

# Curriculum Vitae

## Sadhan Mahapatra

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Sadhan Mahapatra is currently working as an Associate Professor in Department of Energy, Tezpur University. He has obtained M.Sc in Physics from Visva-Bharati, Shantiniketan, M.Tech in Energy Science and Technology from Jadavpur University, Calcutta and Ph.D. from Indian Institute of Science, Bangalore. The area of the PhD work is in the field of Biomass Gasification. He teaches Solar Energy, Wind Energy, Energy Management & Conservation and Energy Efficient Building in the MTech Programme . His research areas of interests are Biomass gasification, Climate responsive buildings, Energy conservation, Decentralized energy systems and Photovoltaic systems.

He has published more than 60 papers in International Journals and Conference Proceedings. He is member of International Solar Energy Society (ISES), Indian Society for Technical Education (ISTE), Institution of Engineers, Indian Science Congress etc. He is Reviewer of many International Journals like Energy, Buildings and Environment, Solar Energy, Energy and Buildings, Energy for Sustainable Development, Journal of Cleaner Production, Energy Policy, Indoor and Built Environment, RSC Advances, Energy and Environmental Science etc.

## Personal Details

Date of Birth      04<sup>th</sup> January, 1972  
Gender              Male

## Academic Profile

Degree	University	Subject	Class
B.Sc	Visva-Bharati	Physics (Major)	First (University Second)
M.Sc	Visva-Bharati	Physics	First
M.Tech	Jadavpur	Energy Science & Technology	First (University Gold medal)
Ph.D	Indian Institute of Science	Biomass Gasification	

## Employment Details

Lecturer	Department of Energy, Tezpur University, India	1997-- 2002
Lecturer (Sr. Scale)	Department of Energy, Tezpur University, India	2002 -- 2007
Assistant Professor	Department of Energy, Tezpur University, India	2006 – 2010
Associate Professor	Department of Energy, Tezpur University, India	2010 –

## Research Areas

### A. Biomass Gasification

Gasification, a sub-stoichiometric combustion process, converts solid fuel to gaseous fuel. Unlike in combustion, where the primary intention is to release all the energy as sensible heat, in the case of gasification, the energy of solid fuel transferred to combustible gaseous species. The entire process occurs under fuel rich conditions. In the case of a packed bed, depending upon the air flow rate, propagation flame front moves into the virgin fuel. The propagation rate, which is influenced by air flow, combustion and heat transfer, depends on the fuel properties like size, density, thermal conductivity, moisture content, ash content and calorific value. Our work focuses on the experiments and mathematical modeling towards establishing the effect of air mass flux on the propagation rate, bed temperature, gas composition and related aspects under the sub-stoichiometric operating conditions in downdraft packed bed configuration. It is important to state that the combustion processes occurring in a packed bed are a resultant of both homogenous and heterogeneous reaction process. Depending upon the air flow rate for a given volume and surface area of the bed, the overall process varies between gasification (rich) and combustion (lean) regimes. The broad areas in this field are establishment of the operating regime of downdraft gasification system, production of hydrogen generation and electricity generation by using biomass gasification systems etc.

### B. Climate Responsive Buildings and Thermal comfort

Climate responsive building design is a concept that integrates the micro-climate and architecture with human thermal comfort conditions. This concept takes into account the solar passive techniques, micro-climatic conditions and thermal comfort conditions that improve the building energy efficiency. Thermal comfort not only makes the occupants comfortable but also decides the energy consumption in the building. However, vernacular architecture of North-Eastern India which perfectly represents the principle of climate-oriented architecture still lacks experimental validation and quantitative analysis. Our study starts with climatic classification of entire northeast region into three bioclimatic zones (warm and humid, cool and humid and cold and cloudy), thermal performance analysis of the vernacular buildings of the region. Since, it is not possible to monitor all the buildings due to limited accessibility; so predictive formula has been developed to predict the indoor temperature of these buildings. This study also focused to develop adaptive thermal comfort models and energy performance analysis the buildings of different climatic zones.

### C. Decentralized Energy Systems

Rural electrification is a great challenge in contemporary India. Low load factors, long distribution lines, low load densities and associated high transmission and distribution losses make many of the rural electrification programme economically unattractive. During grid availability, the supply is found to be erratic and poor quality. This calls for the need of decentralized power systems, which can cater to local communities in much effective manner. Apart from providing better quality of life to rural communities, it could have significant effect in the livelihood of the rural economy. Harnessing energy from solar photovoltaic and biomass gasification route could be the most promising towards access to electricity. The electricity generation through photovoltaic and biomass gasification process has been successfully demonstrated both at village community level and large scale independent power producer. Therefore the need for decentralized power system is also relevant to North-Eastern States of India, particularly for isolated sites that are located far off from the existing grid supply. The agro-residue and bamboo based biomass gasification technology systems can be replicable and sustainable model for generation of electricity from locally available resources at the village level. This would involve accelerating the overall development of the under developed areas with a number of programs like entrepreneurship development and employment generation opportunities. Hybrid energy systems (PV, biomass gasification etc.) can also integrate with grid based electricity to make the system cost effective and reliable.

