

**MINUTES OF THE 6TH MEETING OF THE
WORKING GROUP ON SUSTAINABLE DEVELOPMENT OF TIDAL AREAS (WG-SDTA)**

6 November 2023, 09:30-11:00 hours (Session-I)
6 November 2023, 11:30-13:00 hours (Session-II)
Visakhapatnam (Vizag), Andhra Pradesh, India

Strategy Theme: Basin

Presented by the Chairman

Year of Establishment: 2017

Extended the completion of the Mandate: 2023

Mandate : (a) To understand the existing and potential challenges and opportunities of tidal areas for now and the future by figuring out underlying issues; (b) To raise awareness of the increasing risk on tidal areas due to global climate change and stimulate interdisciplinary discussions on impacts, mitigation, and adaptation; (c) To enhance survey, design techniques, and monitoring and management programs for the irrigation and drainage facilities, and apply to collect information about the tidal area environment around the world; (d) To identify sustainable development and management options in tidal areas, and find a balance between the conservation and development of tidal areas with acknowledgement of ecosystem services; and (e) To join the international dialogues and organize international conferences and short courses to promote interdisciplinary and participatory land and water planning and management in tidal areas; and (f) To collaborate with other related working groups actively, and to exchange relevant experiences amongst NCs and support for developing, and least developed countries.

Members Present: (1) Dr. Ruey-Chy Kao (Chinese Taipei Committee), Chairman; (2) Ir. Hj. Nor Hisham Bin Mohd Ghazali (Malaysia), Vice-Chairman; (3) Er. Paavan Kumar Reddy (India), Secretary; (4) Dr. (Ms.) Hsiao-Weng Wang (Chinese Taipei Committee, Young Professional, represented by Dr. Chung-Feng Ding); (5) Dr. Vijay K. Labhsetwar (India); (6) Dr. Hiroki Minakawa (Japan); (7) Prof. Budi Santoso Wignyosukarto (Indonesia, represented by Dr. Sanidhya Nika Purnomo); and (8) President Hon. Prof. Dr. Bart Schulz (The Netherlands)

Observers: (1) Dr. Elijah Oluwaseun Adepoju Aderibigbe (Nigeria); (2) Dr. Mona Liza F. Delos Reyes (Philippines); (3) President Hon. Peter S. Lee (UK); (4) Dr. Tony Chih-Shen Chen (CTC); (5) Mr. Chen, Yen-Hsu (CTC); (6) Dr. Yutaka Matsuno (Japan); (7) Mr. B.S. Kumar (India); (8) Mr. S. Chandra Sekhar (India); (9) Mr. Venkata Ramamohan Ramachandrupa (India); (10) Mr. Peda Bhagya Raju Chatla (India); (11); (xi) Mr. Syaiful Mahdi Naumin (Indonesia); (12) Ms. Ni Putu Arianti (Indonesia); (13) Ms. Maria Christina Kurniawati (Indonesia); (14) Ir. Dr. Tsu Chuan Lee (CTC); (15) Mr. Wen-Hao Leu (CTC); (16) Mr. Jiun Huei Kuo (CTC); (17) Ir. Adang Saf Ahmad (Indonesia); (18) Mr. MOCHAMMAD AMRON (Indonesia); (19) Mr. Emmanuel Akwagiobe Andishu (Nigeria); (20) Mr. S. Ravi Kanth (India); (21) Mr. Anuj Kanwal (India); (22) Dr. Sanidhya Nika Purnomo (Indonesia); (23) Dr. Chung-Feng DING (CTC); (24) Prof. Henry IGBADUN (Nigeria); (25) Ms. Florence Iwalanwo Oyakhirome; (26) Eng. Fatima Baba Ahmed (Nigeria); (27) Mr. Mukhlis Bin Aainol Abadin (Malaysia); (28) Mr. K. Surya Kumar (India); (29) Ms. HUANG HSIANG YING (CTC); (30) Mr. B. Sravan Kumar (India); (31) Dr. Wahyu Widiyanto (Indonesia); and (32) Mr. J. Niharika (India).

