and organizations to perform by creating value by finding climate solutions that deliver. Sir Jonathon Porritt stated that governments play a critical role in enabling businesses and engaging people towards adopting undertakings that aim to increase sustainable development. He also stated that the sum effect of civil society and government is not sufficient and innovative measures need to be undertaken.

Chair: Mr Roland Lance Ignon, Co-Director, New York Office, Sitrick and Company, USA

- **Mr Finn Andersen,** Secretary General, Danish Cultural Institute, Denmark
- **Mr Glenn Schmidt,** Head of Steering Government Affairs, BMW AG, Germany
- **Mr Bittu Sahgal,** Editor, Sanctuary Asia and Sanctuary Cub Magazines, India
- **Mr Venkatesh Valluri,** Chairman & President, Ingersoll Rand, India
- **Mr Ali Tauqeer Sheikh,** Director Asia, Climate and Development Knowledge Network, Pakistan
- **Sir Jonathon Porritt,** Co-Founder, Forum for the Future, UK

> *Sustainability should be looked at in terms of new revolutions with regard to technology*

Mr Glenn Schmidt,
Head of Steering Government Affairs, BMW AG, Germany

Employment and Growth Benefits of Green Economy

One of the most odious myths promulgated about sustainability is that it would involve sacrificing economic growth for better overall lifestyles across the planet and that sustainable development would lead to the loss of hundreds, even thousands of jobs that are currently dependent on the existing global carbon-fuel based economy, particularly in a variety of industrial and manufacturing sectors. This, however, is not an entirely accurate picture of the projected changes in the global economy following the implementation of sustainable measures. A discussion about how the transition to a green economy would affect employment and economic growth was conducted at the Delhi Sustainable Development Summit (DSDS) 2013 featuring panelists that represented the spectrum of private, governmental, non-governmental, and bilateral and multi-lateral intergovernmental organizations. The panel discussed how to recognize and take advantage of business opportunities while tackling the challenges of climate change and achieving green growth.

Strategic initiatives in India that displayed the traits of green growth and development, such as improved social equity amongst people in rural India and greater job opportunities in industrial sectors that have a smaller carbon footprint, were highlighted. The importance of transparent and easily accessible data, specifically from governmental sources, was stressed upon, as were the benefits of such transparency and accessibility, viz., more comprehensive analysis of the energy sector with the possibility of path-breaking insights. The Open Government Partnership was highlighted as a project worth noting. Panelists elaborated that rapid transformations in the energy market will encourage new players to get involved and make a difference. There was unanimity in the panel that technology will play a crucial role in helping societies achieve green growth. It was also declared that greater opportunities lie in the realm of resource efficiency. The key challenge of the future, the panel noted, involves improving the energy efficiency of older industries and the creation of new jobs in sustainable industries. Towards this end, initiatives undertaken by the government of the Philippines to facilitate employment and the creation of a green economy were showcased, particularly in the context of climate-smart agriculture. One of the challenges to facilitate the shift to employment in a green economy is the skill gap that needs to be addressed via reforms in the education sector.

The session concluded with the panel agreeing that financing holds the key to green growth. They advocated a mix between optimism and realism while evaluating existing and future opportunities.

Moderator: Mr Mik Aidt, Journalist, Danish Centre for Arts and Interculture, Denmark

- **Mr Martin Hiller,** Director General, Renewable Energy and Energy Efficiency Partnership (REEEP), Austria
- **Mr Dirk Fransaer,** Managing Director, VITO, Belgium
- **Ms Lise Grande,** UN Resident Coordinator and UNDP Resident Representative, India
- **Mr Heherson T Alvarez,** Commissioner, Climate Change Commission, Office of the President, The Philippines
- **Dr Bindu N Lohani,** Vice President, Knowledge Management and Sustainable Development, Asian Development Bank, The Philippines
- **HE Mr Nassir Abdulaziz Al-Nasser,** President of the Sixty-Sixth Session of the United Nations General Assembly and UN High Representative for the Alliance of Civilizations
- **Dr Richard L Sandor,** Chairman and CEO, Environmental Financial Products LLC, USA

> *One of the challenges to facilitate the shift to employment in a green economy is the skill gap that needs to be addressed via reforms in the education sector*

Adapting to the Impacts of Climate Change and Mitigating Emissions of Greenhouse Gases and Associated Co-benefits

Forty-one years after the United Nations Conference on the Human Environment in Stockholm brought the issues of carbon emissions to the forefront of intergovernmental discussions, the question of mitigating harmful emissions and adapting to the changes in global climate that ensue from these emissions has been a vital discussion to ensure the health and well-being of the global human population. The panel at the DSDS 2013, which had the responsibility of debating the various nuances of climate change and finding ways to mitigate the effects of greenhouse gas emissions, consisted of eminent experts on climate change and sustainability from a wide cross-section of human society who bring with them a diverse set of personal and professional experiences on issues of climate change and sustainable development.

Mr John Vidal elaborated the fact that too much time has been wasted without making concrete progress towards addressing the issues of climate change. Consequently, the problem of climate change is no longer far ahead in the future, as people think; rather it is happening right now. He emphasized that adapting to the brave new world of a changing global climate is not the prerogative of developing countries alone; rather it is a responsibility that even rich countries must address. The Hon'ble Greg Selinger highlighted the need for adaptation approaches to be catered specifically to the region where they are to be adopted, and to build resilience among local communities. The role of environment education as a means to generate awareness among the young people of Manitoba was discussed and Mr Selinger highlighted the importance of involving the local community in sustainable practices by providing them with jobs in development projects.

Dr Subho Banerjee elucidated the importance of the right baseline where climate change is included in the baseline itself, highlighting the need for policy-makers and captains of industry to take the lead in mitigation and adaptation strategies. He also highlighted the necessity to map a new path that would integrate costs and benefits in both adaptation and mitigation measures. As the world's only climate sink, Bhutan plays an invaluable role in mitigating climate change and limiting carbon emissions. However, the future is fraught with peril for the land of the thunder dragon, as Dr Ugyen Tshewang pointed out when he highlighted Bhutan's particular vulnerability to climate change due to its dependence on glacier lake based hydropower and livelihoods based on agriculture. Dr Tshewang spoke about the policies and legislations being framed to protect the environment by Bhutan's new democratic parliament. He underlined his message, stating that all countries have to take a moral responsibility towards absorbing their own carbon emissions, rather than leaving it to someone else in a faraway land.

Dr Shuzo Nishioka described how three key development-related efforts — the introduction of the Tokyo Metro, clean engines, and rapid infrastructure investments — have had a substantial effect on the carbon emission levels in Japan. Dr Nishioka asked the panel to consider the idea of future compact cities with modern infrastructure and accessible public transport based on lower

> *"Adapting to the brave new world of a changing global climate is not the prerogative of developing countries alone; rather it's a responsibility that even rich countries must address."*
>
> Mr John Vidal
> Environment Editor,
> The Guardian, UK

Moderator: Mr John Vidal, Environment Editor, The Guardian, UK

Keynote Address: The Hon'ble Greg Selinger, Premier of Manitoba, Canada

- **Dr Subho Banerjee,** Deputy Secretary, Adaptation, International & Regulatory Group, Department of Climate Change and Energy Efficiency, Australia
- **Dr Ugyen Tshewang,** Secretary, National Environment Commission, Bhutan
- **Dr Shuzo Nishioka,** Senior Research Advisor, IGES & Secretary-General, LoCARNet /LCS-RNet Secretariat, Japan
- **Dr Naoko Ishii,** CEO & Chairperson, Global Environment Facility, USA
- **Mr Carl Pope,** Senior Strategic Advisor, The Sierra Club, USA

GHG emissions. Dr Naoko Ishii discussed the current status of information on adaptation, lessons learned, and the way forward. She pointed out the need for a systemic response to mainstream climate risks and adaptation and also stressed on the requirement of an ecosystem or community-based adaptation model. Mr Carl Pope stressed that humans need to use ecosystems to build resilience. He cited several examples of extreme climate conditions from around the world, and provided ecosystem-based mitigation measures to protect communities.

