

**INTERNATIONAL WORKSHOP ON SUSTAINABLE ENERGY FOR ALL:
TRANSFORMING COMMITMENTS TO ACTION**

BENGALURU, INDIA, 22 – 24 FEBRUARY 2014

BRIEF REPORT

Sustainable energy - energy that is accessible, cleaner and more efficient – powers opportunity. It grows economies; lights up homes, schools and hospitals; empowers women and local communities; and paves a path out of poverty to greater prosperity for all. In short, it is meeting the needs of the present without compromising the needs of the future. The world currently invests more than \$1 trillion per year in energy, much of it going toward the energy systems of the past instead of building the clean energy economies of the future. Investing in sustainable energy is a smart strategy for growing markets, improving competitiveness, and providing greater equity and opportunity. The promise of renewable energy can only be realised through significant investments in research and development on alternative, sustainable technologies such as solar, biomass, wind, hydropower, geothermal power, ocean energy sources, solar-derived hydrogen fuel, and the energy storage technologies necessary to operate them competitively. Indeed, the transition to sustainable energy may well be the biggest business opportunity of the 21st century.

‘Sustainable Energy for All (SE4All)’ is a global initiative launched by the Secretary-General of the United Nations, Ban Ki-moon, in the year 2011. It is aimed at achieving energy access, improving energy efficiency and increasing the use of renewable energy. Under this initiative it is intended to double the rate of improvement in energy efficiency, double the share of renewable energy in the global energy mix, and achieve universal energy access by the year 2030.

In order to deliberate on variety of issues concerning the sustainable energy, the Centre for Science & Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) jointly with the Society of Energy Engineers and Managers (SEEM), Trivandrum, India, and in association with the Christ University Faculty of Engineering, Bangalore, India organised the **Third Triennial International Workshop on ‘Sustainable Energy for All: Transforming Commitments to Action’** in Bengaluru, Karnataka, India during 22-24 February 2014. Mangalore Refinery & Petrochemicals Limited, a subsidiary of the Indian Oil and Natural Gas Corporation Ltd. (ONGC), was the Principal Sponsor of this workshop. The State Designated Agencies (SDA) of the Bureau of Energy Efficiency (BEE) in Karnataka, the Karnataka Renewable Energy Development Limited (KREDL) and the Government of Karnataka undertaking Power Company of Karnataka Limited (PCKL) co-sponsored this event.

The Sustainable Energy Workshop opened in an Indian traditional way by a cultural dance performance, lighting of the lamp and singing the University anthem. Dr. Iven Jose, Associate Dean, Electronics and Communications Engineering, Christ University Kengeri Campus, Bengaluru welcomed the delegates. Giving the Presidential Address Prof. Dr. Arun P. Kulshreshtha, Director & Executive Head, NAM S&T Centre presented the genesis of the event and also briefly described the activities of his inter-governmental organisation. This was followed by the address of Fr. Arun Anthony Chully, CMI,

Director, Department of Management Studies, Christ University, Bengaluru. Inaugural Address was given by Mr. N. Suresh, General Manager, Karnataka Renewable Energy Development Limited, Bengaluru. After the Vote of Thanks by Dr. R. Harikumar, General Secretary, SEEM, a group photograph session was held outside the main building of the Kengeri Campus of Christ University.

70 experts, professionals, administrators and researchers from 19 countries including Australia, Denmark, Egypt, Indonesia, Iraq, Malaysia, Mauritius, Myanmar, Nigeria, The Philippines, Sri Lanka, Thailand, Turkey, USA, Vietnam, Zambia, Zimbabwe, and the host country India, of which 13 (underlined) were the member countries of the NAM S&T Centre, attended this international workshop. The International Renewable Energy Agency (IRENA) with its office in Abu Dhabi, UAE was represented as an Observer.