Website: http://icid-ciid.org/inner_page/109

WG-SDTA Minutes Item 1: Action Taken Report by Chair

1. Dr. Ruey-Chy Kao (Chinese Taipei Committee), Chairman of the WG-SDTA welcomed all the members and presented a report on the actions taken on the decisions held at its last meeting in October 2022 at Adelaide, Australia.
2. WG reviewed the membership of Dr. Mona Liza F. Delos Reyes (Philippines) received from Philippines National Committee of ICID. Dr. Mona Liza F. Delos Reyes was present in the meeting, so her membership was accepted. Membership status is given in **Annex 3, page 31**.

WG-SDTA Minutes Item 1.1: A brief report of Online/WebEx Meeting of the Group, 16 March 2023

3. A brief report of the 1st Virtual meeting of the WG-SDTA was successfully held on 16 March 2023. The minutes of the virtual meeting of the WG can be accessed at <https://icid-ciid.org/icid_data_web/min_sdta_webmeeting16032023.pdf>.

WG-SDTA Minutes Item 2: ICID Action Plan 2030: Activities on Sustainable Development of Tidal Areas

4. The WG reviewed the Action Plan 2030 (Road Map to ICID Vision 2030) based on the mandate by updating the activities on sustainable development of tidal area issues and provided updated about the fresh action plan for 2018-2023 (refer Annex 1 of the WG Agenda).

5. In order to publish the Special Issue on SDTA, Prof. Hsiao-Wen Wang (Chinese Taipei Committee) presented a detailed procedure for the paper submission and review process for the Special Issue of the WG. Further, Prof. Wang has informed that the process of review and editing work of the papers are going on. WG informed that they will request to non-workshop participants and National Committees (NCs) for the paper submission.

WG-SDTA Minutes Item 3: Upcoming WG Events

WG-SDTA Minutes Item 3.1: International Workshop on ‘Global Challenges of Land Subsidence in Tidal Areas and the Integrated Solutions’ in 2023 at Vizag., Andhra Pradesh, India

6. The International Workshop of the WG-SDTA titled “Global Challenges of Land Subsidence in Tidal Areas and the Integrated Solutions” held on 03 November 2023 at Vizag., Andhra Pradesh State, India. The workshop which was a part of the WG-SDTA scheduled for 2023 and a Side Event to the 24th Congress & 75th IEC. The Session was chaired by Vice-Chair VP Nor Hisham Ghazali (Malaysia) with 44 attendees. A total of nine papers were received for the workshop but only 7 papers were presented due to the absence of their actual authors. The workshop opened with a paper by PH Bart Schultz (The Netherlands) which described the history of polder development and management in the Netherlands since the 3rd Century. This was followed by two papers from INACID on coastal flooding and tsunami inundation. The first paper by Dr. Sanidhya Nika Purnomo explored subsidence and coastal issues and in Pekalongan on the North Coast of Central Java. This was followed by Dr. Wahyu Widiyanto presented a study report of the rising inundation risk for Jakarta based on tsunami simulation under a long-term subsidence scenario for Jakarta. Four papers were delivered by CTCID representatives led by WG-SDTA Chair Prof. Kao Ruey-Chy. These papers focussed on land subsidence prevention and control strategies in Taiwan’s coastal areas. They addressed issues such as the importance of real-time monitoring and governance in ensuring that abstraction is properly controlled. A groundwater well information system has been instrumental in assisting Taiwan authorities and local government in managing groundwater abstraction and subsidence. As well as promoting the introduction of technologies in the water industry for wastewater reuse, water conservation management, water supply leak detection, seawater desalination and intelligent water management and technology to effectively manage water resource utilization and control excessive groundwater pumping to prevent land subsidence.