### D. Energy Conservation and Management

India's energy demand is increasing rapidly with the intensive growth of economy. However, in the same time, energy supply and demand gap is also increasing which resulted energy shortage. Due to insufficient fuel supply, country is facing severe power shortage. The per capita average annual domestic electricity consumption in India in 2009 was 96 kWh in rural areas and 288 kWh in urban areas for those with has access to electricity, in contrast to the worldwide per capita annual average of 2600 kWh and 6200 kWh in the European Union. The electricity demand in India exceeded the availability, both in terms of base load energy and peak load. The base load and peak load deficit are 8.5 % and 9.8% respectively during the year 2010 -11. In this context, efficient use of energy source, its conversion and utilizations are the viable alternatives available to the utilities or industry to overcome the demand supply gap to a great extent. Energy conservation can be implemented both at supply side and demand side. Our research work concentrate both on supply side and as well as at end users level.

### Publications

#### International Journal

- [1] S. Snehash, H.S. Mukunda, **Sadhan Mahapatra**, S. Dasappa. Fischer-Tropsch route for the conversion of biomass to liquid fuels - Technical and economic analysis. **Energy**, 2017, 130; 182-191.

- [2] Rumi Rajbongshi, Devashree Borgohain, **Sadhan Mahapatra**. Optimization of PV-biomass-diesel and grid base hybrid energy systems for rural electrification by using HOMER. **Energy**, 2017, 126, 461-464.
- [3] Mayur Barman, **Sadhan Mahapatra**, Debajit Palit, Mrinal K Chaudhury. Performance and impact evaluation of solar home lighting systems on the rural livelihood in Assam, India. **Energy for Sustainable Development**, 2017, 38, 10-20.
- [4] Shyamal K. Das, **Sadhan Mahapatra**, Homen Lahan. Aluminium-ion Batteries: Developments and Challenges. **Journal of Materials Chemistry A**, 2017, 5, 6347-6367.
- [5] Baishali Talukdar, Sukanya Buragohain, Sanjai Kumar, V Umakanth, Nabin Sarmah, **Sadhan Mahapatra**. Effect of spectral response of solar cells on the module output when individual cells are shaded. **Solar Energy**, 2016, 137; 303-307.
- [6] Singh M. K, Attia S, **Mahapatra Sadhan**, Teller J. Assessment of thermal comfort in existing pre-1945 residential building stock. **Energy**, 2016, 98, 122-134.
- [7] **Sadhan Mahapatra**, S Kumar, S. Dasappa. Gasification of wood particles in a co-current packed bed: Experiments and model analysis. **Fuel Processing Technology**. 2016; 145, 76-89.
- [8] M. K. Singh, **Sadhan Mahapatra**, J. Teller, Development of thermal comfort models for various climatic zones of North-East India. **Sustainable Cities and Society**, 2015; 14, 133-145.
- [9] Pallavi Borah, M K Singh, **Sadhan Mahapatra**. Estimation of degree-days for different climatic zones of North-east India. **Sustainable Cities and Society**, 2015; 14, 70-81.
- [10] Borah R Rishi, Palit D, **Mahapatra Sadhan**. Comparative Analysis of Solar Photovoltaic Lighting Systems in India, **Energy Procedia**, 2014; 54,680-689.
- [11] Singh M. K., **Mahapatra Sadhan**, Teller J. Relation between indoor thermal environment and renovation in Liege residential buildings. **Thermal Science**, 2014; 18(3): 889-902.
- [12] **Sadhan Mahapatra**, S. Dasappa. Experiments and analysis of propagation front under gasification regimes in a packed bed. **Fuel Processing Technology**. 2014; 121, 83-90.
- [13] **Sadhan Mahapatra**, S. Dasappa. Influence of surface area to volume ratio of fuel particles on gasification process in a fixed bed. **Energy for Sustainable Development** 2014, 19, 122-129.
- [14] Manoj Kumar Singh. **Sadhan Mahapatra**. J Teller. An analysis on energy efficiency initiatives in the building stock of Liege, Belgium. **Energy Policy** 2013; 62, 729-741.
- [15] **Sadhan Mahapatra**, S. Dasappa. Rural electrification : Optimizing the choice between decentralized renewable energy sources and grid extension. **Energy for Sustainable Development** 2012; 16(2), 146-154.
- [16] Manoj Kumar Singh. **Sadhan Mahapatra**. S. K. Atreya. Solar passive features in vernacular architecture of North-East India. **Solar Energy** 2011: 85(9), 2011-2022.
- [17] Manoj Kumar Singh. **Sadhan Mahapatra**. S. K. Atreya. Adaptive thermal comfort model for different climatic zones of North-East India. **Applied Energy** 2011: 88(7), 2420-2428
- [18] Manoj Kumar Singh. **Sadhan Mahapatra**. S. K. Atreya. B Givoni. Thermal monitoring and indoor temperature modeling in vernacular buildings of North-East India. **Energy and Buildings** 2010: 42(10); 1610-1618.

- [19] Manoj Kumar Singh, **Sadhan Mahapatra**, S. K. Atreya. Thermal performance study and evaluation of comfort temperatures in vernacular buildings of North-East India. **Building & Environment** 2010:45(2), 320-329
- [20] **Sadhan Mahapatra**, H. N Chanakya, S. Dasappa. Evaluation of various energy devices for domestic lighting in India: technology, economics and CO<sub>2</sub> emissions. **Energy for Sustainable Development** 2009:13(4), 271-279
- [21] Manoj Kumar Singh, **Sadhan Mahapatra**, S. K. Atreya. Bioclimatism and Vernacular Architecture of North-East India. **Building & Environment** 2009: 44(5), 878-888.
- [22] Manoj Kumar Singh, **Sadhan Mahapatra**, S. K. Atreya. Development of Bio-climatic zones in North-East India. **Energy & Buildings** 2007:39(12), 1250-1257
- [23] **Sadhan Mahapatra**, S Neogi. Iterative Model for the Performance Evaluation of a Horizontal Axis Wind Turbine. **Wind Engineering** 2002: 26(2), 109-116.