The overseas participants were from Australia [Mr. Stephen Phillips, Chairman and Managing Director, Optimal Power Solutions, Brunswick]; Denmark [Mr. Jyoti Prasad Painuly, Manager and Senior Energy Planner, SE4All Energy Efficiency Hub, UNEP Risoe Centre, Copenhagen]; Egypt [Prof. Moustafa Mohammed Eissa, Department of Electrical Engineering, Faculty of Engineering, Helwan University, Cairo; and Dr. Gamal Abd El Latif Abd El Latif Haggag, Engineering Consultant, Technical Affairs and Cooperation with External Actors, Egyptian Electricity Transmission Company, Cairo]; Indonesia [Dr. Soni Solistia Wirawan, Head of Energy Technology Center, Agency for the Assessment and Application of Technology, Balai Besar Teknologi Energi (BPPT), Puspiptek]; Iraq [Mr. Mudher Hani Mahmood, Engineer, Renewable Energy/Hydrogen & Biofuel Department, Ministry of Science & Technology, Baghdad]; Malaysia [Dr. Mohd Nor Azman bin Hassan, Senior Principal Assistant Secretary, Ministry of Science & Technology Innovation (MOSTI), Putrajaya]; Mauritius [Mr. Vishwamitra Oree, Lecturer, Department of Electrical and Electronic Engineering, University of Mauritius, Reduit]; Myanmar [Dr. Myo Myint, Associate Professor, Department of Electronic Engineering and Information Technology, Technological University, Yangon]; Nigeria [Dr. Ezekiel Ayinde Alani, Senior Lecturer, Department of Agricultural Economics, Ladoke Akintole University of Technology, Ogbomosho]; The Philippines [Mr. Bernardo Tandang Caringal, Provincial Science and Technology Director, DOST-MIMAROPA, Taguig City]; Sri Lanka [Mr. Warnage Ransisi Keerthi Fonseka, Principal Research Engineer, Industrial Technology Institute, Colombo]; Thailand [Mr. Boonchu Leelakajohnjit and Mr. Sriwichai Susuk, Thailand Institute of Scientific and Technological Research (TISTR), Pathumthani]; Turkey [Dr. Selçuk Ataş, Researcher, Tübitak Marmara Research Center, Gebze]; UAE [Mr. Divyam Nagpal, Joint Professional Associate – KPFC, International Renewable Energy Agency (IRENA), Abu Dhabi]; USA [Mr. Anurag Mishra, Senior Clean Energy Specialist, Clean Energy and Environment Office, U.S. Agency for International Development (USAID), American Embassy, New Delhi, India]; Vietnam [Dr. Nguyen Anh Tuan, Officer, Department of International Cooperation, Ministry of Science and Technology (MOST), Hanoi]; Zambia [Ms. Kutemba Kaina Kapanji-Kakoma, Scientific Officer, National Institute for Scientific and Industrial Research (NISIR), Lusaka]; and Zimbabwe [Mr. Ngonidzashe Givemore Dupwa, Science and Technology Officer and Mr. Caleb Mharapara, Deputy Director of University Education, Ministry of Higher and Tertiary Education, Science and Technology Development, Harare]. From the NAM S&T Centre, Prof. Arun P.

Kulshreshtha, Director & Executive Head; Mr. M. Bandyopadhyay, Senior Expert & Administrative Officer; and Ms. Subhashree Basu, Research Assistant attended the event.

8 expert talks and 18 technical papers, status reports and case studies (total 26) were presented in seven technical sessions co-chaired by Prof. Moustafa Mohammed Eissa (Egypt), Dr. Soni Solistia Wirawan (Indonesia), Dr. Mohd. Nor Azman bin Hassan (Malaysia), Dr. Ezekiel Ayinde Alani (Nigeria), Mr. Bernardo Tandang Caringal (The Philippines), Mr. Warnage Ransisi Keerthi Fonseka (Sri Lanka), Dr. Selcuk Atas, Tübitak Marmara Res. Center, Gebze (Turkey), Mr. Ngonidzashe Givemore Dupwa (Zimbabwe), and Mr. C. Jayaraman (Chairman, SEEM, Kerala Chapter), Dr. P. Das (Professor, Faculty of Engineering, Christ University), Dr. P. Jayakumar (CEO, Arbutus Consultants Pvt. Ltd., Pune), Dr. V Shankar (Professor, Faculty of Engineering, Christ University) and Mr. R. Sudhir Kumar (Editor – Energy Snippets, SEEM, Bengaluru), all from India.

During the technical sessions, expert talks were delivered by eminent experts and professionals on ‘Renewable Mini Grid Systems for Remote Area Electrification’ by Mr. Stephen Phillips of Australia; ‘SE4ALL Energy Efficiency Hub’ by Mr. Jyoti Prasad Painuly of Denmark; ‘USAID initiatives on SE4All’ by Mr. Anurag Mishra [Sr. Clean Energy Specialist, U.S. Agency for International Development (USAID), India; ‘National Initiatives and Low Carbon Growth Policy Options for India’ by Dr. S.S. Krishnan, Head, Energy Efficiency and Sustainable Energy Policy Program, Center for Study of Science, Technology and Policy, Bengaluru; ‘SPV systems’ by Mr. Revankar, Chief Executive Officer, EMMVEE Solar, Bengaluru; ‘Sustainable Solar Energy in India’ by Mr. Rajeshwara Bhat, Managing Director, Juwi India Renewable Energies Pvt Ltd., Bengaluru; ‘Consultant’s Role in enhancing Investor’s Value in MW Level Solar PV Power Plants’ by Dr. P. Jayakumar, CEO, Arbutus Consultants Pvt. Ltd., Pune, India; and ‘Rethinking Financing and Business Approaches to Energy Access’ by Dr. Binu Parthan, Principal at Sustainable Energy Associates, India