7. In summary, the papers presented in the workshop highlighted that the threat of coastal inundation by hazards such as coastal flooding and tsunami is further compounded by land subsidence. Hence, there is a need for coastal communities to monitor both coastal flood threats and subsidence for the long-term. Effective monitoring can be achieved through the deployment of instruments for real-time measurements subsequently contributing to an information system. Subsidence is caused by the weight of buildings, over-abstraction of groundwater and tectonic effects which causes a lowering of ground surface levels. Higher mean sea levels due to long-term sea-level rise will contribute toward higher tsunami inundation levels and greater risk of damages. The workshop has opened possibilities to further study the issue of subsidence as a compounding factor to pre-existing coastal hazards.

WG-SDTA Minutes Item 3.2: Short Course titled ‘Tidal Prediction and Land Subsidence Prevention and Reclamation’ in 2023

8. The title of the short course to be reviewed based on the recommendations from the members Hon. President ICID, Prof. Peter S. Lee (UK) by including the increasing the resilience through adopting to climate change and land subsidence. This course will be offered to exiting WG-SDTA members and we will have further discussions on timelines in the next meeting.

WG-SDTA Minutes Item 3.3: Side Event of the Working Group on SDTA

9. The Side Event of the WG has been cancelled in the last virtual meeting of the group.

WG-SDTA Minutes Item 3.4: Web-based seminars and e-Discussions

10. Three webinars shall be planned on land subsidence and impact on ground water, sea level raise. A case from Indonesia and Chinese Taipei can be considered till next Congress.

WG-SDTA Minutes Item 4: Ground Water and the Land Subsidence on the Coastal Areas

11. The international workshop has focused on Land subsidence and this item has achieved.

WG-SDTA Minutes Item 5: Dissemination of activities of WG

12. Chair requested the members of the WG to share information, knowledge & experiences and provide papers, presentations, articles, reports etc. related to scope of the WG to ICID CO for uploading on the WG website for wider dissemination and knowledge enrichment.

WG-SDTA Minutes Item 6: Updating Multilingual Technical Dictionary (MTD)

13. The mandate of the WG will be reviewed during the PCTA meeting.

WG-SDTA Minutes Item 7: A format for the 2-page ‘Country Note’ – Sustainable Development of Tidal Areas

14. NCs – Japan, Korea, Malaysia, Indonesia, The Netherlands, India, and Chinese Taipei Committee have already shared two-page country papers for the group. Accordingly, NCs of China, Egypt and Thailand & other member countries have requested to send their country notes (two pages) to Chair of the WG.

WG-SDTA Minutes Item 8: Any other business

15. Members are again reminded to update their info in the ICID Members' Profile Section.

16. All NCs are requested to update their info in the Register on “World Irrigation and Drainage Schemes (WI&DS)”.

17. **Restructuring of the Working Group:** Chairman Prof. Kao, discussed the tentative new structure of the working groups among the existing 18 groups, nine of them will complete their mandate in November 2023. The remaining working groups are proposed to be structured into 11 new working groups under four themes: (1) Irrigation and Drainage Water Management (Long-term activities); 2. Natural Resources Management (Medium-term activities); 3. Water Management under Climate Change & Water Scarcity (Medium to long-term activities); 4. Sustainable Development and Management: Capacity Building, History, Institutional and Socio-Economical Aspects of Irrigation and Drainage Schemes. (Long-term activities).

18. Prof. Kao presented the new working group tentative scope, mandate, task and objectives as follows:

WORKING GROUP NAME: Working Group on Sustainable Coastal Environment Regeneration (WG-SCER).

