

## Curriculum Vitae of Anthony Halog

Citizenship: Canadian and Permanent Resident of Australia since September 2012.

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### EXPERTISE

Industrial Ecology (IE) is an emerging, cross-disciplinary field, combining natural, technical and social sciences in a systems view at scale levels from the global to the local. Its core concept is the analogy between processes in nature (biosphere) and processes in society (techno-sphere). My Research Group in Industrial Ecology and Circular Economy endeavours to provide service/expertise for industry clients (i.e. agri-food sector) in transforming existing linear system-based value chains and operations towards circularity, which enhances their resource efficiency & productivity, creates added value products from wastes, and reduces their emissions into the environment for a more sustainable consumption and production in the future.

### PROFESSIONAL EXPERIENCE / TRAINING

01/2016 – 02/2016	Visiting Professor	Department of Chemical and Environmental Engineering, the University of the Philippines
10/2012 - present	Tenured Lecturer	School of Geography, Planning and Environmental Management, the University of Queensland, Australia
06//2012 – 08/2012	Visiting Faculty Fellow	National Renewable Energy Laboratory (NREL), Department of Energy, Golden, Colorado, USA
06/2011 – 08/2011	OECD Research Fellow	Finnish Forest Research Institute (METLA), Joensuu, Finland
02/2011 – 03/2011	Japan Society for the Promotion of Science (JSPS) Research Fellow	National Institute of Advanced Industrial Science and Technology (AIST), Japan
07/2008 – 06/2012	Graduate School Faculty Member	Graduate Program in Ecology and Environmental Science, University of Maine, USA
07/2008 – 08/2012	Assistant Professor (Tenure Track)	School of Forest Resources, University of Maine, USA
08/2006 – 06/2008	Assistant Professor (Fixed Term)	Faculty of Business, Brock University, Canada
01/2006 – 07/2006	Part-time Lecturer	School of Business, Carleton University, Canada
06/2004 – 06//2006	Natural Science and Engineering Research Council (NSERC) Postdoctoral Research Fellow	Sustainable Technology Laboratory, Institute for Chemical Process and Environmental Technologies (ICPET), National Research Council (NRC), Canada
03/2002 – 03/2004	Japan Society for the Promotion of Science (JSPS) Postdoctoral Research Fellow	National Institute of Advanced Industrial Science and Technology (AIST), Japan

### ACADEMIC EDUCATION

2010	Advanced Training in Sustainability Assessment in Transboundary Context	Vienna University of Economics and Business, Austria
2003	Advanced Course in Environment and Sustainable Development	United Nations University, Tokyo, Japan
2002	Doctor of Economic Sciences (Dr.rer.pol.) in Industrial Environmental Economics	Karlsruhe Institute of Technology (KIT), Germany
1998	Master of Business Administration (MBA) in Decision Sciences	Monash University, Australia

1993	Master of Engineering (ME) in Industrial Systems Engineering	Asian Institute of Technology, Thailand
1990	Bachelor of Science (BS) in Chemical Eng. (Magna cum Laude)	University of Mindanao, Philippines

### HONOURS AND AWARDS

2015	Sustainability Best Paper Awards for 2015. 2nd Prize Article International Award	
2014	Selected to participate in the <i>Australian Academy of Science (AAS)-organised 2014 Theo Murphy High Flyers Think Tank: Climate Change Challenges to Health</i> , Australia	
2014	UQ Hanban Fellowship Award, China	
2014	UQ Indonesia Partnership Award, Australia	
2013	Japan Society for the Promotion of Science Invitation Fellowship for Research	
2013	National Scholarship Programme for the Support of Mobility of University Teachers and Researchers, Slovak Republic	
2012	Department of Energy, Office of Science Sponsored Visiting Faculty Program (VFP) Fellowship, USA	
2011	OECD International Fellowship Awards for 2011 “Biological Resource Management for Sustainable Agricultural Systems”	
2011	The Japan Society for the Promotion of Science (JSPS) BRIDGE Fellowship Program	
2010	2010 Recipient of European Union (EU) and Marie Curie Actions Fellowship	
2004 - 2006	Natural Science and Engineering Research Council (NSERC) Postdoctoral Research Fellowship, Canada	
2002 - 2004	Japan Society for Promotion of Science (JSPS) Postdoctoral Research Fellowship	
1999 - 2002	German Academic Exchange Service (DAAD) Doctoral Research Grant, Germany	
1996 - 1998	Australian Postgraduate Merit Scholarship	
1992 - 1993	Government of Belgium Academic Scholarship, Asian Institute of Technology	