### International Conference Proceeding

- [24] Manoj Kumar Singh, Ryoza Ooka, Hom B. Rijal, **Sadhan Mahapatra**. Building simulation based study to improve thermal performance of a traditional residential house. Fifth International Conference on Human-Environment System (ICHES2016), Nagoya, October 29 - November 2, 2016.
- [25] Pranab Deb, **Sadhan Mahapatra**, S Dasappa. Biomass Gasifier Based Hybrid Energy System Optimization for Energy Access by Using HOMER. 24th European Biomass Conference and Exhibition, pp 1612-1618, 978-88-89407-165, Amsterdam, Netherlands, 6-9 June, 2016.
- [26] Manoj Kumar Singh, Ryoza Ooka, Hom B Rijal, **Sadhan Mahapatra**. Defining thermal comfort in residential buildings of North East India, Proceedings of 16<sup>th</sup> Conference of the Science Council of Asia, Colombo, Sri Lanka, pp. 118-123, ISBN 978-955-590-123-9; May 30-June 1, 2016
- [27] Baishali Talukdar, **Sadhan Mahapatra**, Nabin Sarmah. A comparative study of grid-connected photovoltaic systems in four different locations of India. Fifth International Conference on Advances in Energy Research (ICAER), IIT Bombay, pp. 245-252, 15-17 December, 2015.
- [28] Samar Das, Pranay Kumar Sarkar Sarkar, **Sadhan Mahapatra**. Thermodynamic optimization of coal-biomass co-gasification process by using non-stoichiometric equilibrium modelling. Fifth International Conference on Advances in Energy Research (ICAER), IIT Bombay, pp. 385-392, 15-17 December, 2015.
- [29] Sukanya Buragohain, **Sadhan Mahapatra**, Nabin Sarmah, Sanjai Kumar. Shading and Mismatch effect on the Performance of PV Module. Fifth International Conference on Advances in Energy Research (ICAER), IIT Bombay, pp. 505-513, 15-17 December, 2015.
- [30] Neelam Bora, J P Singh, **Sadhan Mahapatra**. Establishment of Smart Micro Grid for Demand Side Management. Fifth International Conference on Advances in Energy Research (ICAER), IIT Bombay, pp. 1651-1659, 15-17 December, 2015.
- [31] **Sadhan Mahapatra** et al. Power Rating of Six Different Photovoltaic Technology Modules as Per IEC 61853-1 Under Natural Sunlight. Fifth International Conference on Advances in Energy Research (ICAER), IIT Bombay, pp. 1256-1263, 15-17 December, 2015.

- [32] P. Balachandra, **Sadhan Mahapatra**, D.C. Baruah, H.N. Chanakya, S. Dasappa. Eco-Enterprises, Policies and Institutional Setup for RHEES - North East India. International Bioenergy (Shanghai) Exhibition and Asian Bioenergy Conference 2015 Proceeding, pp 154-160, ISBN 978-88-89407-13-4.
- [33] Singh Manoj Kumar, **Mahapatra Sadhan**, Teller Jacques. Design optimisation of vernacular building in warm and humid climate of North-East India, 30th International Conference on Passive and Low Energy Architecture (PLEA 2014), 16-18 December, 2014, Ahmedabad, India.
- [34] Dhar Priyanka, Borah Pallavi, Singh Manoj Kumar, **Mahapatra Sadhan**. Thermal Characteristics of a Vernacular Building Envelope, 30th International Conference on Passive and Low Energy Architecture (PLEA 2014), 16-18 December, 2014, Ahmedabad, India.
- [35] Baruah Plabita, Singh Manoj Kumar, **Mahapatra Sadhan**. Thermal Comfort in Naturally Ventilated Classrooms, 30th International Conference on Passive and Low Energy Architecture (PLEA 2014), 16-18 December, 2014, Ahmedabad, India.
- [36] Deka K. **Mahapatra Sadhan**, Bordoloi PK, Medhi B. Design and Testing of a Control System for Supply Side Electrical Load Management. Proc of First International Conference on Non-conventional Energy (ICONCE 2014), ISBN: 978-1-4799-3340-2/14, pp. 277-281, January 16-17, 2014, Kalyani, India.  
<http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=06808726>
- [37] Das P Palash., **Mahapatra S**. Thermal Energy Performance Analysis of Tea Processing Unit, Fourth International Conference on Advances in Energy Research, ISBN: 978-81-928795-0-5, pp. 1593-1598, IIT Bombay, 10-12 December, 2013
- [38] Singh M. K., **Mahapatra S.**, Teller J. Study on indoor thermal comfort in the residential buildings of Liege, Belgium. CISBAT 2013, pp 481-486, Lausanne, Switzerland, 4-6th September, 2013
- [39] Medhi B J., **Mahapatra S.**, Thokchom A K., Singh A. Dynamics of free surface flow of non-colloidal suspensions in stepped channel. International Conference on Multi-Phase Flow, Jeju, Korea, 26-31st May, 2013
- [40] Singh Manoj Kumar. **Mahapatra Sadhan**. Atreya S. K. Thermal acceptability assessment in vernacular buildings of North-East India. 30th ISES Biennial Solar World Congress, Kassel, Germany, Volume 3, 2011; 2370-2379, ISBN: 978-161839364-7
- [41] Mahapatra Sadhan. **Dasappa S**. Off-Grid Biomass Gasification Based Rural Electrification in Lieu of Grid Extension. Proc of 19th European Biomass Conference and Exhibition, pp 2203-2208, Berlin, Germany, 6-10 June 2011
- [42] Singh Manoj Kumar. **Mahapatra Sadhan**. Atreya S. K. Study to enhance comfort status in naturally ventilated vernacular buildings of northeast India. 29th. ISES Biennial Solar World Congress, Johannesburg, South Africa, Volume 2, 2009, 1442-1450. ISBN:978-161738852-1
- [43] Iftiqar S. M. **Mahapatra S**. Fabricating large area Quantum dot Solar cell. 18th International Photovoltaic Science and Engineering Conference (PVSEC-18), Kolkata, 19-23 January, 2009.