As various speakers expressed their opinions, which diverged in some areas and were unanimous in others, it was clear that the impacts of climate change and resource efficiency is not going to be limited to developing nations alone and as a consequence all nations, North and South, will have to face severe economic, social, and perhaps even political hardship as they try to stay abreast with these changes imposed on their economy and social order by climate change and resource efficiency.

Choices before the BRICS and a New Economic Construct

The citizens of the BRICS — Brazil, Russia, India, China, and South Africa — a collection of emerging economic superpowers, who thanks to their large populations and eagerness to prove themselves the equal to any of the developed nations, hold the future economic, social, and ecological well-being of the planet in their hands. As these diverse and disparate nations begin to enjoy their time in the limelight on the global geopolitical stage, they will be faced with difficult questions that will require them to take tough decisions in trying situations. During the Delhi Sustainable Development Summit 2013, representatives of numerous international organizations on climate change, finance, development, food security, and the environment discussed the various and uncertain paths that have been laid out before the BRICS and how their choices are going to have a pivotal impact on deciding the kind of world the 21st century is going to be. It is going to be necessary for humanity and for the global civilization that BRICS adopt the ideals of sustainable development and quickly develop renewable energy sources that will help cure the planet. It will also be vital for BRICS to find a model of development that is more socially inclusive while being less intrusive and harmful to the environment. While this may sound like an impossible series of tasks to thrust upon nations that are only slowly emerging from the shadows of oppression, poverty, isolation, or some combination of the three, these nations have chosen a critical time in the history of humanity to flower and reach for their full potential.

During the session, the speakers elaborated upon the crucial issues facing the BRICS as they stride into the 21st century. The persistent and ever-increasing economic divides and social inequalities prevalent in the BRICS is one of the biggest problems facing these nations and it is impossible to expect any of the BRICS nations to truly achieve global superpowerdom while large swathes of their population die of famine or thirst. The solution to this, the panel believed, was innovation; the innovative uses of energy, innovation in development to ensure sustained growth, and technological developments that alter patterns of production and consumption. It is critical for the differences in BRICS nations to be addressed as each of them pose a series of daunting challenges to the nation that will rest resolve. The BRICS, with their high levels of GDP and population growth, have a significant say in achieving a sustainable collective future. The emphasis was an the current levels of development are not at the scale that could reverse the environmental changes that have already occurred. There was unanimous agreement among panelists that the core of the solution to making these nations sustainable was a synthesis between solutions of environment and resource-related challenges. The distinguished speakers also drew clear parallels between environmental degradation and its impact on human societies either directly on those societies who depend on natural resources for their livelihood or through indirect means. There was a final consensus that intergenerational change at a fundamental, systemic level was essential to improve human society. In conclusion, the panel discussed the merits of the 'Three Zeros Strategy', i.e., zero deforestation, zero carbon power generation, and zero carbon transport system.

> *Intergenerational change at a fundamental, systemic level is essential to improve human society*

Moderator: Ms Suhasini Haidar, Senior Editor, CNN-IBN, India

- **Dr Anindya Chatterjee,** Regional Director, Asia, IDRC, India
- **Dr Prodipto Ghosh,** Distinguished Fellow, TERI, India
- **Mr Peter Kenmore,** Representative in India, FAO, India
- **Ms Amina Mohamed,** Deputy Executive Director, UNEP, Kenya
- **Mr Adam Koniuszewski,** Chief Operating Officer, Green Cross International, Switzerland
- **Mr Khalid Malik,** Director, Human Development Report Office, UNDP, USA
- **Mr Walter Vergara,** Chief, Climate Change and Sustainability Division, Inter-American Development Bank, USA

Sustainable Development and a New Knowledge Economy

Building a green economy through a sustainble process would require a substantial revision in the way the global economy works, along with significant alterations in the approaches and methodology implemented in development. The transition to this new knowledge economy would require considerable amount of inertia from public and private organizations. The role of sustainable development and how humanity can move to the next phase of civilization, a pan-Earth sustainable knowledge economy built using clean energy and the principles sustainable development was discussed by delegates who personified the wide spectrum of organizations and agencies present at the Delhi Sustainable Development Summit 2013. They will be the stakeholders of this new global knowledge economy. The session began with deliberations on how a new knowledge economy is essential for sustainable development, in the light of the numerous problems being faced by nations and individuals around the world at present and the problems that lie ahead in the short and long-term future. With crises on food, water, and energy security already cropping up around the world, it was critical for the vast repository of human learning and wisdom be applied to the issues of sustainable development. Before we can consider tackling these problems, there were some epistemological issues that required clarification, including the issue of the fragmentation, and even the potential balkanization of various kinds of learning, which makes the creation, dissemination, and application of multidisciplinary solutions and ideas difficult. This transformational change, the panel believed would have to be implemented by young people, using grassroot level movements in order to spread the ideals of sustainable development and attempt to actualize green growth.

Another issue discussed during the session was that of funding this transformational change. Members of the distinguished panel believed that by eliminating fuel subsidies, governments will be able to generate the kind of funds that are necessary to stimulate research in alternative fuels and other important aspects in sustainable development. The issue, the speakers elucidated, was not the development of new technologies, which was happening abundantly—and at a pace unlike anything ever seen at any point in human history—rather it was applying these technologies to solving the problems of climate change and resource security. One of the biggest benefits of a sustainable, green knowledge economy would be the further growth it would spur with large-scale private and public investments in technology and learning.

The easiest way to achieve this knowledge economy of course would be by combining the best skills available throughout the world in the form of collaborations. Collaborations and knowledge exchange is an essential part of the process of sustainable development as it would allow people from disparate corners to be able to gain the experiences and expertise of their fellows from all parts of the planet and will able to disseminate this knowledge and learning to governments, civil society organizations, and other stakeholders involved. A point raised during the session was that most innovations are spurred on my competition, rather than cooperation, a practice that the members of the panel believed

“One of the biggest benefits of a sustainable, green knowledge economy would be the further growth it would spur with large-scale private and public investments in technology and learning”

Chair: Dr Leena Srivastava, Vice-Chancellor, TERI University and Executive Director (Operations), TERI, India

- **HE Dasho Paljor Jigmie Dorji,** Special Advisor, National Environment Commission, Bhutan
- **Ms Helen Mountford,** Deputy Director and Environment Directorate, OECD, France
- **Prof. Hironori Hamanaka,** Chair of the Board of Directors, Institute for Global Environmental Strategies (IGES), Japan
- **Dr S Wasaka,** Executive Director, New Energy and Industrial Technology Development Organization (NEDO), Japan
- **Dr Lee Yee Cheong,** Chairman, UNESCO International Science, Technology and Innovation Centre, Malaysia
- **Mr Brice Lalonde,** Executive Coordinator, United Nations Conference Rio+20, USA
- **Prof. Stephen Mulkey,** President, Unity College, USA

was ultimately detrimental to the process of technological innovation. With greater cooperation in innovating technological solutions for adapting to climate change, resource shortages, and other global issues, the creation of a new green global knowledge economy will be considerably hastened. Transformational changes in knowledge also need to be applied epistemologically, as the acquiring and dissemination of multidisciplinary knowledge should be encouraged and channels for the dissemination of multidisciplinary knowledge need to be created, especially among academicians. In the pedagogical realm, it is important, the panel believed, for management training, verbal, and written communicative efficiency, and synergy building to be integrated into the education system. In order to bring about a change in the way people think, especially young people, the panel strongly believed that a paradigm shift in the way people perceive success and failure needs to occur and by changing the pedagogy of the education system, it will be possible to educate young people about the problems of consumption and over-consumption, and help inspire them to a path towards green growth.

