

RESEARCH INTERESTS

renewable energy resource and technologies, climate change and green house gas mitigation, solar energy, and energy and sustainable development

TEACHING

1. Energy Resources and Technologies
2. Energy Environment and Climate Change: Issues and Strategies Solar Energy
3. Workshop on Energy issues and Communication
4. Choice and transfer of energy technologies (with Prof. Nazrul Islam)
5. Solar Design methods and applications

SELECTED PUBLICATIONS

SELECTED PUBLICATIONS(for detailed list, see <http://www.faculty.ait.asia/kumar>):

A Books/Book chapters (selected recent):

1. S. Kumar and Kyoko Kusakabe, Policy brief: preservation of garden houses for sustainable tourism in Hue city, January 2013
2. S. Kumar and Kyoko Kusakabe, Policy brief: promoting non motorized transport in Chiang Mai, January 2013.
3. S. Kumar, Kyoko Kusakabe, Pravakar Pradhan, Pujan Shrestha, Srujana Goteti, Tran Anh Tuan, Ekawit Meteejaroenwong, Trinnawat Suwanprik, Khanh Linh, Greenhouse Gas Emissions from Tourism Service Providers: Case Studies in Chiang Mai, Thailand and Hue, Vietnam, in "Livelihoods, Ecosystem Services and the Challenges of Regional Integration in the Mekong Region", edited by Louis Lebel, Chu Thai Hoanh, Chayanis Krittasudthacheewa and Rajesh Daniel, and published by Strategic Information and Research Development Centre (SIRD), Selangor, Malaysia. (2013), in press
4. R.M. Shrestha, Sudhir Sharma, Govinda R Timilsina and S. Kumar, Baseline Methodologies for Clean Development Projects, UNEP, November 2005 (200 pages).
5. S. Kumar and S.C. Bhattacharya (Editors), Technology Package: Solar, Biomass and Hybrid dryers, Renewable Energy Technologies in Asia project Phase III, ISBN 974-8208-96-8, 60

pages, June 2005.

6. S. Kumar (Editor), Technology Package: Low cost PV system components, Renewable Energy Technologies in Asia project Phase III, ISBN 974-8208-98-4, 48 pages, June 2005.

B. Journals (selected recent):

1. Supattana Nirukkanaporn and S. Kumar, "A Transition to bilateral trading ESI – effect to generation dispatched cost" *International Journal of Energy Sector Management*, Vol. 4 No. 4, pp. 577-592, 2010.
2. Boonchai Riangvilaikul and S. Kumar "An experimental study of a novel dew point evaporative cooling system" *Energy and Buildings*, Vol. 42, pp. 637-644, 2010.
3. Boonchai Riangvilaikul and S. Kumar "A numerical study of a novel dew point evaporative cooling system" *Energy and Buildings*, Vol. 42, No. 11 pp. 2241-2250, 2010.
4. Boonrit Prasartkaew and S. Kumar "A Low Carbon Cooling System Using Renewable Energy Resources and Technologies" *Energy and Buildings*, Vol. 42, No. 9, pp. 1453-1462, 2010.
5. Adeel Waqas and S. Kumar, "Utilization of Latent Heat Storage Unit for Comfort Ventilation, of Building in Hot and Dry Climates" *International Journal of Green Energy*, Vol.8, No. 1 pp. 1-24, 2011.
6. Adeel Waqas and S. Kumar, "Thermal performance of latent heat storage for free cooling of building in a dry and hot climate: An experimental study" *Energy and Buildings*, Vol. 43, pp. 2621-2630, 2011.
7. R. Balan, J. Chandrasekaran, S. Shanmugan, B. Janarthanan, S. Kumar, "Review on passive solar distillation", *Desalination and Water Treatment Science and Engineering*, Vol.28, pp.217-238, April 2011.
8. J. Chandrasekaran, D. Nithyaprakash, K.B. Ajjan, S. Maruthanuthu, D. Manoharan and S. Kumar, "Hybrid solar cell based on blending of organic and inorganic materials – An overview" *Renewable and Sustainable Energy Reviews*, Vol.15 No. 2 pp.1228-1238, 2011.
9. N. Phuangpornpitak, S. Kumar "User Acceptance of Diesel/PV Hybrid System in an Island Community" *Renewable Energy*, Vol.36, Issue 1, Page 125-131, January 2011.
10. Vijitra Chalatlou, Murari Mohon Roy, Animesh Dutta and Sivanappan Kumar, *Jatropha* oil production and an experimental investigation of its use as an alternative fuel in a DI diesel engine, *Journal of Petroleum Technology and Alternative Fuels*, Vol. 2(5), pp. 76-85, May 2011.
11. Shree Raj Shakya, S. Kumar and Ram M. Shrestha, Co-benefits of a carbon tax in

