

International Conference on Integrated and Innovative Solutions for a Circular Economy

December 05–07, 2017 (Taipei, Taiwan)

1. Background

A circular economy (CE) is a regenerative system in which resource input and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing material and energy loops. The most renowned definition of the CE has been framed by the Ellen MacArthur Foundation as “an industrial economy that is restorative or regenerative by intention and design.” The CE concept is central part of the ecological economy and the industrial ecology which are interdisciplinary disciplines including economists, engineers and natural scientists. In addition, the land use and soil protection plans should be implemented for Circular Economy according to the European Commission’s experience.

Currently, the European Commission has adopted an ambitious new Circular Economy Package to help European businesses and consumers to make the transition to a stronger and more CE where resources are used in a more sustainable way. The proposed actions will contribute to "closing the loop" of product lifecycles through greater recycling and re-use, and bring benefits for both the environment and the economy. The plans will extract the maximum value and use from all raw materials, products and waste, fostering energy savings and reducing greenhouse gas emissions.

To facilitate the development and implementation of a CE system, the “2017 International Conference on Integrated and Innovative Solutions for Circular Economy” is organized by Taiwan Institute for Sustainable Energy (TAISE) and Carbon Cycle Research Center (CCRC), National Taiwan University. The purpose of this conference is to foster the exchange and dissemination of state-of-the-art technical information among researchers, educators, and practitioners (1) to develop carbon capture and utilization technologies towards low-carbon economy; (2) to promote the principles of green chemistry and total quality management towards green industry; (3) to implement the sustainable material management building green supply chain; and (4) to establish good engineering practice and effective business models demonstrating industrial ecology.

This conference will be preceded consecutively for one and half days. During the first day, oral papers are presented in technical sessions on the following workshop themes; while morning of the second day is devoted to a round-table discussion for the exchange and dissemination of state-of-the-art information in the area of CE with respect to 3R technology, carbon capture utilization, and integrated waste-to-resource management. Meet experts, strengthen your skills and update your ideas on CE. I believe this conference should be an unparalleled opportunity for professionals in the sustainability field.

2. Date

- ✧ December 05–07, 2017

3. Venue

- ✧ Chang Yung-Fa Foundation, Taipei, Taiwan

4. Organizations

- ✧ Taiwan Institute for Sustainable Energy (TAISE)
- ✧ CTCI Education Foundation
- ✧ Carbon Cycle Research Center, National Taiwan University
- ✧ Center for Energy and Environmental Research, National Tsing Hua University

5. Workshop Themes

A broad range of topics will be covered in the conference which is divided into five themes:

(1) Fundamentals of Circular Economy

- ✧ Circular Economy and Linear Economy
- ✧ Sustainability and Circular Economy
- ✧ Cradle to Cradle

(2) Principles of Green Chemistry

- ✧ Pollution and Accident Prevention
- ✧ Energy and Resource Sustainability
- ✧ Safety and Security Assurance

(3) Carbon Capture and Utilization

- ✧ Close Loop of Production Lifecycle
- ✧ Process and Material Innovation
- ✧ Kinetic Modelling

(4) Integrated Waste-to-Resource Management

- ✧ Sustainable Material Management
- ✧ Chemical Management
- ✧ Supply Chain Innovation

(5) Circular Economy Business Model

- ✧ Industrial Ecology
- ✧ 3R (Reduction, Reuse, Recovery) Technology
- ✧ Optimization of Resource Yields

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December 05, 2017

8:30 – 9:00	Registration
9:00 – 9:30	<p>Opening Remarks</p> <p>Dr. Ying-Yuan Lee (Administrator, Environmental Protection Administration, Taiwan, R.O.C.) Dr. Eugene Chien (President, CTCI Education Foundation and Taiwan Institute for Sustainable Energy, Taiwan, R.O.C.) Dr. Wen-Chang Chen (Dean, College of Engineering, National Taiwan University, Taiwan, R.O.C.) Prof. Liang-Shih Fan (Distinguished Professor, Department of Chemical Engineering, The Ohio State University, USA)</p>
Keynote Speech — Moderator: Prof. Young Ku (National Taiwan University of Science and Technology, Taiwan, R.O.C.)	
9:30 – 10:00	<p>Development of Integrated Waste Management Plans towards Circular Economy Director, Ying-Ying Lai (Environmental Protection Administration, Taiwan, R.O.C.)</p>
10:00 – 10:30	<p>Chemical Looping Gasification, Reforming and Chemical Syntheses Prof. Liang-Shih Fan (The Ohio State University, USA)</p>
10:30 – 10:50	Coffee Break
Keynote Speech — Moderator: Miss Ying-Ying Lai (Director, Department of Waste Management)	
10:50 – 11:15	<p>Circular Economy Policy in Korea Prof. Hyunook Kim (University of Seoul, Korea)</p>
11:15 – 11:40	<p>The Role of Circular Economy in Addressing Income Inequalities in Developing Countries Prof. Paolo Vincenzo Genovese (Tianjin University, China)</p>
11:40 – 12:05	<p>Challenges in Developing Cost-effective CO₂ Capture and Utilization Processes Prof. Steve Chuang (University of Akron, USA)</p>
12:05 – 13:30	Lunch
Speech — Moderator: Prof Pen-Chi Chiang (National Taiwan University, Taiwan, R.O.C.)	
13:30 – 13:50	<p>Systems Analysis for Eco-Industrial Park Prof. Bin Chen (Beijing Normal University, China)</p>
13:50 – 14:10	<p>Implementation of Integrated Management and Innovative Technology for Petrochemical Industry Park toward Circular Economy: The Formosa Petrochemical Cooperation Experience Dr. Chia-Yii Yu (Formosa Petrochemical Corporation, Taiwan, R.O.C.)</p>
14:10 – 14:30	<p>Regulatory Mechanism and Cooperative Experience in Recycling of Chemical Waste - An Indian Experience Prof. P. A. Joshi (Dharmsinh Desai University, India)</p>
14:30 – 14:50	<p>Circular Economy as Fundamental Strategy for the Eco-Village in the Age of Globalization Prof. Paolo Vincenzo Genovese (Tianjin University, China)</p>
14:50 – 15:10	<p>Deployment of Innovative Recycle Technology for E-Waste towards Circular Economy Managing Director, Kenny Hsu (UWin Nanotech Co., Ltd., Taiwan, R.O.C.)</p>
15:10 – 15:30	Discussion
15:30 – 15:50	Coffee Break

Speech — Moderator: Prof Chung-Sung Tan (National Tsing Hua University, Taiwan, R.O.C.)	
15:50 – 16:10	Carbon Circular Economy: Status of CCU in Taiwan Prof. Chung-Sung Tan (National Tsing Hua University, Taiwan, R.O.C.)
16:10 – 16:25	The Next Post-Combustion CO₂ Capture Challenge: PM_{2.5} and Amine Aerosol Emission Prof. Shi-Shang Jang (National Tsing Hua University, Taiwan, R.O.C.)
16:25 – 16:40	Development of Chemical Looping Technology for Circular Economy: A Case Study Prof. Young Ku (National Taiwan University of Science and Technology, Taiwan, R.O.C.)
16:40 – 16:55	Establishment of Waste-to-Resource Supply Chain via High-Gravity Carbonation Prof Pen-Chi Chiang (National Taiwan University, Taiwan, R.O.C.)
16:55 – 17:10	Implementation of Green Chemistry Principles for Chemical Management towards Circular Economy Dr. Kinjal Shah (Dharmsinh Desai University, India)
17:10 – 17:30	Discussion
17:30	Closing Remark