Chalking the Resource-efficient Path for Africa

Home to some of the world's most economically backward countries that are also extremely prone to the impacts of climate change, it is crucial for Africa to forge a path towards climate change adaptability, resource-efficient growth, and sustainable development. The panel and audience for the session on chalking a resource-efficient path for Africa consisted of leading experts from non-governmental organizations, members of government from African nations, and members of global public policy think tanks. Dr Ligia Noronha began the session with a presentation on the current status of commodity extraction, resource potential, energy access, and climate change in Africa. The presentation highlighted key problems that continue to plague the continent, such as low per capita energy consumption, water scarcity, and deforestation. The issue of physical trade imbalances and the extremely low Human Development Index (HDI) rating of numerous nations were also discussed. Panelists were not only requested to focus their discussion on reducing dependency on natural resources for growth, rather they were asked to think of suitable ways that can increase productivity, and to find ways to effectively choose the right attributes for a resource-efficient path. Illegal exploitation of land and prominent use of biomass and charcoal as major sources of energy were other concerns raised during the discussion.

HE Prof. Daniel Samba Mukoko in his presentation mentioned that mining, forestry, and oil will be the main industrial sectors that will drive economic growth in the region in the coming years. He also highlighted the importance of focusing on reducing carbon emissions, improving the quality of urban transport without increasing carbon emissions drastically, improving waste management, and generally improving energy efficiency as the means to effect sustainable, regional development. Dr Pradeep Monga discussed the ever-increasing role of the United Nations Industrial Development Organisation (UNIDO) in Africa's development. Elucidating on UNIDO's role in the continent, Dr Monga focused on UNIDO's contributions in laying the foundations for green industry, providing energy access to the poor, helping develop indigenous carbon efficient technologies, and UNIDO's flagship programme for building local capacities and market transformation for promoting renewable energy. The target of UNIDO's efforts includes the preparation of Renewable Energy (RE) and Energy-Efficient (EE) programmes. The panelists concluded that though it may be early for Africa to think towards reducing resource consumption, it could still continue to work towards institutional capacity-building along with human capacity-building for the betterment of the continent.

> *"It may be early for Africa to think towards reducing resource consumption, it could still continue to work towards institutional capacity-building along with human capacity-building for the betterment of the continent"*

Chair: Dr Ligia Noronha, Executive Director (Research Coordination), TERI, India

- **Dr Pradeep Monga,** Director, Energy and Climate Change Branch, UNIDO, Austria
- **HE Prof. Daniel Samba Mukoko,** Vice Prime Minister and Minister of Budget, Democratic Republic of Congo
- **Mr Mahama Kappiah,** Executive Director, ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE), Cape Verde

Global Green Growth Institute (GGGI)–TERI Initiative for Green Growth and Development in India

Dr R K Pachauri opened the session by introducing the initiative for green growth and development in India between TERI and the Global Green Growth Institute (GGGI). Dr Pachauri described the steps that would be taken in order to achieve green growth in India, starting with a sector-level assessment across all states that would identify opportunities and eventually lead to a sustainable development pathway. A country like India needs to adapt to changing realities and move towards a resource-efficient pattern of development. The Guest of Honour, Mr Bharrat Jagdeo, member of the Governing Council of GGGI, appreciated the work being done by TERI at the forefront of developing paths for green growth in India. He mentioned the need for various green growth strategies to be tailored to local circumstances and consistent with knowledge of that region. Dr Jason Eis talked about the work done by the GGGI in developing strategies towards a green growth paradigm. According to him, the policy design for these strategies needs to be appropriated at the national, state, and local levels.

Mr Suresh Kumar spoke about the Memorandum of Understanding (MoU) that the Government of Punjab has signed with TERI. Dr Bharathi S Sihag mentioned the various steps that have been taken by the Government of Himachal Pradesh to facilitate green growth in the state. Dr Karan Avtar Singh emphasized microeconomic perspectives of investment policy in Punjab and elaborated that in order to facilitate green growth in the state the government is taking steps to increase the access to technology and markets for green growth. The session concluded with the signing of an MoU between TERI and GGGI in presence of Deputy Chairman of the Planning Commission, Mr Montek Singh Ahluwalia.

> *There is need for various Green Growth strategies to be tailored to local circumstances, which are consistent with knowledge of that region*
>
> HE Mr Bharrat Jagdeo
> Former President of Guyana

Guest of Honour: HE Mr Bharrat Jagdeo, Former President of Guyana

Chair: Dr R K Pachauri, Director-General, TERI, India

Panelists:

- **Mr Suresh Kumar,** Principal Secretary, Department of Science, Technology and Environment, Government of Punjab, India
- **Dr SS Negi,** Director, Department of Environment, Science and Technology, Government of Himachal Pradesh, India
- **Dr Bharathi S Sihag,** Principal Secretary, Forests, Environment and Scientific Technology, Government of Himachal Pradesh, India
- **Dr Karan Avtar Singh,** Principal Secretary, Department of Industries and Commerce, Government of Punjab, India
- **Dr Jason Eis,** Deputy Director–London Office, Global Green Growth Institute, UK

Thematic Tracks

Making Individual Mobility Low Carbon and Sustainable

In partnership with BMW

Dr R K Pachauri delivered the welcome address for this thematic track, where he broadly outlined the fact that the current transportation paradigm is both, highly polluting and responsible for significant amounts of greenhouse gas emissions that lead to climate change. Dr Pachauri advocated technologies that can alter individual mobility patterns to make them environmentally beneficial and sustainable. Mr MF Farooqui, Secretary, Ministry of Heavy Industries and Public Enterprises, spoke of how economic growth and an increase in the number of vehicles are closely interlinked, and outlined the challenges that this trend has posed historically around the world and will pose in the future in India. Stopping the economic growth of Indian citizens is not an option, thus Mr Farooqui presented a four-pronged approach that involved improvements in urban planning, infrastructure, soft enablers, and individual mobility. Urban planning, Mr Farooqui felt, plays the most important role in the lot as it determines the effectiveness of the remaining three factors. Cities in India are ill-planned urban sprawls that make mobility extremely difficult. New urban designs will have to take individual mobility and low pollution levels into consideration. Infrastructure would be important, as the quality of efficiency is dependent on numerous factors that are within the purview of infrastructure planning. Speaking of fossil fuels, Mr Farooqui stated that dependence on fossil fuels for transport needs to change and that renewable energy powered electric mobility is the wave of the future. He linked this with the need to develop highly skilled manufacturing capability with innovation as a cornerstone of India's manufacturing value chain. He outlined the scope for the session, suggesting that people discuss ways to limit carbon dioxide emissions, increase efficiency, and bring about a shift to electric mobility.

The session chairperson conducted a quick poll to measure the means of transport members of the audience had used to arrive at the venue, most of whom had arrived in a car. Comparing this to the result of a similar poll at a summit in London in 2012, the result highlighted how far India is from low carbon mobility in its urban zones. Mr Drew Kodjak spoke primarily on regulations, government policy, and systemic responses to issues of climate change and oil security in international markets. Mr Kodjak described how successful some policies have been to stop carbon emissions by illustrating the fact that efficiency regulations have also been placed on ships. He explored the biggest markets for automobiles in the world and India's place in the rankings. Mr Kodjak displayed energy consumption as a function of vehicle type and then

> *"Urban planning and new urban designs will have to incorporate individual mobility and low pollution levels into consideration"*
>
> Mr M F Farooqui
> Secretary (HI), Ministry of Heavy Industries and Public Enterprises, GoI

Chair: Mr M F Farooqui, Secretary (HI), Ministry of Heavy Industries and Public Enterprises, GoI
Moderator: Mr Martin Wright, Editor-in-Chief, Green Futures

Panelists:

