

4TH TRIENNIAL INTERNATIONAL WORKSHOP
ON
EVOLVING ENERGY MODELS IN EMERGING ECONOMIES –POST COP 21
AHMEDABAD, GUJARAT, INDIA
DECEMBER 12 – 14, 2016

BRIEF REPORT

It is well known that the earth's atmosphere is growing warmer due to greenhouse gas (GHG) emissions generated by human activity and extensive use of fossil fuels in every sphere of life which is leading to visible climate change across the globe and is also threatening to wipe out the human presence in many regions of the world. The 21st Conference of the Parties – COP21 - to the United Nations Framework Convention on Climate Change (UNFCCC) held in Paris in 2015 reaffirmed the target of keeping the rise in temperature below 2°C. In fact, realising that a greater increase in temperature would be highly dangerous, it was strongly felt that one should possibly go for even 1.5°C reduction to protect several island states from the rise in sea levels. A major sub-event of COP 21 was the launch by India and France of an International Solar Alliance for the use of solar photovoltaics that was endorsed by 120 countries.

The most obvious remedial measures to counter the global warming comprise enacting and following a comprehensive strategy for accelerating the transition from fossil fuel consumption to increasing the share of renewable energy in the overall energy use; researching innovative efficient ways to utilise the energy in everyday life and sectors like manufacturing, transport, agriculture etc.; and simultaneously, exploring ways to adapt to the impacts of climate change. Thus there is a need to evolve and use the energy models, policy frameworks and guidelines by the governments and concerned stakeholders. Evolving Energy Models is about practice rather than theory, commencing with the information already possessed by the countries in climatically vulnerable systems such as agriculture, water resources, public health and disaster management, and aims at exploiting the existing synergies and intersecting themes. These Energy Models can be used by the countries to both evaluate and complement the existing planning processes to address climate change adaptations. Wherever needed, these may be either freshly formulated or may be prepared to complement the existing models, guidelines and policies. In order to exhaustively deliberate on these issues, the Centre for Science & Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) organised the **4th Triennial International Workshop on “Evolving Energy Models In Emerging Economies - COP 21”** in Ahmedabad, Gujarat, India during 12-14 December 2016 in partnership with the Society of Energy Engineers and Managers (SEEM), India.

The Opening Ceremony commenced with a welcome note by Mr. C. Jayaraman, General Secretary, SEEM, Thiruvananthapuram, India, after which Prof. Dr. Arun P. Kulshreshtha, Director General, NAM S&T Centre presented the genesis of the event touching upon the basic issues related to sustainable energy and the challenges due to climate change and also gave a brief description of the activities of the NAM S&T Centre. This was followed by the Lighting of Lamp and the Presidential Address by Dr. Sasi K. Kottayil, President, SEEM. After the Guest of Honour remarks by Dr. Rajul K Gajjar, Vice Chancellor, Gujarat Technological University (GTU), Ahmedabad, the distinguished guest, Dr. Jayant Sathaye, 2007 IPCC Nobel Prize Contributor and Founder, International Energy Studies Group at the Lawrence Berkeley National

Laboratory, California, USA and Mr. D P Joshi IAS, Special Commissioner, Swachh Bharat, Mission (Gramin), Government of Gujarat briefly expressed their views before the audience, which was followed by the Group Photographs.

The Key Note address and theme paper presentation was made by the Guest of Honour, Dr. Jayant Sathaye. The session was concluded with a Vote of Thanks by Mr. Alpesh Pandya, Chairman, SEEM Gujarat Chapter, Ahmedabad.

The Workshop was attended by 15 senior experts and professionals from 12 NAM countries, including Cuba, Egypt, Indonesia, Iran, Malaysia, Nigeria, Sri Lanka, Togo, Turkey, Vietnam, Zambia and Zimbabwe, the USA, 8 experts from the host country India and a large number of the Indian representatives of the government agencies, NGOs, academia and industry. Besides this, an expert from the USA made a Webinar presentation during the workshop.