### GRANTS RECEIVED

2016 - 2017	Integrated assessment simulation for economic and environmental policies: Boosting the dynamic modelling capacity of the Industrial Ecology Virtual Laboratory	Australian Research Council	A\$260,000
2015	Exploring the Application of the Circular and Green Economy Paradigm for Australian Agri-Food Sustainability	Global Change Institute, Australia	A\$5000
2015	<i>Incorporating Socio-Economic Indicators for Evaluating Innovation Opportunities for Sustainable Bioeconomy</i>	European Union and Hungary “Senior Researcher” Category	HUF 1 million (A\$5000)
2015	Grant for Participation in TUM-UQ Research Symposium: Water, Environment and Sustainability, June 11 -12, 2015	UQ Global Engagement partnership initiative	A\$3500
2013-2014	Industrial Transformation: Towards Creating Circular Economy-Oriented Industries in Australia	UQ New Staff Research Start-up Grant	A\$11,192
2014	Promotion of Circular and Green Economy Principles into Australia-Indonesia Agri-food Trading	UQ-Indonesia Partnership Award	\$5000
2012-2016	Securing the Future of Natural Rubber – An American tire and bio-energy platform from Guayule, USDA/BRDI Collaborative Project	US Department of Agriculture/BRDI	U\$415,000 out of \$6.85Million

2011-2013	Database Development for Integrated Sustainability Assessment of Forest Based Biofuels Supply Chain	USDA/NIFA/FASE Seed Grant	US\$149,861
06/2011 - 08/2011	Critical Role of Ecosystem Goods and Services to Sustainability of Renewable Energy Production (Case of Wood Derived Ethanol)	Department of Energy/NREL	US\$ 12000
2012	Establishing Collaborations with Japanese University Researchers	Japan Society for the Promotion of Science/Bridge Program	783,810 Yen (US\$10,000)
10/2009 – 09/2013	Modelling and Assessment of Forest Biomass for Sustainable Bioenergy Development	McIntire-Stennis/Maine Agricultural and Forest Experimental Station (MAFES)	US\$100,000
06/2004 – 06/2006	Development of Dynamic Systems Models for the Oil Sands Industry: Demonstrating Triple Bottom Line Concept of Sustainability	Natural Science and Engineering Research Council (NSERC)/Canadian National Research Council	C\$100,000
03/2002 – 3/2004	Development of Assessment Methodology for Waste Gasification Technologies with Data Uncertainty	Japan Society for Promotion of Science (JSPS) Postdoctoral Research Fellowship (competitive)	14,152,751.91 Yen

**Refereed Publications & Conference Proceedings including Accepted/In Press (within the past 5 years)**

J. Navarro, B. Bryan, O. Marinoni, S. Eady, <b>A. Halog</b> (2016). Mapping agriculture's impact by combining farm management handbooks, life-cycle assessment and search engine science, <i>Environmental Modelling &amp; Software</i> , Volume 80, June 2016, Pages 54–65.
Pagotto, M., <b>Halog, A.</b> (2015). Towards a Circular Economy in Australian Agri-food Industry: An Application of Input-Output Oriented Approaches for Analysing Resource Efficiency and Competitiveness Potential. Article first published online: 19 NOV 2015 DOI: 10.1111/jiec.12373 *
Y. Li, R.J.S. Beeton, T. Sigler and <b>A. Halog</b> (2015). Modelling the Transition towards Urban Sustainability: A Case Study of the Industrial City of Jinchang, NW China, <i>Special Issue in the Journal of Cleaner Production</i> (accepted/in press)
<b>Halog, A.</b> , Nguyen, N.H. Designing Sustainable Value Chain Networks: Incorporating the Triple Dimensions of Sustainability Paradigm, Edited book on Implementing Triple Bottom Line Sustainability into Global Supply Chains (Invited/Accepted as of November 2015) *
<b>Halog, A.</b> , Manik, J. Life Cycle Sustainability Assessments, the Sustainable Inorganic Chemistry Handbook, D. Atwood (ed), Wiley Publishing, USA (Invited/Accepted as of October 2015).
L. Luu, <b>A. Halog</b> , Life Cycle Sustainability Assessment: A Case Study of Rice Husk Based Electricity Production in Vietnam, Heriberto Cabezas, and Gerardo J Ruiz-Mercado (eds), Book "Sustainability in the Analysis, Synthesis and Design of Chemical Engineering Processes, Elsevier, (Invited/Accepted as of October 2015).
Balanay, R., <b>Halog, A.</b> Teaching Education for Sustainable Development in the University: The Philippine Case, submitted April 21, 2015, Book "Teaching Education for Sustainable Development at University