- [44] Singh Manoj Kumar. **Mahapatra Sadhan**. Atreya S. K. Comfort Status in Naturally Ventilated Buildings of North-East India. Renewable Energy Asia - 2008. IIT Delhi, New Delhi, December 11-13, 2008. Proc. Renewable Energy and Environment for Sustainable Development, Ed: V K Vijay, H P Garg, Narosa Publisher, New Delhi, ISBN 978-81-7319-993-6, pp 1110-1116.
- [45] Singh Manoj Kumar. **Mahapatra Sadhan**. Atreya S. K. Sustainability through Bioclimatic Building Design in North-East India. Third International Solar Energy Society Conference, Asia Pacific Region; 46th ANZSES Annual conference (ISES-AP 2008), Sydney, Australia, 25 - 28 November 2008
- [46] Singh Manoj Kumar. **Mahapatra Sadhan**. Atreya S. K. Bio-climatic Chart for Different Climatic Zones of North East India. Proceedings of 3rd International Conference on Solar Radiation and Day Lighting (SOLARIS 2007), February 7-9, 2007, Anamaya Publishers, New Delhi. ISBN 10:81-88342-54-8, pp 194-199.
- [47] Tiwari Anand Prakash. **Mahapatra Sadhan**. Role of Educational Institutions in the Management of Innovation and Technology. Proc. International Conference on Innovation & Technology Management ( ICITM 2006), February 3-5, 2006, Calcutta. Ed. Book : Innovation and Technology Management, Macmillan Publisher (2008), New Delhi. ISBN 10:0230-63505-9, pp 170-174.
- [48] Singh Manoj Kumar. **Mahapatra Sadhan**. Design Guidelines for Construction of Energy Efficient Buildings in North-East India. International Congress on Renewable Energy (ICORE), February 8-11, 2006, Hyderabad, India. Proceedings of the International Congress on Renewable Energy 2006, Transition to Renewable Energy-Emerging Global Opportunities. Editors: E.V.R. Sastry and D.N. Reddy, Allied Publishers Pvt Ltd. New Delhi. ISBN : 81-7764-756-3. Pp 346-350
- [49] Sarma Anal Chandra. **Mahapatra Sadhan**. Village Electrification using Photovoltaic Systems in lieu of Grid Extension: Economic Analysis. Proc. 14th International Photovoltaic Science and Engineering Conference (PVSEC), Vol. II, pp 967-968, Bangkok, January 26-30, 2004
- [50] Sarma Anal Chandra. **Mahapatra Sadhan**. Life Cycle Cost Comparison between SPV systems and Electric Grid Extension for Village Electrification. International Conference on Energy and Environmental Technologies for Sustainable Development, 8-10 October 2003, Jaipur, pp 53-58. Proc. Energy Technologies for Sustainable Development. Eds: Dr. Upender Pandel and Dr. M. P. Poonia. 1st ed. Ghaziabad, Prime Publishing House. 2004. ISBN : 81-8229-000-7, pp 53-58
- [51] Mahanta Ajanta Kumar. **Mahapatra Sadhan**, Konwer D. Performance analysis of Biomass Gasifier systems with the variation of Electrical Load. International Seminar on Decentralized Energy: Options & Management (Challenges before Developing Countries), IE (I), Kolkata, 22-24th February 2002
- [52] Borah Simanta. **Mahapatra Sadhan**. Sasi KK. Energy Conservation measures in Tea Processing Unit. International Seminar on Energy Conservation, Audit & Metering, Central Board of Irrigation & Power, Mumbai, 24-25th January 2002
- [53] Ghosh Sonatan. **Mahapatra Sadhan**. Deka Dhanapati, Techno-Economic Analysis of Biomass Briquetting Technology for Rural Entrepreneurship: A Case Study. Proc. of

- International Conference on Renewable Energy for Rural Development, Ed. AK M Sadrul Islam, D G Infield, BUET, Dhaka, Bangladesh, pp 255-258,, January 19-22, 2002
- [54] **Mahapatra S.** Energy Conservation and Demand side Management in Lighting Sector - A Case Study. Prakash 99, Int. Conf. on Lighting Technology, New Delhi, Oct 29-31, 1999.