- **Mr Drew Kodjak,** Executive Director, International Council on Clean Transportation
- **Mr Vishnu Mathur,** Director General, Society of Indian Automobile Manufacturers
- **Mr Sohinder Gill,** Chief Executive Officer, Global Business for Hero Eco Group and Director-Corporate Affairs, Society of Manufacturers of Electric Vehicles
- **Mr Glenn Schmidt,** MBA, Head of Steering Government Affairs, BMW Group

explored the fleet of vehicles in a nation by type. A factor that helps India's vehicle efficiency is that Indian cars are much lighter and have smaller engines, which place India with Japan and Europe as one of the most fuel-efficient automotive markets worldwide. Mr Kodjak's study also showed that regulatory practices have helped level off global greenhouse gas emissions despite rising vehicle sales, and with new regulations, better mass transit systems and efficient vehicles greenhouse gas emissions are projected to fall. Mr Vishnu Mathur highlighted statistics regarding the sales of vehicles in India and highlighted the spectacular decrease in particulate emissions. Passenger cars and SUVs contribute around 2 per cent of India's total carbon footprint, Mr Mathur pointed out. Despite the improvements in the last decade or two, there are still many things as yet left undone in the Indian automobile industry; such as lead-time to adjust to regulations, or regulations that leave the industry bearing heavy costs and infrastructure that supports high fuel-efficiency cars on the road, as well as higher-grade fuels. Mr Sohinder Gill spoke about the sheer volume of two-wheelers in India and the introduction of electric two-wheelers, an event in Indian automobile history. He described the main trigger behind the high growth of electric two-wheelers as the purported price advantage, but primarily the incentive is demand. He also described the issues faced by the manufacturers with electric two-wheelers: the batteries are unreliable since they have been designed for European conditions where heat, humidity, and dust level are much lower. Thus, Mr Gill, explained, Hero Electric is doing better internationally than in India. An additional reason that Mr Gill felt was that the electric two-wheeler has not reached the apex of its development in India due to the intermittent supply of electricity to rural India. Mr Gill highlighted that the solution for this is in developing solar-powered charging stations in the city. He pointed out that extensive research and development in batteries is required to improve the quality and longevity of the batteries. Mr Glenn Schmidt spoke about the life cycle of technology adoption, before describing the work being done at BMW to improve efficiency using the technique known as "efficient dynamics". Mr Schmidt spoke of how any technology takes a while to be adopted, matures as the industry standard, and is eventually usurped by the next big thing. Speaking of the option of electric mobility, Mr Schmidt spoke about becoming aware and learning about the impacts of your action. BMW's i3 electric car was showcased as well, as Mr Schmidt spoke of the benefits of BMW's new electric mobility vehicles, and described how the intended use of such a vehicle is to run quick intra-city journeys, as opposed to the long-distance journeys of a fossil fuel car. Mr Schmidt ended with an interesting statistic about the changed opinion of people in Japan towards electric mobility after the Fukushima disaster.

Low Carbon Sustainable Mobility for All

In Partnership with BMW

The session commenced with welcome remarks by Dr R K Pachauri. Dr Pachauri highlighted the need to promote transport solutions which suit the societal needs and promoted the well-being for all. He emphasized that in order to eliminate poverty, it is important to provide mobility choices to all.

Mr BI Singhal emphasized that there was a need to probe how low carbon mobility for all could be achieved. He highlighted that currently the CMPs prepared by the cities are not inclusive and completely ignore the need for low carbon and sustainable mobility. The review of CMPs of selected cities brought out that implementation of the suggested strategies would not make too much of a difference from the business-as-usual scenario. Therefore, he suggested that there was a need to adopt a new approach and change the ways CMPs are currently designed.

Mr Drew Kodjak emphasized on the need to improve and promote public transport as a sustainable mode of transport in Indian cities as a large proportion of the poor population is dependent on public transport (PT) for their daily travel. He said that the modal shares in India were in favour of PT and therefore the main challenge for our cities was to retain these shares in future. He highlighted different policy options under the Avoid-Shift-Improve approach that could help in promoting the use of PT in Indian cities. He emphasized on three key strategies including infrastructural improvements, introduction of fiscal policies to discourage vehicle ownership (high parking charges, fuel taxes, etc.) and integrated land use and transport planning as possible solutions to retain and increase the share of PT.

Next, Prof. Dinesh Mohan mentioned the need to promote safety in Indian city roads, which he said was commanded by street design and city structure. Design interventions such as no setbacks in front of buildings, accommodating street vendors/hawkers on streets, low speed zones, etc., would help achieve better safety levels and would promote walking and bicycling, he said. He highlighted that solely promoting PT was not a solution and that non-motorized transport (NMT) modes such as walking and bicycling should also be given equal importance in order to build compact, safe, and livable communities.

Prof. Geetam Tiwari seconded the issues raised by Prof. Mohan and discussed the reasons for lack of priority to NMTs in Indian cities. She said that currently projects and investments in the transportation sector are dominated by motorized transport and construction projects. NMTS and informal modes of transport are the most neglected modes at all levels of policy making, planning as well as investments. She emphasized that there was a need to plan Indian cities differently and significant reforms are required at the planning as well as design levels. She also said that it was crucial that investments are adequately planned.

> *There is need to improve and promote public transport as a sustainable mode of transport in Indian cities as a large proportion of the poor population is dependent on public transport for their daily travel*
>
> Mr Drew Kodjak
> Executive Director, International Council on Clean Transportation

Moderator: Mr Martin Wright
Chair: Mr B I Singhal, Director General, Institute of Urban Transport, India

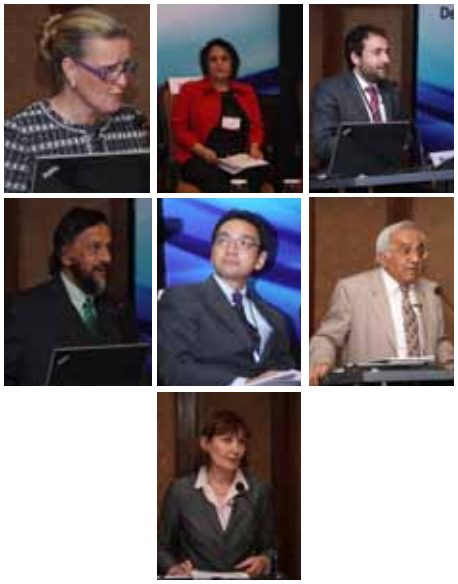
Panelists:

- **Mr Drew Kodjak,** Executive Director, International Council on Clean Transportation
- **Ms Stephanie Draper,** Executive Director, Forum for the Future
- **Prof. Dinesh Mohan,** Volvo Chair Professor Emeritus, IIT Delhi
- **Mr Glenn Schmidt,** Head of Steering Government Affairs, BMW AG
- **Prof. Geetam Tiwari,** Department of Civil Engineering, IIT Delhi

Mr Glenn Schmidt made a presentation on innovative mobility solutions which included various innovative products and services offered by BMW that promoted car sharing, fleet management, parking services, and mobility management.

Ms Stephanie Draper in her presentation discussed the mobility challenges faced by megacities and highlighted that innovation was required at all levels including technological, systematic as well as behavioural changes. She also suggested certain strategic measures that could help move towards sustainable mobility in future. These include integrated development, priority to more sustainable modes of transport, use of appropriate technology (IT networks), discouraged use of cars, etc. She emphasized that the problems had to be solved together and there was a huge opportunity around building CMPs the right way in order to achieve sustainable mobility for all.

At the end, the moderator asked the panelists to list the issues which they saw as key barriers to sustainable mobility and would want to deal with on a priority basis. Discussions with the panelists brought forward the fact that there was a need to integrate investments and infrastructure with priority on NMT infrastructure.



Thematic Consultation on Energy: Post-2015 Development Agenda and Energy Future We Want for All

In Partnership with UN Foundation

A co-presentation between The Energy and Resources Institute (TERI) and the United Nations (UN), the thematic consultation on energy featured a distinguished panel constituted of leading global experts in the realm of energy development debating the salient issues of what ought to constitute the post-2015 development agenda and ways to achieve energy access for all. The session facilitated an open exchange of ideas between concerned stakeholders on the methodology of integrating energy into the larger development agenda of a post-MDG world. The eight UN Millennium Development Goals (MDGs) were built on the values and principles central to the Millennium Declaration, namely, quality and equity. Despite being framed without comprehensive consultations, nations readily accepted the MDGs and integrated them in their own national policies. Consequentially, countries like India have made noteworthy achievements in reducing income poverty and HIV cases, and improving school enrolments and maternal and child health. A post-2015 strategy for global development would understandably require a fresh and rethought set of development goals.