The foreign participants were from Cuba [**Ms. Osleidys Torres Valdespino**, Chief of Science and Technology Department, Ministry of Science, Technology and Environment (CITMA), Havana]; Egypt [**Dr. Sabry Mohamed Aly Mekhimar**, Chief Engineer, Wind Department, New & Renewable Energy Authority (NREA), Cairo]; Indonesia [**Dr. Toto Hardianto**, Associate Professor, Bandung Institute of Technology of Indonesia, West Java]; Iran [**Dr. Khosrow Rostami**, Professor, Iranian Research Organization for Science and Technology (IROST), Tehran]; Malaysia [**Ms. Hadziratul Qudsiyah Binti Abdul Aziz**, Executive, Capacity Development Unit, Industry Development & Electricity Market Regulation Department, Energy Commission of Malaysia (Suruhanjaya Tenaga), Putrajaya]; Nigeria [**Ms. Nwankwo Nnenna Cynthia**, Scientific Officer, Department of Environmental Science and Technology, Federal Ministry of Science and Technology, Abuja and **Mr. Yakubu Sule Okolo**, Chief Technical Officer, Raw Materials Research and Development Council (RMRDC), Abuja]; Sri Lanka [**Mr. W.A.L.S. Karunawardana**, Engineer, National Engineering Research & Development Center (NERDC), Ekala Ja Ela and **Mr. Jothiratna Ganithayalage Shantha Siri**, Senior Scientific Officer, National Science Foundation (NSF), Colombo]; Togo [**Ms. Kondi Akara Ghafi**, Ph.D. Student, Institut de Recherche Pour le Développement (IRD), Grenoble, France, and Laboratoire de Physique de L'atmosphere et Mecanique des Fluides (Lapa-Mf), Abidjan, Cote D'ivoire]; Turkey [**Dr. Levent Yagmur**, Chief Senior Researcher, Marmara Research Centre, Tübitak-Mam, Energy Institute, Gebze, Kocaeli]; USA [**Dr. Jayant Sathaye**, 2007 IPCC Nobel Prize Contributor and Founder, International Energy Studies Group at the Lawrence Berkeley National Laboratory, California]; Vietnam [**Dr. Pham Quang Tri**, Head, Department of Information and Postgraduate Training, National Institute For Science and Technology Policy and Strategy Studies, Hanoi]; Zambia [**Mrs. Mwansa Olga Chilambwe**, Senior Science & Technology Officer, Ministry of Higher Education, Department of Science and Technology, Lusaka]; and Zimbabwe [**Mr. Ngonidzashe Givemore**, Principal Science and Technology Officer, Ministry of Higher and Tertiary Education, Science and Technology Development, Harare]. From the USA, **Mr. Monojit Chakraborty** of Carlmont High School, California made a Webinar presentation during the workshop.

The Indian participants / speakers were **Dr. Rajan Rawal** [Executive Director, Centre for Advanced Research in Building Sciences and Energy, Gujarat]; **Mr. K. Madhusoodanan** [SEEM National Executive Council Member, Editor – Energy Manager, Thiruvananthapuram, Kerala]; **Dr. Arpita Amarnani** [Assistant Professor – Finance, Goa Institute of Management, Sattari, Goa]; **Dr. Madhulika Bhati** [Scientist, CSIR – NISTADS, New Delhi]; **Ms. Shruthi Keerthi** [Environment Biotechnology Consultant at Quantum Enlightenment, Bangalore]; **Mr.**

C.S. Azad [Secretary – SEEM, Ghaziabad] ; **Mr. Kapil Jani** [Energy Auditor (BEE), Chartered Engineer, JP Technosoft, Ahmedabad]; **Mr. Jagrut Patel** [Chartered Engineer, JP Technosoft, Ahmedabad]; and **Ms. Geeta, Ms. Rashmi Srivastava and Ms. Meenu Galyan** [Research Associate, NAM S&T Centre, New Delhi].

The NAM S&T Centre was represented by Prof. Dr. Arun P. Kulshreshtha, Director General, Mr. M. Bandyopadhyay, Senior Expert and its three Research Associates, Ms. Geeta, Ms. Meenu Galyan and Ms. Rashmi Srivastava.