Nepal, *Mitigation and Adaptation to Climate Change*, Vol. 17, No 1, 77-101, 2012.

12. Naruemon P, N.K. Tripathi, S. Kumar and P. Soni, Inter-sensor Comparison between THEOS and Landsat-5 TM Data in Study of Two Agricultural Crops in Thailand, *Journal of Remote sensing*, 4(2), 354-376, 2012.
13. Muhammad Khalid Farooq and S. Kumar, *An assessment of renewable energy potential for electricity generation in Pakistan*, *Renewable and Sustainable Energy Reviews*, 20, Pages 240-254, 2013.
14. Boonrit Prasartkaew and S. Kumar, Design of a Renewable Energy Based Air-conditioning System, *Energy and Buildings*, (accepted for publication, September 2013).
15. Adeel Waqas and S. Kumar, *Phase change material (PCM) based solar air heating system for residential space heating in winter*, *International Journal of Green Energy*, 10, 1-25, 2013.
16. Boonrit Prasartkaew and S. Kumar, *Experimental study on the performance of a solar-biomass hybrid air-conditioning system*, *Renewable energy*, 57, 86-93, 2013.
17. Jutamane Martchamadol and S. Kumar, *An aggregated energy security performance indicator*, *Applied Energy*, 103, 653-670, March 2013. (Impact Factor 4.781) 6.
18. S. Kumar, P. Abdul Salam, Pujan Shrestha and Emmanuel Kofi Ackom, *An Assessment of Thailand's Biofuel Development*, *Sustainability*, 5, 1577-1597, 2013.
19. Chanamon Chantana and S. Kumar, *Experimental and theoretical investigation of air-steam condensation in a vertical tube at low inlet steam fractions*, *Applied Thermal Engineering*, accepted for publication (March 2013).
20. Agha Mohammad, Pujan Shrestha and S. Kumar, *Urban residential energy use in Kandahar, Afghanistan, Cities*, accepted for publication (April 2013).
21. Najmul Hoque and S. Kumar, *Performance of Photovoltaic microutility systems*, *Energy for Sustainable Development*, accepted for publication (April 2013).
22. S. Kumar, P. Abdul Salam and Pujan Shrestha, *A Review of Biofuel Policies in the Major Biofuel Producing Countries of ASEAN: Production, Targets, Policy Drivers and Impacts*. *Renewable & Sustainable Energy Reviews*, Vol. 26, pp. 822-836, October 2013.
23. Muhammad Khalid Farooq, S. Kumar, and Ram M. Shrestha, *Energy, environmental and economic effects of Renewable Portfolio Standards (RPS) in a Developing Country*, *Energy Policy*. *Energy Policy* (Accepted for publication, September 2013).

B. Conferences (selected recent)

1. S. Kumar, Action towards resource efficient and low carbon cities in Asia, *Eco city 2013 World Summit*, 25 – 27 September 2013, Nantes, France
2. S. Kumar, Pujan Shrestha and Abdul Salam, Energy Access of the Urban Poor in Bangkok, Thailand, *Sustainable Future Energy 2012 and 10th SEE FORUM, Innovations for Sustainable and Secure Energy*, 21-23 November 2012, Brunei Darussalam
3. S. Kumar, Energy for sustainable development: Tropical island nation's context, *International Conference on Tropical Island Ecosystems: Issues related to livelihood, sustainable development and climate change*, 23 – 26 March, 2011, Port Blair, India. 3
4. S. Kumar, Renewable Energy Education and Research at the Asian Institute of Technology, *6th UN-CECAR International Conference: Renewable Energy*, Bangkok, Thailand, 22-23 May 2012.
5. S. Kumar, "RETSscreen Use in University- level Energy Courses", *RETSscreen Annual Conference and Training Institute*, 20-22 June, 2011, Niagara Falls, Canada.

