International Short Course on
Land Subsidence and Water Industry:
Challenges and Opportunities in Tidal Areas
18-23 November, 2024

Organized by

International Commission on Irrigation and Drainage (ICID)
and
Working Group on Sustainable Coastal Environment Regeneration (WG-SCER)

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The International Short Course was proposed by ICID's erstwhile *Working Group on Sustainable Development of Tidal Areas* (WG-SDTA) in 2018 and has been deliberated in working group meetings over the years but has never been materialized mainly due to COVID-19 and other reasons. It has now been confirmed that it will now be hosted by the new Working Group on Sustainable Coastal Environment Regeneration (WG-SCER) from **18 to 23 November, 2024** at National Cheng Kung University (NCKU) in Tainan City, Chinese Taipei.

Scope

Land subsidence refers to the vertical deformation of the ground, where the Earth's surface moves downward relatives to a reference datum point. Due to natural and anthropogenic factors, land subsidence has become a significant challenge in many countries. Especially as global climate change causes rising sea levels, extreme rainfall, and long drought periods, these situations have seriously challenged water demand and flood control and drainage safety. In addition, excessive pumping of groundwater to meet water demand has caused the lands to gradually subside without detection. These land subsidence conditions have made the issues such as increased flooding in low-lying areas, seawater intrusion and infiltration, and soil salinization more apparent than the severity of rising sea levels. This has become an international concern that requires proactive attention.

With the support of the industrial water management and technology in recent years, land subsidence and other challenges in tidal areas are better understood and addressed in some areas than others. As there is a pressing need for resilience and adaptation in tidal areas due to environmental and climate change, strategies for sustainable management of tidal areas should be derived through learning processes and experience sharing.

The course is intended for resource managers, practitioners, researchers, and others who are familiar with the relevant issues in tidal area and wish to understand and apply the experiences to cope with land subsidence and other issues in tidal areas and be involved in water industry. Young professionals with at least five years of experience in the subject area are encouraged to participate. The course effectively combines advance reading, lecture, fieldwork and exercises.

Topics include:

1. Natural resources and anthropogenic pollution and disasters in coastal areas
2. Land subsidence prevention and groundwater conservation strategies
3. Nature-based solutions for coastal environment regeneration
4. Application of artificial intelligence in industrial water management technology
5. Coastal green and rural agricultural energy autonomy
6. Challenges and opportunities for the water industry in coastal areas
7. Field study and group discussions

Format

The short course comprises keynote speeches, lectures, technical tours, and in-class exercises. The course will be interactive, expecting active input from participants. Participants will need to contribute case studies based on their own country experiences. Emphasis will be placed on in-class exercises and project-based learnings. Upon completion, participants are required to submit a feedback form, offering a brief summary of how the working knowledge gained in the short course is beneficial and will continue to assist them in their current and future assignments.

Program	
Day/Time	**Particulars**
Day 0 – Sunday, 17 November 2024	
Arrival of Participants	
Day 1 – Monday, 18 November 2024	
09:00 – 09:45	**Registration**
09:45 -10:30	**Opening Ceremony** **<u>Opening Dialogue</u>** Integrated flood management planning for coastal areas under climate change by Dr. Shen-Hsien CHEN, Chair, SINOTECH Engineering Consultants)
10:30 – 11:00	**Health Break**
11:00 – 12:30	• Short Course Overview • Participants Self-introduction • Group Photo Session
12:30 -13:30	**Lunch**
13:30 – 14:15	**<u>Keynote Lecture</u>** Land subsidence prevention and groundwater conservation strategies by Prof. Hong-Yuan Lee, National University
14:15 – 15:00	**<u>Lecture 1</u>** Impacts and challenges of land and water management in dal area: Subsidence and measures in the polders of the Netherlands (Part I) by Prof. Bart Schultz, President Hon., ICID
15:00 – 15:30	**Health Break**
15:30 – 16:15	**<u>Lecture 2</u>** Impacts and challenges of land and water management in dal area: Subsidence and measures in the polders of the Netherlands (Part II) by Prof. Bart Schultz, President Hon., ICID
16:15 – 17:00	Group Exercise – Session 1: Group Formation and briefing
Day 2 –Tuesday, 19 November 2024	
09:00 – 09:45	**<u>Lecture 3</u>** Application of artificial intelligence in industrial water management technology (Part I) by Prof. Frederick Nai-Fang Chou, National Cheng Kung University

09:45 -10:30	**Lecture 4** Nature-based solutions for coastal environment regeneration by Prof. Hsiao-Wen Wang, National Cheng Kung University
10:30 – 11:00	**Health Break**
11:00 – 11:45	**Lecture 5** Application of artificial intelligence in industrial water management technology (Part II) by Prof. Frederick Nai-Fang Chou, National Cheng Kung University
11:45 – 12:30	**Lecture 6** Coastal green and rural agricultural energy autonomy (Speaker TBC)
12:30 -13:30	**Lunch**
13:30 – 14:15	**Lecture 7** Joint impacts of sea level rise, storm surge, wave run-up and overtopping; and land subsidence on the coastal flooding/erosion (Speaker TBC)
14:15 – 15:00	Group Exercise – Session 2
15:00 – 15:30	**Health Break**
15:30 – 17:00	Group Exercise – Session 3
Day 3 – Wednesday, 20 November 2024	
08:30 – 17:00	**Field Study Tour** Location: Pingtung / NCKU Disaster Prevention Research Center / Hydraulics Laboratory
Day 4 – Thursday, 21 November 2024	
09:00 – 09:45	**Lecture 8** Community based climate change adaptation planning for coastal areas (Part I) by Prof. Hsiao-Wen Wang, National Cheng Kung University
09:45 -10:30	**Lecture 9** Social and Institutional Aspects on Management of Tidal Areas (Speaker TBC)
10:30 – 11:00	**Health Break**
11:00 – 11:45	**Lecture 10** Community based climate change adaptation planning for coastal areas (Part II) by Prof. Hsiao-Wen Wang, National Cheng Kung University
12:30 -13:30	**Lunch**
13:30 – 18:00	**Field Study Tour** Location: Mailiao
Day 5 – Friday, 22 November 2024	
09:00 – 09:45	Group Exercise – Session 4
09:45 -10:30	Group Exercise – Session 5