### National Conference Proceedings

- [55] Singh Manoj Kumar. **Mahapatra Sadhan.** Atreya S. K. Green Building Design: A step towards sustainable habitat. Renewable Energy and Sustainable Development. pp 257-268, Editors: R Katak, A C Borah, EBH Publishers, Guwahati, 2012. ISBN: 978-93-80261-78-2.
- [56] Dutta PP, Jain BC, **Mahapatra S.** Das R. Modification and Performance Testing of a slow speed Diesel Engine for purely producer gas power Operation. In Renewable Energy Technology : Issues and Prospects. Shankar G. Das B. Blange R. (Ed), Excel India Publishers, New Delhi 2011. Page No 112-117, ISBN : 978-93-80697-95-6.
- [57] Singh Manoj Kumar. **Mahapatra Sadhan.** Atreya S. K. Climate-responsive Building Design in North-East India. All India Seminar on Emerging Trends in Energy Efficiency - Opportunities & Challenges. 17-18 October 2008, The Institution of Engineers (India), Assam State Centre, Guwahati.
- [58] Bordoloi PK. Deka D. **Mahapatra Sadhan.** Role of Energy in Eco-Tourism Development. Proc. National Seminar on Sustainable Growth of Eco-Tourism in North East India, Tezpur University, September 26-27, 2003, pp 20-23
- [59] **Mahapatra Sadhan.** Konwer D. Energy Characteristics and Saving Potential in a Deluxe Hotel of Tezpur Town. Workshop on Conservation of Hydrocarbon and Use of Alternate Sources of Energy, Oil India Ltd., Duliagan, 28th Jan, 2000
- [60] **Mahapatra S.** Performance Testing of Box type Solar Cooker in North Eastern Region. Proc. National Renewable Energy Convention, Indore, Dec 20-22, 1999, pp 58-59
- [61] **Mahapatra Sadhan.** Konwer D. Prospects & Problems of Renewable Energy Programmes in NE region. Proc. National Renewable Energy Convention, Indore, Dec 20-22, 1999, pp 473-476
- [62] Deka D. **Mahapatra. S.** Konwer D. Rural Energy Scenario in a typical village of Assam: A micro-level case study. Renewable Energy Congress, Univ. of Kalyani, Jan 14 - 16, 1999
- [63] **Mahapatra Sadhan.** Neogi Subhasis. A Study On Multisolution Of simulation Of a Slow Speed wind Turbine, Proc. All India Seminar on Development of Sustainable Energy systems- An agenda for Utilization of Non-Conventional Energy sources, I.E (I), Calcutta, 25-26th April, 1997, pp 65-69.
- [64] **Mahapatra Sadhan.** Neogi Subhasis. Harnath S. A Study of Structural Load Estimation for a Slow Speed Wind Turbine , Proc. Towards Clean Energy , National Solar Energy Convention, Calcutta, 1996 , pp 277-280



## Popular articles

- [1] Singh M K. **Mahapatra S**. The Energy Perspective of Bioclimatic Buildings in North-East India. Energy Manager : A quarterly magazine of Society for Energy Engineers and Managers (SEEM). Jan-March 2009. 2(1); ISSN 0974-0996, pp. 34-41
- [2] **Sadhan Mahapatra**. Energy Security and Sustainable Development. The Assam Tribune, 12th September 2006.
- [3] **Sadhan Mahapatra**. The Need for Energy Conservation. The Assam Tribune, 11th May 2006.
- [4] **Mahapatra S**. Sasi K K. Energy Conservation in a Tea Processing Unit, The Bulletin on Energy Efficiency, 4(2), October 2003
- [5] Sasi K K. **Mahapatra Sadhan**. Energy Efficiency in Ceiling Fans, The Bulletin on Energy Efficiency, 4(2), October 2003.
- [6] **Mahapatra Sadhan**. Designing, Initiating and Managing successful Energy Management Programme, The Bulletin on Energy Efficiency, 4(1), August 2003.

## International Journal Reviewer

- Journal of Cleaner Production <sup>76</sup> (Elsevier)
- Energy : The International Journal <sup>40</sup> (Elsevier)
- RSC Advances <sup>20</sup> (Royal Society of Chemistry)
- Energy and Environmental Science <sup>19</sup> (Royal Society of Chemistry)
- Energy and Buildings <sup>15</sup> (Elsevier)
- Buildings and Environment <sup>14</sup> (Elsevier)
- Solar Energy <sup>11</sup> (Elsevier)
- Energy for Sustainable Development <sup>10</sup> (Elsevier)
- Indoor and Built Environment <sup>07</sup> (Sage)
- Indoor and Built Environment <sup>07</sup> (Sage)
- Sustainable Cities and Society <sup>06</sup> (Elsevier)
- Energy Policy <sup>05</sup> (Elsevier)
- Applied Energy <sup>05</sup> (Elsevier)
- Journal of Renewable and Sustainable Energy <sup>05</sup> (AIP)
- Energy Research and Social Science <sup>02</sup> (Elsevier)
- Urban Climate <sup>02</sup> (Elsevier)
- International Journal of Low-Carbon Technologies <sup>02</sup> (Oxford Univ. Press)
- Frontiers of Architectural Research <sup>01</sup> (Elsevier)
- Intelligent Buildings International <sup>01</sup> (Taylor and Francis)