Level" and "Engaging Stakeholders in Education for Sustainable Development at University Level", the World Sustainability Series, Springer ( <i>Accepted/in-press as of October 2015</i> )
NH Nguyen, R. Beeton, <b>A. Halog</b> (2015). A Systems Thinking Approach for Enhancing Adaptive Capacity in Small and Medium Sized Enterprises: Causal Mapping of Factors Influencing Environmental Adaptation in Vietnam's Textile and Garment Industry, <i>Environment, Systems and Decisions (in press)</i> . *
NH Nguyen, R. Beeton, <b>A. Halog</b> (2015). Firm Characteristics and Its Adaptive Capacity in Response to Environmental Requirements: An Empirical Study of Vietnam's Textile and Garment SMEs, <i>International Journal of Environment and Sustainability (IJES) (in press)</i>
Nguyen N.H, Beeton R.J.S, <b>Halog A.</b> (2015). Creating a Consumer Driven Institutional Adaptive System for a Sustainable Textile Industry in Vietnam, <i>Journal of Business Model Innovation (in press)</i> .
K. Yin, P. Dargusch, <b>A. Halog</b> . (2015). An Analysis of the Greenhouse Gas Emissions Profile of Airlines Flying the Australian International Market, <i>Journal of Air Transport Management</i> 47, 218-229.
F. Z. Ismail, <b>A.Halog</b> and M. R.Esa. <i>Transitioning Sustainable Construction towards a Disaster Resilience Development in Malaysia</i> , the 8th Making Cities Liveable Conference 2015 - Liveable Cities for the Future on 6 - 7 July 2015 at Hilton on the Park, Melbourne.
M. R.Esa, <b>A. Halog</b> . <i>Circular Economy Potential: Waste Minimization Strategy in the Construction Industry</i> , 8th Making Cities Liveable Conference 2015 - Liveable Cities for the Future on 6 - 7 July 2015 at Hilton on the Park, Melbourne. *
D. Allen, J. Boddy, K.Bowen, D. Bowles, R. Bradbury, S. Corney, E. Eilam, S. Friel, <b>A. Halog</b> , S. James, P. Liddicoat, C. McMichael, S. Miller, D. Rickles. (2015). SECURITY, SOCIAL INSTABILITY, AND CONFLICT, in: Australian Academy of Science 2015 Recommendations of the 2014 Theo Murphy High Flyers Think Tank on Climate change challenges to health: risks and opportunities, Parliament House, Canberra, pp. 18-20.
Vargas, J., <b>Halog, A.</b> (2015). Effective Carbon Emission Reductions from Using Upgraded Fly Ash in the Cement Industry, <i>Journal of Cleaner Production</i> (2015), Volume 103, 15, pp. 948–959.
Z. Padashbarmchi, A. Hossein Hamidian, N. Khorasani, M. Kazemzad, A. McCabe, <b>A. Halog</b> (2015). Life Cycle Assessment of Emerging Anode Materials for Li-Ion Batteries (Commercial Metal Oxide NPs), <i>Environmental Progress and Sustainable Energy</i> , 34 (6): 1740–1747.
Lang, B, <b>Halog, A.</b> (2015). Comparative ecological based life cycle assessment of multi-crystalline PV technology and coal electric power, <i>Journal of Technology Innovations in Renewable Energy</i> , 4/2: 65-.
Y. Li, H.Cheng, R.J.S. Beeton, T. Sigler, <b>A.Halog</b> (2015). Sustainability from a Chinese Cultural Perspective: The Implications of Harmonious Development in Environmental Management, <i>Environment, Development and Sustainability (ENVI)</i> , Springer (DOI) 10.1007/s10668-015-9671-9.
Farrah Zuhaira Ismail, <b>A. Halog</b> and Mohd Reza Esa. (2015). Greening a Society for a Resilient Development. Proceedings of the 4th International Conference on Environmental Research and Technology (ICERT 2015) on 27- 29 May 2015 at PARKROYAL Resort, Penang, Malaysia.
Kwong-sang Yin, Paul Dargusch, <b>A. Halog</b> . (2015). An Analysis of the CO2 Emission Profile of Airlines Flying on Australian International Routes, Proceedings of the International Symposium of Sustainable Aviation (May31-June3 2015, Istanbul Turkey (available at <a href="http://issasci.org/">http://issasci.org/</a> )
Mohd Reza Esa, <b>A. Halog</b> , Farrah Zuhaira Ismail. (2015). Waste Management in Construction Industry - A Review on the Issues and Challenges, Proceedings of the 4th International Conference on

