

# 2023永续海洋论坛 WORKSHOP ON SUSTAINABLE OCEANS 2023





### 2023.11.10 中国·厦门 Xiamen, China

### 主办单位/Sponsors



厦门大学 Xiamen University



中国海洋发展基金会 China Oceanic Development Foundation



福建省海洋与渔业局 Fujian Provincial Department of Ocean and Fisheries

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福建海洋可持续发展研究院(厦门大学) Fujian Institute for Sustainable Oceans (Xiamen University)



联合国"海洋十年"COASTAL-SOS项目 COASTAL-SOS Programme

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浙江大学海洋学院 Ocean College, Zhejiang University



天津大学海洋科学与技术学院

School of Marine Science and Technology, Tianjin University



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South China Sea Institute, Xiamen University

厦门大学海洋文明与战略发展研究中心 Center for Maritime Civilization and Strategy Development, Xiamen University



### 日期/Date

2023.11.10

### 主题/Theme

海岸带可持续发展的促进技术与方法 Advancing Sustainable Coastal Development: Technologies and Approaches

### 会场/Venue

厦门国际会议中心酒店三楼金厦一厅 Golden Xiamen Ballroom, 3<sup>rd</sup> Floor Xiamen International Conference Center Hotel

### 地址/Address

厦门思明区环岛东路1697号 No.1697 East Ring Rd., Xiamen, China







海岸带作为陆地和海洋的交汇区域、承载着丰富的生态系 统和人类活动。国际社会特别是联合国可持续发展目标(SDGs) 高度关注海岸带可持续发展,其对实现可持续发展目标14(海 洋生态系统的保护和可持续利用)和目标15(陆地生态系统的 保护和恢复)至关重要。中国高度重视海岸带可持续发展,并 通过政策引导推动相关进展。习近平主席在2013年提出"一带 一路"倡议,该倡议旨在促进沿线国家之间的经济合作和互联 互通,通过共建基础设施、加强贸易往来和人员交流,实现共 同发展和繁荣。作为"一带一路"建设的重要地理载体,保护 和合理管理海岸带对于确保可持续发展至关重要。然而、海岸 带面临多种威胁。如气候变化引起的海平面上升、污染和废物 排放、土地过度开发利用以及生物多样性损失等。这些威胁可 能导致海岸侵蚀、生态系统退化、资源过度利用和人类社区损 失等问题,对海岸带的可持续性构成挑战。在这种情形下,迫 切需要利用现代高新技术和管理方法促进海岸带可持续发展, 如监测和评估海岸带发展现状、存在问题及需要改进的方向, 应用海洋空间规划(MSP)管理海洋资源利用等,以为决策者 制定海岸带可持续发展战略与政策提供科技支撑。

本次论坛邀请国内外海岸带可持续发展相关领域的资深专 家、学者聚首厦门,对促进海岸带可持续发展的技术和方法进 行研讨,推动沿海国家尤其是"海丝"沿线国家在海岸带可持 续发展领域的交流与合作,助力联合国可持续发展目标的落实。



### **OVERVIEW**

Coastal areas, serving as transitional zones between land and sea, harbor diverse ecological systems and human activities. The international community has shown profound concern for sustainable coastal development, demonstrated by the United Nations Sustainable Development Goals (SDGs) highlighting the coastal areas' crucial role in accomplishing SDG 14 (the conservation and sustainable utilization of marine ecosystems) and SDG 15 (the protection and restoration of terrestrial ecosystems). Recognizing the significance of coastal sustainability, China has placed great efforts on its development and has been promoting advancements through policy directives. In 2013, President Xi Jinping proposed the Belt and Road Initiative as a means to foster economic cooperation and connectivity among nations along its route. This initiative seeks to achieve shared development and through collaborative infrastructure prosperity development, strengthened trade relations, and exchanges of people. As an integral part of the Belt and Road Initiative, safeguarding and effectively managing coastal areas assume paramount importance in ensuring sustainable development.

However, coastal areas face a multitude of threats, including rising sea levels resulting from climate change, pollution and waste discharge, excessive land utilization, as well as biodiversity loss. These hazards pose severe challenges to the sustainability of coastal regions, leading degradation, erosion, ecosystem issues such as coastal to overexploitation of resources, and the displacement of human communities. In light of these circumstances, there is an urgent need to harness modern technologies and management approaches to foster sustainable coastal development. For example, strategies encompassing the monitoring and evaluation of coastal area development, identification of existing problems and areas requiring improvement, and the implementation of marine spatial planning (MSP) for sustainable marine resource utilization etc., should be employed to provide the necessary scientific underpinnings for policy-makers in their pursuit of strategies and policies that advance the sustainable development of coastal areas.