## Research Project

- Rural Hybrid Energy Enterprise Systems, UKRC-DST, 198 lakhs, 2013-2016, (Co-PI)
- Demonstration of Bamboo based Gasification technology at Tezpur University, National Mission on Bamboo Application, TIFAC, 2004.
- Design Optimisation of a bamboo fan used as forced-air paddy cleaner, GIAN-NE, 2003 (completed) (Co-investigator).
- Energy Consumption Pattern in Tea processing Unit and Scope for Energy Conservation, UGC Minor Research Project. 2002 (Completed)

## Student Project Supervised

- M.Tech Thesis : 35 numbers

## Resource Person in seminar/workshops etc.

- Invited talk on “Grid-connected Roof-top Solar Photovoltaic System”, at Symposium 16, on Aspects of Renewable Energy in the North Eastern Region of India, Department of Electrical Engineering, GIMT, Guwahati, 8<sup>th</sup> April, 2016.
- Invited talk on “Solar passive features of vernacular buildings and Thermal comfort”, NEQIP Short term course on “Advances in Renewable Energy and its Applications”, Department of Electrical Engineering, Assam Engineering College, Guwahati, 8<sup>th</sup> March, 2016.
- Invited talk on “Performance analysis of grid connected photovoltaic systems”, NEQIP Short term course on “Advances in Renewable Energy and its Applications”, Department of Electrical Engineering, Assam Engineering College, Guwahati, 8<sup>th</sup> March, 2016.
- Invited talk on Solar Passive Architecture, TEQIP Short term course on “Solar Energy Conversion and Management”, Centre for Energy, IIT Guwahati, 26<sup>th</sup> November, 2015.
- Invited talk on Design, Performance and Economic Analysis of Roof-top Grid-connected Solar Photovoltaic System at Industry-Academia Meet on 4<sup>th</sup> November, 2015, Department of Energy, Tezpur University, Tezpur.
- Invited talk on “Approach towards energy efficient bioclimatic design for housing in the NER” at HUDCO-HSMI Training Programme on ‘Planning Issues and Interventions for Hill Towns of NER’ on 15<sup>th</sup> September, 2015, Hotel Lily, Guwahati.
- Invited talk on Climate responsive buildings and thermal comfort at One day awareness programme on Renewable Energy on 20<sup>th</sup> August 2015, Department of Energy Engineering, NEHU, Shillong.
- Invited talk on Design and performance analysis of roof top grid connected PV system at One day awareness programme on Renewable Energy on 20<sup>th</sup> August 2015, Department of Energy Engineering, NEHU, Shillong.
- Invited talk on Climate responsive buildings and Thermal comfort, NEQIP-AICTE sponsored FDP, Prince of Wales Institute of Engineering and Technology, Jorhat, Assam, 26<sup>th</sup> March, 2015.
- Pannel discussion on ‘Learnings from the Field: Contributing to Policy Discourse’ at Workshop on Sustainable Energy for All: Exploring how Bottom-up Experiences can

influence the Policy Discourse, 31st July 2014; Organised by TERI, The Pride Kolkata, Kolkata

- Invited talk on Biomass gasification: Science, Technology and Application, STTP, MANIT, Bhopal, 27<sup>th</sup> December, 2013.
- Invited talk on Climate responsive buildings of North East India, International Congress on Renewable Energy, Tezpur University, 2-4<sup>th</sup> November, 2011.
- Solar Home Lighting Systems Design. Central Training Institute, Guindy Industrial Area, Chennai, 9<sup>th</sup> August, 2011
- Bio Climatic Envelop Design and ECBC. National Workshop on Energy Efficiency Codes, and Ratings in Buildings. Guwahati, SDA, Assam and SEEM, 29<sup>th</sup> April 2010.
- Solar Energy : Principles, Utilizations and Economics. Workshop on Solar Energy, Department of Electrical & Electronics Engineering, Sri Siddhartha Institute of Technology, Tumkur, Karnataka, 2<sup>nd</sup> December, 2006.
- Life Cycle Cost comparison between Solar Photovoltaic Systems and Electric grid extension for Village electrification. Training Programme on Distributed Generation Technologies for Village Electrification, TERI-NE, Guwahati, 18<sup>th</sup> January 2006
- Wind Energy Technology: Options for decentralized power in North East India. Training Programme on Distributed Generation Technologies for Village Electrification, TERI-NE, Guwahati, 18<sup>th</sup> January 2006.
- Solar Passive Housing in North East India. Training Programme on Eco-housing and Sustainable Habitats, TERI-NE, Guwahati, 22<sup>nd</sup> December 2005.
- Roles of Joint Forest Management Committee in Production of Electricity from Biomass. Discussion at All India Radio, Guwahati, 12<sup>th</sup> December 2005.
- Scope of Energy Conservation in Nezone Biscuits Factory. Workshop on Energy Conservation & Tools for Reducing Energy wastage in Industry, Guwahati, 18<sup>th</sup> November 2005
- National Energy Conservation Programme. Workshop on Energy Conservation & Tools for Reducing Energy wastage in Industry, Guwahati, 18<sup>th</sup> November 2005
- Solar Energy & its Uses. Training-cum-Workshop on Integrated Rural Energy Planning, Nagaland Renewable Energy Development Agency, Kohima, 25<sup>th</sup> February 2005
- Energy. Motivational Contact Programme for Talented School children of class IX to XII, Tezpur University, 31<sup>st</sup> January, 2005
- Economics of Renewable Energy System. Training-cum-Workshop on Integrated Rural Energy Planning, Department of Energy, Tezpur University, 28<sup>th</sup> -30<sup>th</sup> January 2005.
- Solar Photovoltaic. Training-cum-Workshop on Integrated Rural Energy Planning, Department of Energy, Tezpur University, 28<sup>th</sup> -30<sup>th</sup> January 2005.
- Economics of Solar Thermal Energy Applications. Workshop on Solar thermal Application, Arunachal Pradesh Energy Development Agency ( APEDA), Itanagar, 20-21<sup>st</sup> December 2002
- Basic principles of solar energy resources and its utilization. Regional workshop on solar and low energy architecture, TERI-NE, Guwahati, 13-15<sup>th</sup> March 2002
- Renewable Sources of Energy. Contact Programme for Talented School children of class IX to XII, Tezpur University, 7<sup>th</sup> February, 2001