The fresh set of MDGs should be framed in a consultative process, involving multiple stakeholders, including those who are generally unheard — the youth and the civil society. The original eight Millennium Development Goals laid incomplete emphasis on two vital factors influencing development: Energy and Climate Change. Acknowledging this oversight, the United Nations announced the year 2012 as the 'Year for Sustainable Energy for All and further accounted 2014–24 as the Decade of Sustainable Energy for All'. Lack of access to energy is a global threat to a nation's economic growth, its social equity, and to the preservation of the environment and climate. This was elucidated pithily with the phrase, "No Energy, No MDG". Energy was central to ensuring accomplishment of other development goals, particularly related to climate and health.

The panel agreed that there was the requirement for a consultation to emphasize the need for energy access to bolster economic processes. Five framing issues for the consultation for the post-2015 development agenda with regard to energy for all were discussed:

1. *Universal access to modern energy:* This would also require energy efficiency measures for agriculture, small-scale, and large-scale industries.
2. *Contribution of energy access to economic growth with low environmental footprint:* This would encouraging nations to utilize less energy-intensive industries and promote renewable energy.
3. *Mobilization of resources for enabling energy access:* This would involve engaging the private sector through more investments in the energy sector and strategic partnerships with the public sector.

> *"Lack of access to energy is a global threat to a nation's economic growth, its social equity, and to the preservation of the environment and climate"*

Moderator: Mr Minoru Takada, Senior Policy Advisor on Energy, UN

Panelists:

- **Mr Arvinn Eikeland Gadgil,** Hon'ble Deputy Minister for International Development, Norway
- **Dr R K Pachauri,** Director-General, TERI, India
- **Dr Kirit S Parikh,** Chairman, Expert Group on Low Carbon Strategies for Inclusive Growth, Planning Commission, Government of India
- **Ms Jyoti Shukla,** Senior Manager, Sustainable Development, World Bank
- **The Hon'ble Marie-Hélène Aubert,** Adviser to the President of French Republic for International Negotiations on Climate and Environment, France
- **Ms Lise Grande,** UN Resident Coordinator and UNDP Resident Representative, India

4. *Making clean technology affordable for all*
5. *Policies and mechanisms for enhanced public–private partnerships*

A cricitical issue emphasized in energy development was that even when solutions were developed, the reach and access of the solutions were inequitable. To illustrate the scope of the problem, it was highlighted that three billion people worldwide are still dependant on traditional biomass stoves for their cooking needs. It was elucidated that fortune lies at the bottom of the pyramid; there is a sustainable market opportunity in rural energy access in the long-term, and TERI's Lighting a Billion Lives campaign, which has impacted 400,000 households in India, was cited as an example. The strength of the campaign lay in decentralization of technology to ensure its reach to the most neglected sections of the rural community. There is an urgent need for concerted global action to address the inattention that the under-privileged have been subjected to in national centralized planning processes.

Energy access is critical for economic growth in any nation. The members of the panel believed that the overarching goal of the post-2015 development agenda should be putting an end to poverty and guaranteeing sustainability for this generation and agreed that energy access, by definition, must include availability of energy for productive needs, and not just the regular consumptive needs of a household. Of course, providing such sustainable energy for all would require substantial investments from the private sector; the World Bank estimates the cost of ensuring energy access for all at US$ 1,000 billion. This tab will have to be shared with the private sector, and that would require a fair and encouraging pricing policy, along with viable markets to encourage private sector investments in the energy sector.

Energy efficiency continues to be the most easily reachable measure that can be taken by governments to make energy available to the poorer sections of the nation. The International Energy Agency estimates that doubling energy efficiency in Asia would ensure energy access to all of its population with current levels of energy consumption. It was suggested that energy access should be defined as receiving at least 1 kWh of energy per day, which should be enough to meet a household's consumptive needs along with a certain extent of its productive needs and for a few activities related to comfort and entertainment. This definition should encompass the availability of clean cooking fuel to households, which would reduce indoor air pollution and remove drudgery. Gas was highlighted as a potential solution, be it natural gas, biogas, liquefied petroleum gas, or wood-based gas. Hence, the Sustainable Energy for All agenda should also have, as its sub-goals, removing indoor air pollution, encouraging renewable energy, promoting energy from non-polluting sources, and reducing carbon emissions. However, before sustainable energy for all can be ensured, nations will have to address three major challenges to energy access, namely:

Technological challenges: The primary technological challenge pertaining to renewable energy is cost, in addition to which there are problems related to energy absorption, efficiency, and storage.

Economic challenges: Despite the positive focus on decentralized energy solutions, it cannot be overlooked that the cost of generation and distribution increase when energy generation is decentralized, and the end beneficiaries cannot bear the cost of energy access.

Institutional challenges: Institutional models for energy access are severely limited by want of skills and managerial capacities to run the system.

Another substantial road-block to ensure technology adoption is not the technology itself, but it the behavioural patterns of the rural community it is intended to help. It is essential to change habits along with technology innovation, to ensure that energy reaches all through technological solutions. This effort would require collaborations between professionals from diverse streams of study including, but not limited to, sociology, economics, philosophy, physics, and engineering.

The International Energy Agency estimates that ensuring energy access to all across Africa would require an investment of close to US$ 48 billion. A very high amount of resources would thus have to be diverted towards the cause of sustainable energy for all. The panel members opined that there must be a judicious mix of grants and loans to fund energy-related projects in developing nations in the coming years. It was agreed that there is a dire need to have a regulatory framework that motivates private investment in energy. The panel discussion exhorted the global community to be brave, to have a global fund for energy access, to be geographically specific, and to be technically prepared to address local challenges.

Global Trends in Sustainable Production, Procurement, and Sourcing of Edible Oils

In Partnership with Roundtable on Sustainable Palm Oil (RSPO), WWF, Consumer Goods Forum (CGF)

The thematic track on global trends in sustainable production, procurement, and sourcing of edible oils witnessed numerous speakers from across the spectrum of the edible oil industry discuss concrete measures that can make the supply chain of palm oil sustainable. The major challenge facing this sector that was discussed during the thematic track was enabling sustainable processes along the entire supply chain, from farm to fork. The speakers at the thematic track believed that this challenge can be overcome and the entire palm oil supply chain can be made sustainable. Some of the measures proposed by the speakers to ensure sustainability included creating sustainable and strong alliances between farmers and processors, conserving the highly delicate and fragile oil belts' ecological diversity, and developing standards of sustainability in collaboration with sustainable agriculture networks.

As one of the largest importers of palm oil, there was unanimous consensus amongst the delegates present at the thematic event that it is imperative for India to focus on sustainable production, procurement and sourcing of the palm oil. Other key challenge areas discussed in the process of securing sustainable production and procurement of palm oil included deforestation, traceability, forcible land acquisition for cultivation, and connecting sustainable users and producers. A report titled *Palm Oil Market and Sustainability in India–2013* was launched by WWF.

Opening Remarks

- **Mr Nitin Desai,** Former Under Secretary General of the United Nations and Distinguished Fellow, The Energy and Resources Institute, India
- **Mr Ravi Singh,** Secretary General and CEO, WWF India

Keynote Address: Mr Darrel Webber, Secretary General, Roundtable on Sustainable Palm Oil, Malaysia

Moderator: Mr Adam Harrison, Senior Policy Officer–Food and Agriculture, WWF

Panelists:

- **Mr Ishteyaque Amjad,** Director Corporate Affairs, Cargill India
- **Mr Dave Challis,** Director-Global Sustainability, Environment, Health, and Safety, Reckitt Benckiser
- **Mr Prakash Chawla,** Managing Director, Kamani Oil Industries Pvt. Ltd
- **Mr Bob Norman,** General Manager, Book & Claim Ltd
- **Mr Nitin Paranjpe,** CEO and Managing Director, Hindustan Unilever Limited

> *As one of the largest importers of palm oil, there was unanimous consensus amongst the delegates present at the thematic event that it is imperative for India to focus on sustainable production, procurement, and sourcing of the palm oil*

Mindset of Green Growth

In Partnership with Danish Cultural Institute

A change in mind-set and behaviour is essential at all levels in order to ensure resource efficiency and green growth. A joint session by The Energy and Resources Institute and the Danish Cultural Institute discussed the approach that can be initiated to inculcate such a change in the mind-set of people towards green growth. Apart from formulating different approaches and angles from which the topic of green growth can be approached, there must be a focus on new modes of thinking and action that is in line with the aim of the international network—'Culture/Futures: The Transition to an Ecological Age'.