<p>Environmental Research and Technology (ICERT 2015) on 27- 29 May 2015 at PARKROYAL Resort, Penang, Malaysia.</p>
<p>M. Yu and <b>A. Halog</b>. (2015). Solar Photovoltaic Development in Australia—A Life Cycle Sustainability Assessment Study, <i>Sustainability</i>, 7(2), 1213.</p>
<p>Purwono, B., <b>Halog, A.</b> (2015). Science based modelling for supporting integrated coastal zone management, Book “Including Stakeholders in Environmental Modelling: Considerations, Methods and Applications.” (in press).</p>
<p>NH Nguyen, R. Beeton, <b>A. Halog</b>, An T Duong (2015). Environmental adaptation at textiles and garment SMEs in Vietnam – Is governance an issue?, <i>Textile Science and Clothing Technology</i>, Subramanian Senthilkannan Muthu(Ed): ROADMAP TO SUSTAINABLE TEXTILES AND CLOTHING (Chapter 3), 978-981-287-109-1, 321207_1_En (7), pp. 87-107, Springer.</p>
<p>NH Nguyen, R. Beeton, <b>A. Halog</b> (2014). Who Influence the Environmental Adaptation Process of Small and Medium Sized Textile and Garment Companies in Vietnam?, <i>Textile Science and Clothing Technology</i>, Subramanian Senthilkannan Muthu(Ed): ROADMAP TO SUSTAINABLE TEXTILES AND CLOTHING (Chapter 1), 978-981-287-109-1, 321207_1_En (7), pp. 189 – 207, Springer.</p>
<p><b>Halog, A.</b>, Dishman, G. (2014). Developing E-Learning Materials for Teaching Industrial Ecology and Environmental Sustainability, Ulisses Miranda Azeiteiro Walter Leal Filho Sandra Caeiro (eds.) <i>E-Learning and Education for Sustainability</i> ISSN 1434-3819 ISBN 978-3-631-62693-1 (Print) E-ISBN 978-3-653-02460-9 (E-Book) DOI 10.3726/978-3-653-02460-9 © Peter Lang GmbH International Academic Publishers.</p>
<p>NH Nguyen, R. Beeton, <b>A. Halog</b> (2014). SME Adaptive Capacity in Response to Environmental Requirements: Understanding it as a Complex Adaptive System. <i>Asian Journal of Business and Management</i>, 2(1). *</p>
<p>J. Earles, <b>A. Halog</b> (2013). The Integrated Partial Market Equilibrium and Life Cycle Assessment Modelling (PME-LCA), in: De Camillis, C., Brandão, M., Zamagni, A., Pennington, D. (eds.) (2013). Sustainability assessment of future-oriented scenarios: a review of data modelling approaches in Life Cycle Assessment. Towards recommendations for policy making and business strategies. European Commission, Joint Research Centre, Institute for Environment and Sustainability, Publications Office of the European Union, Luxemburg, pp. 38 - 41. ISBN 978-92-79-32522-9 (pdf)/ISSN 1831-9424 (online). *</p>
<p>J. Navarro, B. Bryan, O. Marinoni, S. Eady and <b>A. Halog</b> (2013). Production of a map of greenhouse gas emissions and energy use from Australian agriculture, <i>Proceedings: MODSIM2013, 20th International Congress on Modelling and Simulation</i>, 621-627. *</p>
<p>N Bichraoui, B Guillaume, <b>A Halog</b> (2013). An Agent-based Modelling Simulation for the Development of an Industrial Symbiosis-Preliminary Results, <i>Procedia Environmental Sciences</i> 17, 195 – 204.</p>
<p>Pagotto, M., <b>Halog, A.</b> (2013). Towards a Circular Economy: An Application of Input-Output Oriented Approach to Improve Eco-efficiency of Australia's Food Industry, <i>Proceedings 12th IAS-STS Annual Conference/ Critical Issues in Science and Technology Studies</i>, 1-26. *</p>
<p>Y. Manik, J. Leahy, and <b>A. Halog</b> (2013). Social life cycle assessment of palm oil biodiesel: a case study in Jambi Province of Indonesia, <i>The International Journal of Life Cycle Assessment</i> 18 (7), 1386-1392. *</p>
<p><b>Halog, A.</b> and Bortsie-Aryee, N. (2013). The Need for Integrated Life Cycle Sustainability Analysis of Biofuel Supply Chains, <i>Biofuels Book 2</i>. ISBN 980-953-307-471-4. *</p>