- Demand side Energy management in Lighting Sector. AICTE/ISTE short term training programme on Energy Management, NERIST, Itanagar, 18-19th Dec. 2000.
- Renewable Energy Technology (Other than Solar & Bio-energy). Workshop on Renewable Energy in North-East India with special Reference to Bio-Energy Technology, Guwahati, 4th-5th Sept. 1999

### **Seminar/Workshop/Training Programme attended**

- QIP short term course on "Photovoltaics and Application to Smart Grid", 18<sup>th</sup>-22<sup>nd</sup> January, 2016, at Centre for Continuing Education, Indian Institute of Science.
- Roundtable brainstorming session "Advancing Energy Efficiency Research for Habitat in India", 15<sup>th</sup> December, 2014, Sponsored by DST, and Indo-US Science and Technology Forum, at CEPT University, Ahmedabad, India.
- National Orientation Workshop on Finalization of Activity Guide 2012-2013 for 19<sup>th</sup> National Children Science Congress, Regional Institute of Education, Mysore, 11-13<sup>th</sup> June 2012
- Brainstorming Workshop on Preparation of Activity Guide 2012-2013 for 19<sup>th</sup> National Children Science Congress, Tezpur University, 2-4<sup>th</sup> May 2012
- Two-week ISTE Workshop on Solar Photovoltaics: Fundamentals, Technologies and Applications, conducted by IITB at Tezpur University, 12-22<sup>nd</sup> December 2011
- International Congress on Renewable Energy (ICORE) 2011, Tezpur University, 2-4<sup>th</sup> November, 2011
- 19<sup>th</sup> European Biomass Conference and Exhibition, Berlin, Germany, 6-10<sup>th</sup> June 2011.
- Science Academies' Lecture Workshop on Graduate Engineering Curriculum Development for Biomass Related Subjects, 10-11 March 2011, IISc and Jain University.
- IISc Centenary Conference, 13-16<sup>th</sup> December 2008. Indian Institute of Science, Bangalore.
- International Symposium on Earthen Structures (ISES-2007), 22-24<sup>th</sup> August 2007, Organised by ENTPE, France, IISc and University of Bath, UK at IISc, Bangalore.
- Training Programme on Effective Energy Generation and Conversion Systems, November 20-22, 2006, Organized by The Association for Overseas Technical Scholarship, Japan at IISc, Bangalore.
- International Congress on Renewable Energy (ICORE), February 8-11<sup>th</sup>, 2006, Hyderabad, India
- International Conference on Innovation & Technology Management (ICITM 2006), 3-5<sup>th</sup> February, 2006, Kolkata, India
- Training Programme on Distributed Generation Technologies for Village Electrification, TERI-NE, Guwahati, 18<sup>th</sup> January 2006
- Training Programme on Eco-housing and Sustainable Habitats, TERI-NE, Guwahati, 22<sup>nd</sup> December 2005.
- UGC Sponsored Refresher Course in Recent Advances in Physics, at Department of Physics, Tezpur University, December 9- 30, 2005.
- Workshop on Energy Conservation & Tools for Reducing Energy wastage in Industry, Guwahati, 18<sup>th</sup> November 2005

- Training-cum-Workshop on Integrated Rural Energy Planning, Nagaland Renewable Energy Development Agency, Kohima, 25th February 2005
- VIIth World Bamboo Congress, 27th Feb-4th March 2004, New Delhi.
- International Conference on Energy and Environmental Technologies for Sustainable Development, 8-10th October 2003, Jaipur
- National Seminar on Sustainable Growth of Eco-Tourism in North East India, Tezpur University, September 26-27, 2003.
- Workshop on Solar thermal Application, Arunachal Pradesh Energy Development Agency (APEDA), Itanagar, 20-21st December 2002
- DST sponsored One day Patent Awareness workshop, Tezpur University, 9th September 2002
- UGC Sponsored Refresher Course on Renewable Energy Technologies, School of Energy Studies, Jadavpur University, Kolkata during April 17th to May 8th 2002.
- Three day Regional Workshop on Solar and Low Energy Architecture, TERI-NE, Guwahati, 13-15th March 2002.
- Three day training programme for officers from North Eastern States & Orissa on Project Planning & Evaluation (Sponsored by Planning Commission) at Indian Institute of Management, Calcutta (IIMC) during March 12-14, 2001
- One Week National Workshop on Energy Studies for College & University Teachers at School of Energy Studies, Jadavpur University, Kolkata-32 during Jan 8-12, 2001
- AICTE/ISTE short term training programme on Energy Management, NERIST, Itanagar, 18-19th December 2000
- Workshop on Conservation of Hydrocarbon and Use of Alternate Sources of Energy, Oil India Ltd., Duliajan, Assam, 28th Jan, 2000.
- National Renewable Energy Convention, Indore, Dec 20-22, 1999.
- Prakash 99: International Conference on Lighting Technology, New Delhi, Oct 29-31, 1999.
- Workshop on Renewable Energy in North-East India with special Reference to Bio-Energy Technology, Guwahati, 4th-5th September 1999
- Renewable Energy Congress, University of Kalyani, Jan 14 - 16, 1999
- All India Seminar on Development of Sustainable Energy systems - An agenda for Utilization of Non-Conventional Energy sources, I.E (I), Calcutta, 25th-26th April, 1997.
- National Solar Energy Convention, Calcutta, 1996.