As the issue at hand was behavioural attitudes to green growth, a diverse range of topics such as green architecture as an alternative to energy-intensive buildings and the use of biological ecosystems in them, the development of clean technology, and training future managers with a focus on business and sustainability. The panel also mentioned a need to focus on ensuring executive training on sustainability issues in business school curricula and concluded with recommendations on the use of clean technologies with aggressive targets for carbon-neutral growth based on the Quebec model.

Moderator: Mr Finn Andersen, Secretary General, Danish Cultural Institute

Panelists:

- **Mr Olaf Gerlach-Hansen,** Culture/Futures Director, Danish Cultural Institute
- **Ms Mili Majumdar,** Director, Sustainable Habitat Division, TERI
- **Ms Mette Morsing,** Professor, Copenhagen Business School and Co-Director, CBS Sustainability Platform
- **Mr Kasper Guldager Jørgensen,** Architect MAA, Partner, Director of GXN
- **Mr Denis Leclerc,** President and CEO, Ecotech Quebec

A change in mind-set and behaviour is essential at all levels in order to ensure resource efficiency and green growth.

Governance and Management Challenges in Water-Use Efficiency

In partnership with UNDP, Ministry for Foreign Affairs of Finland, Embassy of Switzerland

There are over 700 million people in 43 countries in the world who presently live in water-stressed conditions. The endowment and distribution of fresh water resources varies across the world; only 3 per cent of the Earth's total water content is fresh water, and over 2 per cent of this is locked in ice caps and glaciers, leaving less than 1 per cent of the Earth's water usable for a growing population of 7 billion people. This problem of inequitable resource endowment is as much an issue as water scarcity. The innumerable variations and regional vulnerabilities prevalent across the planet, often on account of geographical location, lead to unequal fresh water distribution with greater runoffs in high latitudes and wet tropical regions and lower runoffs in the mid-latitudes.

Ironically, nearly two-thirds of the world's population resides in areas receiving only one-quarter of the world's total annual rainfall. Water resource endowment and water-use efficiency determine the water security of the region. Resource-use efficiency is a function of good governance. Indiscriminate use of water by stakeholders can be attributed to distorted sectoral policies, such as irrigation subsidies and nil/low water tariffs. Since many economic sectors are heavily dependent on a steady and constant supply of fresh water, inter-sectoral policy implications assume significance. Policies for interlinked sectors should be devised after evaluating sectoral implications in its entirety and this can be achieved only through good governance practices at all levels to ensure the efficient management of natural resources.

Dr Srinivasan Iyer's introductory remarks described India's water resource scenario and highlighted aspects such as water loss, irrigation potential, and variability in spatial and temporal distribution of water. Dr Andreas Carlgren offered strategies from Sweden's experience, including using system approaches and financial investments. Mr Russell Rollason compared the Murray-Darling River system in Australia and the Ganga basin in northern India, stating that both have multiple stakeholders and discussed water management strategies during scarcity. Dr Pradipto Ghosh explained Nobel Laureate Elinor Ostrom's eight principles with applicability in common property resource management. Mr Crispino Lobo described integrated approaches for Watershed Management in rain-fed semi-arid areas, recommending groundwater recharge and involvement of users and technologies. Finally, the panel strongly recommended enhancement of water-use efficiency through partnerships, economic instruments, better technologies, education, and participatory management.

> *Nearly two-thirds of the world's population resides in areas receiving only one-quarter of the world's total annual rainfall. Water resource endowment and water-use efficiency determine the water security of the region*

Chair: **Dr Srinivasan Iyer**, Assistant Country Director, UNDP

Panelists:

- **Mr Andreas Carlgren**, Board Member, Stockholm Environment Institute, and Former Minister for the Environment, Sweden
- **Dr Prodipto Ghosh**, Distinguished Fellow, TERI, India
- **Mr Crispino Lobo**, Managing Trustee of Watershed Organization Trust (WOTR), Embassy of Switzerland
- **Mr Russell Rollason**, First Secretary, Climate Change and Energy Security, AusAID, Australian High Commission, India

Reducing Inequalities: A Sustainable Development Challenge

In Partnership with AFD

The seventh edition of '*A Planet for Life' series — Reducing Inequalities: A Sustainable Development Challenge* — was launched during Delhi Sustainable Development Summit (DSDS) 2013 and this track session was conducted on the theme of the book. The book was the result of a partnership between The Energy and Resources Institute (TERI) and the Institute for Sustainable Development and International Relations (IDDRI). A selected passage from the book was read and the book's Associate Editors, Mr Raphael Jozan and Mr Sanjivi Sundar, were felicitated for their extraordinary work of compiling 30 contributions from 53 different authors from around the world to create a landmark work in sustainable development. *Reducing Inequalities: A Sustainable Development Challenge* was then launched by the esteemed panel present, featuring Mr Remi Genevey, Executive Director, AFD; Ms Laurence Tubiana, Director, IDDRI; and Ms Aude Flogny, Regional Director for South Asia, AFD. Following the launch, Mr Raphael Jozan addressed the gathering, speaking of his long association with TERI and the DSDS and offered his thanks to TERI Press in particular. He thanked Dr R K Pachauri and Dr Jeffrey Sachs, who had spoken prior to this session for their insights and linked it to the topics covered in the book.

Welcome remarks: Dr R K Pachauri, Director-General, TERI

Panelists:

- **Mr Rémi Genevey,** Executive Director, Agence Francaise de Developpement (ADF)
- **Mr Raphaël Jozan,** Associate Editor of A Planet for Life Series / Sustainable Development in Action, Agence Francaise de Developpement (ADF)
- **Ms Laurence Tubiana,** Director, Institute for Sustainable Development and International Relations (IDDRI)
- **Ms Aude Flogny,** Regional Director for South Asia, Agence Francaise de Developpement (ADF)

Sustainable Transport System: Introduction of High Speed Rail in India (HSR)

In Partnership with ITPS

Mr Shri Prakash welcomed all the presenters, panelists, and participants to the session and opened the thematic track on the High Speed Rail (HSR) by throwing light on how this particular subject has been debated in India for almost 25 years. With this, he invited Mr Sarbojit Pal to make a presentation of the current work that TERI has been jointly undertaking with ITPS on evaluating the impacts of HSR in India.

Mr Sarbojit Pal in his presentation gave insights to the current regional passenger mobility patterns across India. He pointed out that the passenger traffic densities are particularly high along specific corridors across the country. One of the high density corridors that emerged was the corridor between Ahmedabad and Mumbai. This was one of the corridors that had been identified by the study as possible corridors for HSR in India. Subsequently, he took the audience through the findings of the impact study for this particular corridor and brought to their attention the need to improve and encourage rail travel in India because of its low impacts on the overall energy use and emission levels. In this context, he introduced the requirement for a High Speed Rail (HSR) network in India to meet the passenger needs while meeting energy and environment requirements.

The following presentation was made by Mr Yosuke Takada from ITPS, Japan. Mr Takada emphasized the necessity and importance of introducing HSR and gave insights on the Japanese perspectives and experiences of running the Shinkansen for over 40 years without a single casualty. He mentioned the primary factors which could enhance the benefits of HSR in the Indian context while drawing from the Japanese experience i.e., location of stations of HSR and the intervals between stations.