<b>Halog, A.</b> and Bortsie-Aryee, N. (2013) Environmental Assessment of a Forest Derived “Drop-in “Biofuel. Biofuel Book 2. ISBN 980-953-307-471-4.
Neupane, B., <b>Halog, A.</b> , & Lilieholm, R. J. (2012). Environmental Sustainability of Wood-derived Ethanol: A Life Cycle Evaluation of Resource Intensity and Emissions in Maine, USA. <i>Journal of Cleaner Production</i> , 44: 77-84. *
Prakash Nepal, Peter J Ince, Kenneth E Skog, Sun J Chang, Peter J Ince, Andrew Kramp, Kenneth E Skog, J Mason Earles, <b>Anthony Halog</b> , David B McKeever (2012). Developing Inventory Projection Models Using Empirical Net Forest Growth and Growing-Stock Density Relationships Across US Regions and Species Group, <i>Journal of Industrial Ecology</i> 17 (3), 375-384.
Y. Manik and <b>A. Halog</b> . (2012). A Meta Analytic Review of Life Cycle Assessment and Substance Flow Analyses of Palm Oil Biodiesel”, <i>J. Integrated Environ. Assess. &amp; Mgt.</i> , 9(1): 134-141.
Earles, J.M., <b>Halog, A.</b> , Ince, P., Skog, K. (2012). Toward Integrated Economic Equilibrium and LCA Modelling for Policy-based Consequential LCA, <i>Journal of Industrial Ecology</i> , 17(3): 375–384.
Kenneth Skog, David B McKeever, Peter J Ince, James L Howard, Henry N Spelter, Albert T Schuler, Peter J Ince, Andrew Kramp, Kenneth E Skog, J Mason Earles, <b>Anthony Halog</b> , Peter Ince, Kenneth Skog, Prakash Nepal, Peter J Ince, Kenneth E Skog, Sun J Chang, Prakash Nepal, Peter J Ince, Kenneth E Skog, Sun J Chang, Peter J Ince, David B McKeever, EM Bilek, Carl Houtman, Peter Ince, Peter J Ince, Andrew D Kramp, Kenneth E Skog, Do-il Yoo, V Araric Sample (2012). Status and trends for the US forest products sector: A technical document supporting the Forest Service 2010 RPA assessment, 207: 1-40, US Department of Agriculture, Forest Service, Forest Products Laboratory
NA Bortsie-Aryee, <b>A Halog</b> , C Wheeler (2012). Life cycle sustainability assessment of wood derived drop-in biofuels—Case of the Northeast Forest based product industry, <i>Proceedings of the Sustainable Systems and Technology (ISSST), 2012 IEEE International Symposium</i> , May 16, 202.
Earles, J.M., <b>Halog, A.</b> , Shaler, S. (2011). Improving the Environmental Profile of Wood Panels via Co-Production of Ethanol and Acetic Acid, <i>Environmental Science &amp; Technology</i> , 45(22):9743-9749.
Earles, J.M., <b>Halog, A.</b> (2011). Consequential Life Cycle Assessment: A Review. <i>International Journal of Life Cycle Assessment</i> , 5(16): 445-453.
<b>Halog, A.</b> , Manik, Y. (2011). Advancing Integrated Systems Modelling Framework for Life Cycle Sustainability Assessment, <i>Sustainability</i> , 3(2): 469-499. *
Halog, A. (2011). Sustainable Development of Bioenergy Sector: An Integrated Methodological Framework, <i>International Journal of Multicriteria Decision Making</i> , 1(3): 338 – 361.
Neupane B., <b>Halog A.</b> , Dhungel S. (2011). Attributional life cycle assessment of woodchip for bioethanol production. <i>Journal of Cleaner Production</i> 19: 733-741.
<b>Halog, A.</b> , Mao, H. (2010). Hemicellulose Extraction Technology for Ethanol Production in the Emerging Bioeconomy, <i>International Journal of Renewable Energy Technology</i> 2(3): 223 – 239.
Halog, A. (2010). Sustainability science education: Its role in the pursuit global climate change, <i>Journal: Science Education in the 21st century: Advantages, Pitfalls, and Future Trends</i> <a href="http://academic.uprm.edu/~sbischoff/science_education/program_abstracts.pdf#page=25">http://academic.uprm.edu/~sbischoff/science_education/program_abstracts.pdf#page=25</a>