### **Seminar/Workshop/Training Programme Organised**

- Workshop-cum-Exhibition on Promoting Technology Development, Utilization and Transfer, 20th - 21st January 2006, Sponsored by Department of Scientific and Industrial Research (DSIR), Govt. of India, New Delhi (Convenor).
- Seminar on Gender and Energy Use, 11th November 2005, Sponsored by United States Educational Foundation in India, Kolkata (Co-coordinator)
- Training-cum-Workshop on Integrated Rural Energy Planning, 28th - 30th January 2005, Sponsored by Ministry of Non-conventional Energy Sources, Govt. of India, New Delhi (Joint Coordinator).

- Training-cum-Demonstration programme on Bamboo based Biomass Gasifier, 20th November 2004, Sponsored by National Mission on Bamboo Applications, New Delhi (Coordinator)

### **Scholarships/Fellowships etc.**

- National Merit Scholarship from XIth to M.Sc. (MHRD, Govt of India)
- Ranked 2nd in the B.Sc. (Physics) (1992), Visva-Bharati, Shantiniketan, India.
- Visva-Bharati University Merit Scholarship during M.Sc. Programme
- Graduate Aptitude Test in Engineering, India, 1994 (GATE-94)
- MHRD, Govt. of India Scholarship during M.Tech Programme
- CSIR JRF NET, June 1996, India
- Gold Medal in M. Tech. (Energy Sc. & Tech.) (1997), Jadavpur University, Kolkata, India
- IISC- Institute Scholarship for PhD; Sept 2010-July 2011.

### **Miscellaneous**

- Member, International Scientific Committee, International Conference on Environmental Science and Energy Engineering (ICESEE 2015), 26-27 July, 2015, Phuket, Thailand
- Member, National Technical Committee, National Conference on Advances in Fluid Flow and Thermal Science, 20-22 March, 2015, NERIST, Itanagar, India
- Chair, Technical Session on Integration of Renewable Energy, on December 18, 2014, at 30th International Conference on Passive and Low Energy Architecture (PLEA 2014), 16-18 December, 2014, Ahmedabad, India
- Member, Technical Committee, 30th International Conference on Passive and Low Energy Architecture (PLEA 2014), 16-18 December, 2014, Ahmedabad, India
- Member, Technical Committee, 1st International Conference on Non-conventional Energy, 16-17 January, 2014, Kalyani, India
- Editorial Board Member, International Journal of Energy Engineering
- Editorial Board Member, Journal of Energy
- Chartered Engineer (C. Eng) (2003), Institution of Engineers (India)

### **Extension Activities**

- Third Party Inspection on Solar Home Lighting Systems of Lakhimpur and Dhemaji districts of Assam (2010)
- Coordinator: GIAN-NE, Tezpur University Chapter (2002-2006)
- Feasibility study on installation of Wind Turbine at Regional Potato Farm, Mao, Department of Horticulture and soil conservation, Government of Manipur (2004)
- Programme Coordinator: Tezpur University NSS ( National Service Scheme)Unit

### **Membership of Professional /Learned Bodies/ Societies**

- Member, International Solar Energy Society (ISES)
- Member, International Energy Initiative (IEI)

- Institution of Engineers (AMIE)
- Indian Science Congress Association
- Indian Society for Technical Education (ISTE)
- Indian Association for the Cultivation of Science
- Solar Energy Society of India (SESI)
- Indian Society for Lighting Engineers (ISLE)
- Assam Science Society

**Professional Responsibility at Tezpur University**

Member	Board of Management, Tezpur University Internal Quality Assurance Cell (IQAC) ( 2013-16) Planning and Academic Committee, Tezpur University (2002-2004) Tezpur University Student Council Election (2014,2015, 2016)
Programme Coordinator	PG Diploma in Renewable Energy and Energy Management, Distance Education Programme (2012-) Tezpur University NSS (National Service Scheme) Unit, 2005-2006
Coordinator	Tezpur University Chapter of Grassroots Innovation Augmentation Network (GIAN) sponsored by NIF (2002-2006)
University Representative Warden	Tezpur University Entrance Examinations (2003-05, 12-15) Men's Hostel I (1998-1999); Brahmaputra Chatra Niwas ( 2000-2006); New Hostel (Men) II; 2002
Member Member	Academic Programme Committee (2002-2005) Students Welfare Committee, Students Disciplinary Committee, Students Council, Canteen Management committee, Physical Stock Verifications, Security committee
Member	Convocations, Foundation Day Celebrations, Independence & Republic Days Celebration, Annual Sports & Cultural Meets, NAAC 2005, 2016 Visit, Seminars/Workshops
Secretary Security-in-charge Vice President	Canteen Management Committee Campus Security Tezpur University Alumni Association

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