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EDUCATION

2012-2018	Ph.D.	Graduate Institute of Environmental Engineering, National Taiwan University, Taiwan
2002-2004	M.S.	Graduate Institute of Environmental Engineering, National Taiwan University, Taiwan
1995-1999	B.A.	Department of Water Resources and Environmental Engineering, Tamkang University, Taiwan

EMPLOYMENT

2021- present Assistant Research Fellow
•Environmental Resilience and Sustainability Research Group, Research Center for Environmental Changes, Academia Sinica

2018-2021 Postdoctoral Researcher
•Graduate Institute of Environmental Engineering, National Taiwan University

2006-2011 Technician
•Department of Environmental Protection, Taipei City Government

1999-2006 Assistant Researcher
• Institute of Environment and Resources (IER)

HONORS & AWARDS

2019 MOST Research Award for Postdoc. Fellow
2019 MOST Postdoctoral Research Abroad Program Award
2018 Taiwan Association of Environmental and Resource Economics Award for the Best Thesis
2017 MOST Graduate Students Study Abroad Program Award

RESEARCH INTEREST

My research underscores the vital role of ecosystem services in achieving sustainable development, with particular emphasis on the food-energy-water (FEW) nexus and socio-ecological systems. My earlier work spans the creation of global sustainability indicators from a FEW nexus perspective, assessments of FEW nexus sustainability in prominent cities in Taiwan and the Netherlands to uncover urban solutions, and studies of synergies and trade-offs in water and energy production at landfill sites. My contributions also involve evaluating the cascading benefits of ecosystem services, integrating these services into land conservation planning, addressing urban water scarcity through water tariff

design, and promoting a holistic approach to ecosystem services and sustainable development through the FEW nexus lens.

My recent research includes *Principles of Food-Energy-Water Nexus Governance*, which explores governance frameworks for managing interconnected resources; *Nature-Based Solutions for Securing Contributions of Water, Food, and Energy in an Urban Environment*, which focuses on applying natural solutions to boost urban sustainability; and *Exploring Coral Reef Benefits: A Systematic SEEA-Driven Review*, which delivers an in-depth assessment of coral reef ecosystem services through the System of Environmental-Economic Accounting framework. These studies reflect my dedication to advancing sustainable resource management in diverse ecosystems and urban settings.

RESEARCH HIGHLIGHTS

Theme one: Resource Governance and Policy Frameworks.

- Principles of Food-Energy-Water Nexus Governance

  The research presents a framework of food-energy-water (FEW) nexus governance principles aimed at integrated resource management across urban and rural areas. Highlighting assessment, awareness, and accessibility, it introduces nine core principles - connectivity, innovation, equitability, participation, coordination, sharing, legitimacy, empowerment, and strategy. Using examples from Taiwan, the study demonstrates that effective nexus governance is achieved through cohesive, cross-sectoral integration.

- Exploring Coral Reef Benefits: A Systematic SEEA-Driven Review

  This study uses the System of Environmental-Economic Accounting (SEEA) framework to assess coral reef ecosystem services, emphasizing their importance for fisheries, coastal protection, and biodiversity. This study provides a comprehensive review of coral reef ecosystem service research under the SEEA framework, spanning nearly three decades. The findings reveal interdisciplinary approaches, integrating remote sensing, environmental and ecological sciences, economics, computer science, and citizen science. Over time, the focus in coral reef research has shifted from human impact concerns to climate change, with empirical data and case studies supporting this evolution. The findings highlight SEEA's role in deepening our understanding of coral reef value, supporting more effective conservation efforts.

Theme two: Resource Governance and Solutions.

- Nature-Based Solutions for Securing Contributions of Water, Food, and Energy in an Urban Environment

  This study highlights the impact of nature-based solutions (NBS) in strengthening urban ecosystem services for water, food, and energy. Through strategies like permeable pavements, plant microbial fuel cells, bio-filtration basins, and rain gardens, the study demonstrates NBS benefits, including enhanced water treatment, stormwater retention, food and energy production, and carbon sequestration. The findings stress the importance of integrated FEW planning to maximize NBS potential for sustainable urban growth and ecosystem preservation.

REPRESENTATIVE PUBLICATIONS (*: corresponding author)

1. Mei-Hua Yuan, Kuan-Ting Lin, Shu-Yuan Pan, Chih-Kai Yang (2024) "Exploring coral reef benefits: A systematic SEEA-driven review." Science of The Total Environment: 175237.