Given the presentation of the findings from the various studies, Mr Shri Prakash invited Mr Vinay Mittal to put forward his ideas and perspectives on the current issue. Mr Mittal spoke about the initiatives taken up by Indian Railways to introduce HSR over the years and gave historical perspective of other countries who have implemented HSR projects. He emphasized that by introducing HSR, India could achieve a win-win situation by catering to the segment of traffic which is undergoing rapid growth slowly translating either as increased road or air traffic with far higher

Welcome Remarks: Mr Shri Prakash, Distinguished Fellow, TERI

Presentation by TERI and ITPS:
- **Mr Sarbojit Pal**, Associate Fellow, TERI
- **Mr Yosuke Takada**, Director of International Affairs Office, Institution for Transport Policy Studies (ITPS)

Panel Discussion:
Chair: Mr Vinay Mittal, Chairman Railway Board, Government of India

Moderator: Mr Shri Prakash, Distinguished Fellow, TERI and Former Member (Traffic), Railway Board, Government of India

Panelists:

- **Mr R Sivadasan**, Former Financial Commissioner, Railway Board
- **Dr Anupam Khanna**, Chief Economist and Director General (policy), NASSCOM & Principal Adviser, National Transport Development Policy Committee
- **Mr Jitendra Sondhi**, Consultant, World Bank

pollution levels than HSR. He highlighted that despite the many advantages of HSR, the highly capital-intensive system and constraints in drawing funding under the Public Private Partnership (PPP) mode have been discouraging attempts. He stressed that the Mumbai to Ahmedabad line is under consideration by the government for bringing HSR to India with import of technology.

Mr R Sivadasan, the next panelist talked about his experiences and the efforts he and his team had taken regarding HSR and raised the question of India's need for HSR. He emphasized that HSR will eventually have to come and reposition itself as new mode of transport and not as part of the railways. He voiced his concerns regarding the difficulties in developing a sustainable India-centric business model and setting up an apt administration and policy to guide HSR initiatives. He said that a HSR commission should be set up which can function as tech regulator and as well as a business model appraiser. He also underlined the point that we need to prove the carbon worthiness of HSR before implementation to ensure its environmental benefits. He also raised the importance of acquiring the right technology and then localizing it to meet India's needs.

Dr Anupam Khanna discussed the pitfalls that one could face while bringing HSR to the country and gave emphasis on its economic viability. He talked about the level of ridership needed for economic viability, construction standards, and costs. He voiced his concerns over cost and time overruns for most of the metro projects and the balance that must be achieved between aggregate benefit to society versus aggregate cost from financial engineering. He stressed that due importance should be given to financial analysis while taking decisions because such projects will determine the spatial pattern of economic activity which is often reversible for generations to come. He also added that adequate technical analysis needs to be conducted to determine the speeds at which HSR should run in India taking into consideration the technology and expenses involved.

Mr Jitendra Sondhi gave the flavour of the Chinese HSR growth experience by sharing his experiences from China. He emphasized on the three-pronged strategy adopted by the Chinese to improve long distance travel by upgrading pre-existing railways to increase their speed gradually to 200 km per hour, building passenger dedicated lines with trains of speeds upto 300–350 km speed per hour and building mixed traffic railways where trains could run up to 250 km per hour along with freight and container trains. He highlighted the Chinese strategy to assimilate technology from around the world and then come up with their own technology to run HSR. He pointed out how the administrative setup of the organizations gave way to the successful setup of HSR. He also spoke about the main highlights of the HSR system in China such as connecting medium towns to HSR, availability of non-stop trains, standardized system, the use of elevated railways in order to minimize the land requirement, ticket pricing, etc. He emphasized that India too needed to create long-term 50-year strategies and generate technical know-how and knowledge on HSR if we want to succeed. He also shared his views on building HSR on a PPP basis and partnerships that could be put forward for implementing HSR in India.

> *"High Speed Rail in India will have to come and reposition itself as the new mode of transport and not as part of the railways"*
>
> Mr R Sivadasan
> Former Financial Commissioner,
> Railway Board

Learning from Green Growth Initiatives in Asia

In Partnership with CDKN, Asia LEDS Partnership

The much vaunted idea of an impending Asian Century, which many experts believe will see the return of Asia as a global epicentre of economic, military, and even cultural power, belies the opportunity present for Asian economies to imbibe sustainable values in their growth models and create sustainable green growth. Initiatives to bring about green growth in Asia that are already underway across the region were highlighted in this thematic session at the Delhi Sustainable Development Summit 2013. The objective of the event, which was jointly presented by the Climate Development Knowledge Network (CDKN) and the Asia Low Emission Development Strategies Partnership, was to highlight pioneering initiatives that have enabled low-emission and climate-resilient growth and development across Asia. The session achieved this through the use of an interactive market place where displays set up by representatives from India, Vietnam, Thailand, and Nepal helped showcase the nations' experiences in designing and implementing Low Emission Development Strategies (LEDS) as well as green growth policies and programmes. The participants in the session were organized into four groups that circulated between the displays, ensuring that as many people as possible got the opportunity to see the work being displayed by the representatives of the four nations.

Representatives from The Energy and Resources Institute (TERI), India, briefed the gathering about their flagship initiatives such as the highly successful Lighting a Billion Lives (LaBL) campaign and the Green Rating for Integrated Habitat Assessment. Representatives of the Alternative Energy Promotion Centre, Nepal, spoke about their District Climate Energy Plans (DCEP), while representatives from the Greenhouse Gas Management Organization, Thailand, elaborated about their primary programme — Thai Low Carbon City. Officials from the Ministry of Planning and Investment, Vietnam, detailed their proposed Green Growth Strategy for the Southeast Asian nation and its various components. This highly unique track session was well received by participants and representatives alike, and helped many participants gain useful, inspiring, and sobering insights into the ground reality of implementing green growth initiatives in Asia.

Welcome Address:

- **Mr Orestes Anastasia**, Co-Chair, Asia Low Emission Development Strategies (LEDS) Partnership, US Agency for International Development Regional Mission for Asia
- **Dr Doddy Sukadri**, Co-chair, Asia Low Emission Development Strategies (LEDS) Partnership, Indonesia National Council on Climate Change

Closing Remarks:

- **Mr Ali T Sheikh**, Asia Director, Climate Development Knowledge Network (CDKN)
- **Dr R K Pachauri**, Director-General, TERI

> *"The objective of the event was to highlight pioneering initiatives that have enabled low-emission and climate-resilient growth and development across Asia"*

Receptions and Launches

Receptions and Launches

'Asia Leadership Program on Sustainable Development and Climate Change'

The last decade of the 20th century saw the emergence of Asia as a major global player in the economic front and the 21st century is, needless to say, going to witness rampant economic and social development among numerous Asian nations. This poses both a threat and an opportunity. With over 2 billion people in Asia striving to achieve living conditions similar to those in Europe and North America, there is a risk of these developments exacerbating resource inefficiency and eventual scarcity issues. Conversely, there is also the chance for Asia to leapfrog the development models of the west and adopt sustainable development and green growth programmes at the outset. In an effort to mould future Asian leaders to take advantage of such opportunities, the Asian Development Bank (ADB) and The Energy and Resources Institute (TERI) collectively launched the 'Asia Leadership Program on Sustainable Development and Climate Change' during the Delhi Sustainable Development Summit (DSDS) 2013.

The President of the ADB, Mr Haruhiko Kuroda stated that leadership and building partnerships are the primary drivers of the sustainable development agenda and the programme aims to inspire these very qualities in an effort to look for means to reduce poverty, and engender green growth. Director-General of TERI, Dr R K Pachauri, expressed his belief that opportunities for sustainable development are abundant at the current moment in Asia. He commended the ADB for their continued support for sustainable development in the region and for the forethought and initiative in the creation of this programmes. In conclusion, Dr Bindu N Lohani, Vice President, Knowledge Management and Sustainable Development with the Asian Development Bank, advocated the need for integrating sustainable development as an essential cog in the Asian growth paradigm, stating that with successful initiatives proving the effectiveness of such models, more institutions, corporations, and individuals are bound to follow the model.