## LANGUAGE SKILLS AND CERTIFICATIONS

- *English – Written (Advanced/Native), Spoken (Advanced/Native)*

- German – Written (Intermediate/Good), Spoken (Intermediate/Good)

## PROFESIONAL MEMBERSHIPS

Since March 2016	Associate Editor, Journal of Resources, Conservation & Recycling
Since 2015	Australian Industrial Ecology Network
Since 2014	University of Queensland /Global Change Institute, College of Experts
2013-2014	Australian Life Cycle Assessment Society (ALCAS), Australia
2012	Association of Environmental Science and Engineering Professors, USA
2010	International Network of Coupled Human and Natural Systems (CHANS)
2010	Greening of Industry Network (GIN), North America
2010	International Input-Output Association (IIOA)
2009	International Society of Ecological Economics (ISEE)
2008	American Centre for Life Cycle Analysis (ACLCA), USA
2008	Network for Science and Innovation for Sustainable Development (AAAS), USA
2008	Network for Emerging Leaders in Sustainability (NELS), National Academies' George and Cynthia Mitchell Endowment for Sustainability Science, Washington D.C, USA.
2003	International Society for Industrial Ecology (ISIE), USA

## TEACHING

In conjunction with the urgent call for climate change mitigation and pursuing the vision of sustainable and circular economy, an increasing number of leading universities worldwide has been developing courses to prepare students in meeting the growing demand for green and sustainability related jobs which require systems perspective, cross-disciplinary training in Industrial Ecology (IE) and Life Cycle Assessment (LCA). LCA analyses emissions and resource extractions from mining and processing of resources (cradle) to disposal of wastes and residuals (grave) and even back to cradle. My ongoing thrust for scholarship of teaching is on developing teaching materials and online-based information system which provide an interdisciplinary education in teaching IE and LCA.

### ***Courses Taught at the University of Queensland***

- (1) Industrial Ecology and Life Cycle Thinking; (2) Sustainable Consumption and Production

### **Selected Plenary/Keynote Addresses & Invited Talks**

1. *Towards Circular Economy : Rewriting the Rules for Industrial Transformation*, Sustainability Assessment Program, School of Civil and Environmental Engineering, the University of New South Wales, March 9, 2016.
2. *Global Circular Economy*, the 4th Engineering Research Colloquium, February 10, 2016, at the College of Engineering, the University of Santo Tomas, the Philippines .
3. *Towards Circular Economy : Rewriting the Rules for Industrial Transformation (and its Relevance to Designing Out Wastes)*, National Conference on Electronic Wastes Management, XLRI, Jamshedpur, India, January 13-14, 2016
4. *Understanding Linkages for Pursuing Circular Economy in the Agri-Food Sector via Systems Approaches* at the Institute of Advanced Studies in Science, Technology and Society (IAS-STs), Technical University of Graz, Austria, June 29, 2015;
5. *Systems Transformation for Global Sustainability: Transitioning towards Low Carbon, Resource Efficient, and Circular Economy*, the International Institute of Applied Systems Analysis (IIASA), Laxenburg, Austria, June 19, 2015;
6. *Strategies for Pursuing a Sustainable Bioeconomy: Towards a Resource Efficient, Greener and Circular Economy*, the Technical University of Munich, Germany, June 12, 2015;
7. Plenary talk on *“Industrial Transformation (with ICT Enabler): Transitioning towards Low Carbon, Resource Efficient, and Circular Economy for Global Sustainability”*. “Fundamental and Applied Research for

- Industrial Sustainability: Food, Agrochemical, and Information and Communication Technology (ICT)", Sanur Paradise Plaza Hotel - Bali, Indonesia, September 2 to 4, 2014.
8. Keynote Talk on "*The Need for Integrated Framework for Computational & Quantitative Sustainability Assessment of Human-Engineered Systems in Big Data Era*", at the Seventh International Joint Conference on Computational Sciences and Optimization (CSO 2014)" on July 4-6, 2014, Beijing, China.
  9. *Sustainability Assessment of Coupled Natural and Human-engineered Systems*, Institute for Global Environmental Studies (IGES), Yokohama, Japan, March 15, 2012;
  10. *Critical Role of Ecosystem Goods and Services to Sustainability of Renewable Energy Production (Case of Wood Derived Ethanol)*, National Renewable Energy Laboratory (NREL), Department of Energy, Golden, Colorado, USA, August 15, 2012.