2. Kuan-Ting Lin, Shu-Yuan Pan, Mei-Hua Yuan, Horng-Yuh Guo, Yu-Chieh Huang (2024) "Quantifying and monetarizing cropland ecosystem services towards sustainable soil management." Ecological Indicators 159:111751.
3. Chong-En Li, Bing-Wen Wu, Nae-Wen Kuo, Mei-Hua Yuan* (2024) "Visualizing space–time multivariate data consisting of discrete and continuous variables: a method for the general public." Foundations 4(1).
4. Chih-Kai Yang, Hwong-Wen Ma, Kun-Hsing Liu, Mei-Hua Yuan (2023) "Measuring circular economy transition potential for industrial wastes." Sustainable Production and Consumption 40: 376-388.
5. Chih-Kai Yang, Hwong-Wen Ma, and Mei-Hua Yuan (2023) "Measuring circularity potential for medical waste management–a dynamic circularity performance analysis." Sustainable Environment Research 33.1: 29.
6. Moslem Imani, Hoda Fakour, Shang-Lien Lo, Mei-Hua Yuan, Chih-Kuei Chen, Shariat Mobasser, Isara Muangthai (2023) "Aquavoltaics feasibility assessment: synergies of solar PV power generation and aquaculture production." Water 15, 987.
7. Fakour Hod, Moslem Imani, Shang-Lien Lo, Mei-Hua Yuan, Chih-Kuei Chen, Shariat Mobasser, Isara Muangthai (2023) "Evaluation of solar photovoltaic carport canopy with electric vehicle charging potential." Scientific Reports 13.1: 2136.
8. Mei-Hua Yuan, Fang-Chen Lo, Chang-Ping Yu, Hsin-hsin Tung, Yu-Sen Chang, Pei-Te Chiueh, Hsin-Chieh, Huang, Chao-Chin Chang, Chung-Yu Guan, Chun-Wei Wu, Zi-Xuan Xu, Shang-Lien Lo (2022) "Nature-based solutions for securing contributions of water, food, and energy in an urban environment." Environmental Science and Pollution Research 1-9.
9. Mei-Hua Yuan, Shang-Lien Lo (2022) "Principles of food-energy-water nexus governance." Renewable and Sustainable Energy Reviews 155: 111937.
10. Mei-Hua Yuan, Pei-Te Chiueh, Shang-Lien Lo (2021) "Measuring urban food-energy-water nexus sustainability: Finding solutions for cities." Science of The Total Environment 752 (1920): 141954.
11. Mei-Hua Yuan, Shang-Lien Lo (2020) "Ecosystem services and sustainable development: Perspectives from the food-energy-water nexus." Ecosystem Services 46.
12. Mei-Hua Yuan, Shang-Lien Lo (2020) "Developing indicators for the monitoring of the sustainability of food, energy, and water." Renewable and Sustainable Energy Reviews 109565.
13. Mei-Hua Yuan, Pei-Te Chiueh, Shang-Lien Lo (2019) "Understanding synergies and trade-offs between water and energy production at landfill sites." Science of The Total Environment 687 (10), 152-160.
14. Mei-Hua Yuan, Pei-Te Chiueh, Shang-Lien Lo (2019) "Embedding scarcity in urban water tariffs: mapping supply and demand in North Taiwan." Environmental Earth Sciences 78(10), 325.

15. Xin Liua, Yebao Wang, Robert Costanza, Ida Kubiszewski, Ning Xu, Meihua Yuan, Ruiying Geng (2019) "The value of China's coastal wetlands and seawalls for storm protection" Ecosystem Services 36.
16. Xin Liu, YebaoWang, Robert Costanza, Ida Kubiszewski, Ning Xu, Zhiqiang Gao, Meng Liu, Ruiying Geng, Mei-Hua Yuan (2019) "Is China's coastal engineered defences valuable for storm protection?" Science of The Total Environment 657, 109-107.
17. Liu, Xin, Yebao Wang, Robert Costanza, Ida Kubiszewski, Ning Xu, Zhiqiang Gao, Mei-Hua Yuan, Ruiying Geng, He Chen, and Xiaoke (2019) "Rice Paddy Fields' Hidden Value for Typhoon Protection in Coastal Areas." Ecological Indicators 107, 105610.
18. Mei-Hua Yuan, Shang-Lien Lo, Chih-Kai Yang (2017) "Integrating ecosystem services in terrestrial conservation planning." Environmental Science and Pollution Research 24(13), 12144-12154.
19. Mei-Hua Yuan, Shang-Lien Lo, Yu-Chien Cheng (2016) "The ecological value of liugongjun restoration: Assessment for cultural assets." Journal of the Chinese Institute of Civil and hydraulic engineering 28(3), 195-203.