Dinner of Hope—in Suppport of TERI's Lighting a Billion Lives Campaign

The very first 'Dinner of Hope' at the Summit, in support of TERI's Lighting a Billion Lives (LaBL) Campaign, witnessed a scintillating display of the finest of the Indian performing arts by the Ministry of Culture, with performances of Kathakali, Bharathnatyam, and Odissi set to live music. The students of DPS Sharjah performed a thrilling dance drama based on the LaBL initiative. The evening was much applauded, as were the efforts of the students of Delhi Private School, Sharjah, who raised Rs 3.07 lakh to spread hope, light and cheer in un-electrified villages across the globe.

Mr Digvijay Singh focused on the importance of electricity in people's lives.

Dr R K Pachauri began by describing how he had the privilege of attending the same school as the Honourable Minister, Mr Digvijay Singh, and how he could discern the Honourable Minister's leadership potential at that early stage in his life. Dr Pachauri moved on to describe the motivation behind the Lighting a Billion Lives campaign, stating that out of the roughly 1.3 billion people worldwide who are still deprived of access to electricity, 400 million live in India. Describing the genesis of the LaBL campaign, Dr Pachauri described how it began with TERI employees taking the applications of renewable energy in rural India, setting up table fans, solar lanterns to impoverished people in rural India.

The response from the people was overwhelming, Dr Pachauri described; and it was decided to submit a proposal for a small programme like Lighting a Billion Lives to the Clinton Foundation, who under the Clinton Global Initiatives, recognize and highlight three or four major initiatives that they feel can be game changers. Dr Pachauri added that while submitting the proposal, he considered how there are hundreds of millions of people in India who have no access to electricity, and over a billion people worldwide, aiming to light a million lives appeared an underestimation. After changing the campaign from Lighting a Billion Lives to Labour Billion Lives, President Clinton and his team accepted it as a major initiative deserving of global recognition.

Dr Pachauri acknowledged the work done by TERI in designing the solar lantern, which is lightweight and efficient thanks to its use of LEDs, and includes an outlet that can be used for charging mobile phones–as a large number of people in rural India own cell phones–noting that the design of the lantern is being constantly upgraded to become more efficient. Dr Pachauri expressed his thanks to the numerous organizations that supported the LaBL campaign, stating that while TERI had to rely on financial support from a variety of sources in the early stages, it is now heartening to see the corporate sector stepping in and finding market solutions. Dr Pachauri ended by advocating that opportunities be seized on a large scale and society would see growth and refinement in the future.

The Honourable Minister spoke of her great hope for the people of India with this theme, and shared her experiences of darkness. She was married and living in a village in Himachal Pradesh, with no electricity supply. Since then, Ms Kumari said, her state is now 100 per cent electrified. She described how when she was elected in the constituency of Jodhpur in Rajasthan, she visited remote villages where children are not educated due to a lack of electricity. She drew comparisons between the hydel resources in Himachal Pradesh and the potential for solar power in Rajasthan. She congratulated Dr Pachauri and TERI's programme to bring light into the lives of people living in villages that cannot be connected via electricity lines. She expressed her gratitude that her ministry could participate in the programme and wished it great success in the future.

Launch of *Reducing Inequalities: A Sustainable Development Challenge*

The seventh edition of 'A Planet for Life' series *Reducing Inequalities: A Sustainable Development Challenge* was launched during DSDS 2013 and a track session was conducted on the theme of the book post its launch. The book was the result of a partnership between The Energy and Resources Institute (TERI) and the Institute for Sustainable Development and International Relations (IDDRI). Prof. Jeffrey Sachs and the Editors Mr Rémi Genevey, Executive Director, Agence Francaise de Developpement (AFD); Dr Laurence Tubiana, Director, Institute of Sustainable Development and International Relations (IDDRI); and Dr R K Pachauri launched the book during a plenary session. The book focuses on the issue of reducing global inequalities as an imperative for sustainable development.

Danish Cultural Institute Awards Ceremony

One of the guiding principles behind Delhi Sustainable Development Summit is the belief that young people, with their ability to innovate and bring a fresh new perspective to an existing problem, hold the key to the future of sustainability. On the second day of the Delhi Sustainable Development Summit 2013, in the presence of Heads of State, government ministers, global business leaders, and representatives of numerous international organizations, the Danish Cultural Institute, in association with Larsen and Toubro India, presented awards to four young people for their innovative solutions in different fields. The awardees' journey began six months ago, with the announcement of a competition for young people from Indian and Danish educational institutes to come up with ideas for sustainable solutions to resource problems in India. Competing solutions were offered across four categories; business, technology, urban development, and design/culture. After 42 candidates were shortlisted from thousands of entries, the final awardees were Mr Priyam Johry for business, Ms Nambu Priya Dharsini for technology, Ms Priyanka Raju for urban development, and Ms Anne Camilla A Auestad for design/culture. A reception was hosted during the events.

Lunch Hosted by the Ministry of Environment and Forests, India

Lunch on the third day of the Summit (2 February, 2013) was hosted by the Ministry of Environment and Forests, Government of India. The Ministry has been an integral part of the growth of the Delhi Sustainable Development Summit over the years. Ms Jayanthi Natarajan, Hon'ble Minister of State (I/C) for Environment and Forests, graced the inauguration of DSDS 2013 with her presence.

Valedictory Session




The session started with the opening remarks of the Chairperson Dr V Rajagopalan (Secretary, Ministry of Environment and Forests, India). He welcomed all the speakers and congratulated Dr R K Pachauri for organizing DSDS 2013 and for bringing together the international community and speakers, who are working on issues related to energy, water, climate change, and ecological development. His speech mainly focused on the conservation of forests as exploitation of forests and natural resources lead to ecological imbalance.

The session then moved further to the presentation of the First Georgescu-Roegen Awards. The Awards were divided into two categories: i) Award for Unconventional Thinking–awarded to Professor Kozo Mayumi; and ii) Award for Bio-economic Practice–awarded to two organizations, which were Accion Ecologica, Ecuador; and The Oilwatch, Nigeria.

Mr Montek Singh Ahluwalia and Dr Pachauri also presented the ninth 'Sustainable Development Leadership Award' during the session. The Award was presented to HE Mr James Alix Michel, President of Seychelles, in recognition of his outstanding contributions towards sustainable development in Seychelles and placing the issues of Small Island States on the global agenda.

Mr Salman Khurshid (Hon'ble Minister of External Affairs, India) took over the session by congratulating Dr Pachauri for organizing the DSDS. He also mentioned that selecting Delhi as the place for DSDS was a wise decision as Delhi happens to be the economic hub of development, being the capital of India. Focusing on the importance of change, he quoted Mahatma Gandhi — "Be the change that you wish to see in the world". Stressing on the need to work along the footprints of growth focusing on resource- efficient development, he insisted that everyone should commit themselves to work for holistic sustainable development. Giving importance to

Chair: Dr V Rajagopalan, Secretary, Ministry of Environment and Forests, India

Special Address:
- **Mr Salman Khurshid,** Hon'ble Minister of External Affairs, India

Valedictory Address:
- **Mr Montek Singh Ahluwalia,** Hon'ble Deputy Chairman, Planning Commission, Government of India

Vote of Thanks:
- **Dr R K Pachauri,** Director-General, TERI, India

areas such as food, water, and livelihood security, he also focused on the importance of access to energy for everyone without depleting the natural resources. He also proposed that by next year, there will be a legislation on “Food Security” that will ensure food to all.

The session was carried forward by Mr Ahluwalia. He started by saying that the issues addressed in the conference were very important for life on earth. Congratulating the three award winners of the First Georgescu-Roegen Award, he added that he was happy that in recent times the issue of sustainability is being recognized globally and international communities are coming together to address the issue. He further added that this issue could be addressed through the concept of change, namely, through behavioral, regulatory, technological, and mindset changes. He also informed the guests that the slogan of the 12th Plan document is “Faster, More Inclusive, and Sustainable Growth”.

The vote of thanks was given by Dr Pachauri. He thanked the distinguished speakers and the guests and the sponsors for their support

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