10:30 – 11:00	**Health Break**
11:00-11:45	Group Exercise – Session 7: Outcome of the group exercise
11:45-12:30	Group Exercise – Session 7: Outcome of the group exercise **Presentation - I**
12:30-13:30	**Lunch**
13:30-14:15	Group Exercise – Session 8 : Outcome of the group exercise Presentation-II
14:15-15:00	Group Exercise – Session 8 : Outcome of the group exercise Presentation-III
15:00-15:30	**Health Break**
15:30-17:00	**Closing Ceremony** **(Speaker TBC)**
Day 6 – Saturday, 23 November 2024	
08:30 – 17:00	Tainan City Tour
Day 7 – Sunday 24, November 2024	
International Departures	

Venue

National Cheng Kung University, Chinese Taipei.

No.1, University Road, Tainan City 701, Chinese Taipei.

Important Dates

The International Short Course on Land Subsidence and Water Industry will be held from **18 November to 23 November, 2024.**

Submission of the Applications:

Application deadline: **30th September 2024**

Notification of Admission/Confirmation: **10th October 2024**

Registration and Admission

A maximum of 30 participants are expected to join the course. Registration for this Short Course is open to members of WG-SCER including erstwhile WG-SDTA, WG-AFM, WG-M&R, WG-IDM. Members from the above-mentioned working groups who are from the national governments or universities working on the issues related to coastal zones and students studying in the relevant fields with research experience as well as Young Professionals (below 40 years) will be given preference over the others.

The course fee waiver is provided to all participants due to the courteous sponsor by the national organizers. The accommodation during the short course will be arranged by the organizer, and no fee is required by the participants. However, all the other expenses will be covered by the participants. Participants are suggested to seek their own financial support when necessary. If there is still difficulty, limited and partial sponsorship may be available upon request.

Participants

The ICID's erstwhile Working Group on Sustainable Development of Tidal Areas (WG-SDTA) aimed to develop and encourage efforts in sustainable development of dal areas. In view of restructuring of the working groups in ICID, the new WG-SCER took over the organization of this International Short Course in 2024. The organizers welcome ICID members from coastal countries to participate and conditionally provide partial sponsorship to select participants from least developed and developing countries.

The applicant should submit the Application Form along with a Curriculum Vitae (CV) and a statement of purpose by **30th September 2024**. The CV should contain information regarding education, professional experience, research experience, significant accomplishments, awards, and publications together with contact co-ordinates. Statement of purpose should include a clear statement on how this short course would benefit the applicant's research and practice.

The Application Form should be forwarded to the contact coordinators, ICID Central Office for review. After the review is confirmed, the organizer will notify the applicant before **10th October 2024**

Organizing Committees

National Committees

(1) Prof. Dr. Meng-Ru Shen, President, National Cheng Kung University (NCKU).
(2) Dr. Jiunn-Horng Yeh, Deputy Minister, Ministry of Environment (MoENV).
(3) Dr. Cheng-Wei Yu, Director General, Energy Administration (EA), Ministry of Economic Affairs (MOEA).
(4) Dr. Sheng-Fu Tsai, Director General, Irrigation Agency, Ministry of Agriculture (MoA).
(5) Dr. Lin-Yi Tsai, Director General, Climate Change Administration (CCA), MoENV.
(6) Dr. Wen-Hao Lu, Director, Kaohsiung Management Office, Irrigation Agency, MoA.
(7) Dr. Biing-Shiun Lin, Director, Urban and Rural Development Branch, National Land Management Agency (NLMA), Ministry of the Interior.
(8) Dr. Dong-Jiing Doong, Chair, Department of Hydraulic and Ocean Engineering, NCKU.

National Institutional Organizer

(1) National Cheng Kung University (NCKU), Chinese Taipei.
(2) SINOTECH Engineering Consultants, Ltd, Chinese Taipei.
(3) Water Industry Development and Promotion Association (TWIDPA).

Executive Director

Prof. Dr. Hsiao-Wen Wang, Director of Disaster Prevention Education Centre, National Cheng Kung University (NCKU), Chinese Taipei.

International Advisor

Dr. Vijay Labhsetwar.

Erstwhile WG-SDTA Members

(1) Chair: Prof. Ruey-Chy Kao (Chinese Taipei Committee)
(2) Vice Chair: Dr. bin Mohd Ghazali, Nor Hisham (Malaysia)
(3) Secretary: Mr. Paavan Kumar Reddy Gollapalli (India) Member:
(4) Prof. Budi Santoso Wignyosukarto (Indonesia)
(5) Dr. JANG Jeong Ryeol (South Korea)
(6) Dr. Hsiao-Wen Wang (Chinese Taipei Committee)
(7) Dr. Vijay Labhsetwar (India)
(8) Dr. Hiroki Minakawa (Japan)
(9) Dr. Mona Liza Delos Reyes (Philippines)
(10) Mr. Surat Thanusin (Thailand)
(11) Prof. Zhang ZhanYu (China)
(12) Dr. Sanidhya Nika Purnomo (Indonesia)

Contact Coordinates

For further information please contact:

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