ONGOING AND COMPLETED PROJECTS

(for detailed list, see <http://www.faculty.ait.asia/kumar>):

(Selected recent)

1. **Title:** Sustainable Urban Tourism through Low Carbon Initiative: Experiences from Chiang Mai and Hue
Position: Principal Investigator (with Dr. K. Kusakabe) (2011-2013)
Sponsor: Sustainable Mekong Research Network
2. **Title:** Indicator for Low Carbon Green Growth/Green
Position: Principal Investigator (2011-2013)
Sponsor: Asian Development Bank Institute (ADBI), Japan

Principal Investigator (with Dr. P. Abdul Salam and Dr. Charles Marpaung and Dr. R. Shrestha) (2010 – 2013) UNEP Riso Centre

3. **Title:** Technology Needs Assessments in Asia for Climate Change Mitigation
Position: Principal Investigator (with Dr. P. Abdul Salam and Dr. Charles Marpaung and Dr. R. Shrestha) (2010 – 2013)
Sponsor: UNEP Riso Centre
4. **Title:** Low Carbon Cities: Learning from the Experiences in France
Position: Principal Investigator (with Prof. C. Visvanathan, Dr. P. Abdul Salam, Dr. Charles Marpaung, Dr. Ranjith Perera and Dr. K. Kusakabe) (2010 – 2013)
Sponsor: SDCC/AIT – France Network

5. **Title:** Actions towards Resources-efficient and Low Carbon Cities in Asia
Position: Principal Investigator (with Prof. C. Visvanathan, Dr. P. Abdul Salam, Dr. R. Perera, Dr. Charles Marpaung and Dr. Kyoko Kusakabe) (2009 – 2013)
Sponsor: ADEME, France
6. **Title:** Urban and Peri-urban Energy Access III (UPEA III)
Position: Principal Investigator (with Dr. P. Abdul Salam) (2011-2012) **Sponsor:** GNESD, Denmark
7. **Title:** Micro hydro – PV Hybrid System
Position: Principal Investigator (with Dr. P. Abdul Salam, Dr. Jai Govind Singh and Dr. Charles Marpaung) (2010 – 2012)
Sponsor: Ebara Katayema Memorial Fund, Japan
8. **Title:** CKDN Project Proposal on Sustainable Tourism
Position: Principal Investigator (with Dr K. Kusakabe) (2011)
Sponsor: Sustainable Mekong Research Network
9. **Title:** Biofuel Sustainability Policy Study
Position: Principal Investigator (with Dr A. Salam) (2011)
Sponsor: GNESD, Denmark
10. **Title:** ICETT International Cooperation Network Information Project (ICNIP) in Thailand
Position: Principal Investigator (2010)
Sponsor: International Center for Environmental Technology Transfer (ICETT), Japan
11. **Title:** Integration of RETScreen version 4 in education and training
Position: Principal Investigator (with Dr. P. Abdul Salam) (2010)
Sponsor: CANMET Energy Technology Center, Verenne, Canada
12. **Title:** Biomass Gasification Study in the Mekong Region.
Position: Principal Investigator (with Dr. P. Abdul Salam) (2010 – 2011)
Sponsor: EEP Mekong Region
13. **Title:** Pilot Appraisal of Low Carbon Technology Innovation and Diffusion in Thai Manufacturing Sectors
Position: Principal Investigator (with Prof. C. Visvanathan and Dr. P. Abdul Salam) 2009 - 2010
Sponsor: UNIDO, Austria

AWARDS AND HONORS

Guest Professor, Tongji University, Shanghai, PR China

PROFESSIONAL AFFILIATIONS

Member, Institution of Engineers, India

RESEARCH KEYWORDS

Solar energy, energy and sustainable development, greenhouse gas mitigation, renewable energy technologies