The overall programme of the Workshop was conducted in five technical sessions and the Concluding Session. All the sessions of the event were conducted in the Conference Hall of the Hotel Platinum Residency, Prahladnagar, Ahmedabad.

The presentations made by the participants from the NAM countries were on ‘The Implementation of the Priority of Energy Development on Bases of Efficiency, Saving and Employment of Renewable Energy Sources in the Province of Havana, Cuba’ by Ms. Osleidys Torres Valdespino; ‘ANN & PI using FLC for Applied Control on Wind Driven SEIG ’ by Dr. Sabry Mohamed Aly Mekhimar; ‘Country Status Paper of Indonesia’ by Dr. Toto Hardianto; ‘Sustainable Biohydrogen - A Candidate to Gear-up replacing Carbon based Energy’ by Dr. Khosrow Rostami; ‘Energy Crisis in Nigeria: Biogas Development and Production to the Rescue’ by Ms. Nwankwo Nnenna Cynthia; ‘Climate Change and Its Effect in Nigeria’ by Mr. Yakubu Sule Okolo; ‘Plastic Biogas Digester as the Mega Solution for Energy, Environment, Waste and Agriculture - A Case Study with Energy and Cost Economic Analysis’ by Mr. W.A.L.S. Karunawardana; ‘Renewable Energy Potential Mitigation and Adaptation’ by Mr. Jothiratna Ganithayalage Shantha Siri; ‘Influence of Weather Sensitivity on Electricity Consumption in Cotonou and Abidjan, Two Coastal Megacities in Western Africa’ by Ms. Kondi Akara Ghafi; ‘An Approach and Priority Analysis on Development Model for Newly Industrialized / Developing Countries in Emerging Energy Technologies’ by Dr. Levent Yagmur; ‘Finding Reasonable Energy for Economic Development towards Green Growth in Vietnam: Policy Challenges from mobilizing Resources Aspect’ by Dr. Pham Quang Tri; ‘Zambia’s Status on Energy’ by Mrs. Mwansa Olga Chilambwe; ‘Renewable Energy in Zimbabwe: Review on Energy Policies and Economic Growth’ by Mr. Ngonidzashe Givemore; and ‘Introducing A Platform of Inspiration for the Youth in South Asia’ by Dr. Monojit Chakraborty.

The Indian participants presented their papers on ‘Sixth Shade: Measurable Means for Impeccable Built Environment’ (Dr. Rajan Rawal); ‘Integrated Resource Efficiency Enhancement and Cleaner Production Services (IREECPS) – A Future Agenda of SEEM’ (Mr. K. Madhusoodanan); "India's Emphasis on Solar Energy: Issues and Challenges in the New Path" (Dr. Arpita Amarnani); ‘Renewable Energy Landscape of India: A Case Study of Solar Energy in India’ (Dr. Madhulika Bhati); ‘Climate Change Performance Index: A Case study on applying CCPI Concept in Malana village in Himachal pradesh’ (Ms. Shruti Keerthi); ‘Climate Change and Telecom’ (Mr. C.S. Azad); ‘Narmada Canal Top Solar Power Plant’ (Mr. Kapil Jain and Mr. Jagrut Patel) ; and ‘The Resilience of Critical Urban Infrastructure Systems and Energy Efficiency – An Indian Perspective’ (Ms. Geeta, Ms. Meenu Galyan and Ms. Rashmi Srivastava).

The Concluding Session was chaired by Prof. Dr. Arun P. Kulshreshtha, Director General, NAM S&T Centre and Dr. Sasi K. Kottayil, President, SEEM in which an Ahmedabad Declaration on

'Evolving Energy Models in Emerging Economies – post COP 21' was discussed and adopted. The Certificates of Participation were handed over to the Workshop participants by Prof. Dr. Arun P. Kulshreshtha, Mr. M. Bandyopadhyay, Dr. Jayant Sathaye, Mr. C Jayaraman and Dr. Sasi K. Kottayil. The participants thanked the local organisers for the fine arrangements made and efficiently conducting the Workshop.

During the workshop all the participants got an opportunity to visit the Gandhi Ashram, Kankaria Lake and Vishalla - the Village Restaurant and Heritage Museum.