Scope of the Working Group: Coastal zone is the intersection of land and sea, with the characteristics of daily sea level fluctuations due to ocean tides, as well as complex hydro-meteorological conditions of oceanic and continental climate interactions. Coastal zone is also the tail end of rivers and drainages, where confluent land water is discharged into the sea. On the sea side of the coastal zone, there are abundant marine fisheries and very strong and powerful of wind energy, tidal energy, and wave energy, which might be available for development in marine resources, while on the land side, there are vast agricultural and food production areas, and also potential for developing solar energy, water energy, wind energy and biomass energy. Besides, the estuary areas often consist of various ecosystems, supporting biodiversity. Based on multiple considerations of food production, agricultural irrigation water, drainage and flood control, proper planning and development of clean green energy not only meets the Sustainable Development Goals (SDGs) but also contributes to net zero carbon emissions by 2050 (2050 Net- Zero Emissions), the national commitment by many countries.

However, these coastal environments and resources have diverse and complex disaster risk issues, such as heavy rainfall and floods in lowlands, over-pumping of groundwater leads to land subsidence and easy flooding, coastal erosion and land loss, seawalls and coastal facility damage, sea level rise under climate change, earthquake and tsunami invasion and destruction of land areas, etc. Therefore, it is necessary to better understand these potential disasters with more sophisticated knowledge and technology to upgrade the coastal environment master plan, introduce appropriate clean green energy, so as to ensure responsible newly construction projects and improve existing aging capacity of irrigation and drainage facilities. In view of these, the "Working Group on Sustainable Coastal Environment Regeneration (WG-SCER)" proposed an overall coastal environmental regeneration strategy to promote the improvement of coastal environment, natural resources and ecosystems, and then move towards the Sustainable Development Goals (SDGs).

Mandate:

- (a) To prepare a practical case report on coastal environmental regeneration and disseminate experience and knowledge in workshops or short courses for regional and local re-examination and clarification of coastal issues;
- (b) To organize events and prepare a document to raise awareness that the multiple compound effects of sea level rise, coastal erosion and land subsidence may lead to increased risks in coastal areas;
- (c) To encourage accurate investigation and analysis of irrigation and drainage capacity of coastal areas and coastal management master plans to formulate flood management levels to designate adaptive flood management areas;

- (d) To promote the application of Cyber-Physical System (CPS), Internet of Things (IoT), related analysis software and intelligent integrated management technology to achieve an optimized irrigation and drainage management system;
- (e) To organize events and prepare a case report on sustainable development and management of coastal areas and find a balance between the conservation and development of the coastal environment and tidal areas with acknowledgment of ecosystem services.
- (f) To join the international dialogues and organize international workshop, side event talks and short courses to promote interdisciplinary and participatory land and water planning and management in coastal environment and tidal areas; and
- (g) To collaborate with other related working groups actively, and to exchange relevant experience.

Tasks of the Working Group

The scope and mandate of the Working Group on Sustainable Regeneration of Coastal Environment (WG-SRCE) have almost covered the diverse and complex issues that need to be explored and studied in the coastal zone. The working group proposed six tasks to achieve the mandate, and also leverages the expertise of the outgoing working group chairs, whom we recommend leading some of the tasks.

- (a) **Task 1.** Investigate and share practical cases of seaside, landside, and estuary coastal environmental resources and disasters in regional and local coastal zones.
- (b) **Task 2.** Consult and guide the exploration methods of potential threats to coastal environmental issues on the land side of the coastal zone to develop strategies and solutions for integrated solutions.
- (c) **Task 3.** Assess and analyze groundwater development and management, surface water and groundwater conjugate use for irrigation on the landside of the coastal zone to estimate land subsidence potential.
- (d) **Task 4.** Strengthen the promotion of ICID coastal country members to accurately investigate the irrigation and drainage capacity of coastal zones and coastal management master plans to formulate flood management levels to designate adaptive flood management areas.
- (e) **Task 5.** Practice and plan modernization, automatic monitoring and control systems in coastal environment and irrigation and drainage management.
- (f) **Task 6.** Organize and hold international activities of the working group such as side events, short courses, workshops, symposiums, and special issues.

19. The meeting ended with thanks to the Chair.