The presentations made by the participants were on ‘Monitoring and Novel Applications of 220kV/500kV Egyptian Grid Parameters using Family of PMU based WAMS’ by Prof. Moustafa Mohammed Eissa of Egypt; ‘Renewable Energy in Egypt (Challenges and Ambition)’ by Dr. Gamal Abd El Latif Abd El Latif Haggag of Egypt; ‘Biofuels - An Alternative Energy Source towards a Sustainable and Eco-Friendly future: The Indian Scenario’ by Ms. Subhashree Basu of India; ‘Renewable and Conservation Energy Development Program in Indonesia’ by Dr. Soni Solistia Wirawan of Indonesia; ‘Portable Solar Anaerobic Digestion Pilot Plant for Biogas Production’ by Mr. Mudher Hani Mahmood of Iraq; ‘Pre-Commercialization of Research and Development Projects to improve Renewable Energy Technologies in Malaysia: The Technological, Institutional and Market Challenges’ by Dr. Mohd Nor Azman bin Hassan of Malaysia; ‘Transforming Sustainable Energy Commitments into Actions in Mauritius’ by Mr. Vishwamitra Oree of Mauritius; ‘A Study on Energy Statistics in Myanmar and Solution by Renewable Energy’ by Dr. Myo Myint of Myanmar; ‘Effect of Irrigation, Energy and Environmental Factors on Agricultural Productivity in Nigeria’ by Dr. Ezekiel Ayinde Alani of Nigeria; ‘Sustainable Energy for All: Transforming Commitments into Action - DOST MIMAROPA Region of The Philippines’ by Mr. Bernardo Tandang Caringal of The Philippines; ‘Energy Assessment and Implementation of Cleaner Production in a Tea Factory’ by Mr. Warnage Ransisi Keerthi Fonseka of Sri Lanka; ‘Furnace saves Energy

By Oxygen-Enriched Combustion’ by Mr. Sriwichai Susuk of Thailand; ‘TISR’s Research and Development on Alternative Energy’ by Mr. Boonchu Leelakajohnjit of Thailand; ‘Energy Efficiency: Soma Province District Heating System utilizing Waste Heat of Soma B Power Plant’ by Dr. Selçuk Ataş of Turkey; ‘Current Situations and Solutions for Renewable Energy Development in Vietnam’ by Dr. Nguyen Anh Tuan of Vietnam; ‘Renewable Energy Sources (RES) in Zambia – The Role of the National Institute For Scientific And Industrial Research’ by Ms. Kutemba Kaina Kapanji of Zambia; ‘Technology Transfer in the Area of Alternative Energy, Why Zimbabwe remained bogged in Load Shedding: A Case Study of Photovoltaic GEF Project Zimbabwe’ by Mr. Ngonidzashe Givemore Dupwa of Zimbabwe; ‘Alternative Energy Utilization by Institutions of Higher Learning: and A Case Study of Zimbabwe’ by Mr. Caleb Mharapara of Zimbabwe;

In the Concluding Session, co-chaired by Mr. C Jayaraman, Chairman, SEEM Kerala Chapter; Dr. Ezekiel Ayinde Alani, Senior Lecturer, Ladoke Akintola University of Technology, Nigeria; Prof. Dr. Arun P. Kulshreshtha, Director & Executive Head, NAM S&T Centre; and Dr. R. Harikumar, General Secretary, SEEM Kerala, Prof. Arun Kulshreshtha made a presentation on ‘The Role of the NAM S&T Centre for South – South Cooperation in Science & Technology’. Subsequently, there was considerable discussion and debate to generate a set of recommendations titled ‘Bengaluru Declaration on Sustainable Energy for All’, which was subsequently unanimously adopted in the presence of Fr. Thomas T.V., Director, Institute of Management, Christ University, Bangalore. Fr. Thomas also handed over the Participation Certificates to the participants and gave the Valedictory address.

Later, the participants were taken on a field visit to Promptec Renewable Energy Solutions Pvt. Ltd. in Bangalore, an LED Lamp Manufacturing Factory, and sightseeing / shopping.

Ms. Kutemba Kaina Kapanji - Kakoma of Zambia and Prof. Moustafa Mohammed Eissa of Egypt thanked the organisers on behalf of the participants for the successful and fruitful organisation of the Workshop and for excellent hospitality and arrangements made for the delegates. The role of student volunteers was specifically applauded. It was unanimously hoped that more similar events will be held in future with a focus on South-South cooperation.