To address these concerns, this workshop endeavors to assemble domestic and international professionals well-versed in the fields of sustainable coastal development. It hopes to facilitate in-depth discussions concerning the technologies and approaches for advancing the sustainable coastal development. The primary objective of this workshop is to foster communication and cooperation among coastal nations, particularly those situated along the Maritime Silk Road, thereby contributing to the attainment of the United Nations Sustainable Development Goals.





| 8:30-9:30   | 会议签到  |
|-------------|---|
|             | 开幕式   |
| 9:30-10:30  | <ul> <li>主持人:薛雄志教授,福建海洋可持续发展研究院</li> <li>(厦门大学)院长</li> <li><b>开幕致辞</b></li> <li>中国海洋发展基金会吕滨理事长</li> <li>福建省海洋与渔业局翁新平副局长</li> <li>厦门大学张荣书记</li> <li>"海岸带可持续发展能力建设实验室"揭牌</li> </ul> |
| 10:30-10:40 | • 大会合影  |
| 10:40-11:00 | 茶歇  |
| 议题          | 过一: 促进海岸带可持续发展的管理实践   |
| 主席          | Luky Adrianto 教授,印尼茂物农业大学海事海洋与渔<br>业国际研究院院长   |
| 记录人         | Lee Xiang Yee,福建海洋可持续发展研究院(厦门大<br>学)  |

#### 11:00-11:20

马来西亚海岸带发展规划二期:海岸带发展机制的转变 Wan Izatul Asma Binti Wan Talaat 教授,马来西亚登 嘉楼大学海洋与环境研究院海洋治理中心负责人

### **阿拉弗拉海和帝汶海的区域治理机制 11:20-11:40** Handoko Adi Susanto 博士,阿拉弗拉海和帝汶海生态 系统项目主任

#### 东帝汶海洋与海岸带综合管理国家战略(2023-2033)

- Mario Cabral 博士,东帝汶国立大学渔业与海洋科学系 11:40-12:00 高级讲师
- 国土空间规划框架下的中国海洋空间规划 12:00-12:20 叶观琼博士,浙江大学海洋学院副教授
- 12:20-14:00 午餐

#### 议题二: 促进海岸带可持续发展的技术应用

| 主席          | 苏纪兰院士,自然资源部第二海洋研究所名誉所长   |
|-------------|--|
| 记录人         | 王硕,福建海洋可持续发展研究院(厦门大学)  |
| 14:00-14:20 | <b>海岸带可持续发展语境下的海岸带可持续发展能力<br/>指数评价</b><br>Gil Jacinto 教授,菲律宾国家科学与技术研究院院士 |
| 14:20-14:40 | <b>多尺度人工海防生态工程</b><br>Peter Todd 博士,新加坡国立大学副教授                           |
|             | 海岸带可持续发展能力指数——哥斯达黎加  |

Priscilla Cubero Pardo 博士,哥斯达黎加国家校长委员 14:40-15:00

会技术顾问/国家高新技术中心 PRIAS 实验室副研究员



#### 巴基斯坦的海岸带可持续性分析:海岸线后退、堰洲 岛缩小、沿海地区下沉的挑战

Sajjad Muhammd 博士,香港浸会大学地理系研究助理教授

15:40-16:00 茶歇

#### 专题讨论:海岸带可持续发展能力评估

- 主席 吕永龙教授,厦门大学讲席教授/福建海洋可持续发展 研究院首席科学家
- 记录人Mariana Cullell Delgado,福建海洋可持续发展研究院<br/>(厦门大学)
  - "海丝"沿线国家海岸带可持续发展能力指数报告
     (2023)介绍

16:00-17:20

付伊秋博士, "海丝"沿线国家海岸带可持续发展能 力指数报告(2023)编写组组长

• 专题讨论

#### 17:20-17:30 讨论总结

## AGENDA

| 8:30-9:30    | Registration  |  |
|--------------|---|--|
|              | Opening Ceremony  |  |
| 9:30-10:30   | <ul> <li>Moderator: Prof. Xue Xiongzhi, Dean, Fujian Institute for<br/>Sustainable Oceans (Xiamen University)</li> <li>Opening Remarks         <ul> <li>Mr. Lu Bin, President, China Oceanic Development<br/>Foundation</li> <li>Mr. Weng Xinping, Deputy Director General, Fujian<br/>Provincial Department of Ocean and Fisheries</li> <li>Prof. Zhang Rong, Chairman of Xiamen University Council</li> </ul> </li> <li>Unveiling Ceremony for the Sustainable Coastal<br/>Development Capacity Building Lab</li> </ul> |  |
| 10:30-10:40  | Group Photo   |  |
| 10:40-11:00  | Coffee Break  |  |
| Session I: G | Session I: Governance Practices on Sustainable Coastal Development  |  |
| Chair        | Prof. Luky Adrianto, Director, International Research Institute for<br>Maritime, Ocean and Fisheries, IPB University  |  |
| Rapporteur   | Lee Xiang Yee, Fujian Institute for Sustainable Oceans (Xiamen<br>University)   |  |
|              | The Malaysian National Coastal Zone Physical Plan-2:  |  |

#### A Paradigm Shift in Coastal Development

**11:00-11:20** Prof. Wan Izatul Asma Binti Wan Talaat, Head, Center for Ocean Governance, Institute of Oceanography and Environment (INOS), Universiti Malaysia Terengganu

Towards a Regional Governance Mechanisms for the Arafura11:20-11:40and Timor SeasDr. Handoko Adi Susanto, Regional Project Manager of ATSEA-2

| 11:40-12:00 | Moving Towards National Strategy for Integrated Ocean<br>Coastal Management (IOCM) in Timor-Leste for a Decade<br>(2023-2033)<br>Dr. Mario Cabral, Senior Lecturer, Fisheries and Marine Science<br>Department, Universidade Nacional Timor Lorosa'e (UNTL) |
|-------------|---|
| 12:00-12:20 | <b>China's Marine Spatial Planning Under the Territorial Spatial<br/>Planning Framework</b><br>Dr. Ye Guanqiong, Associate Professor, Ocean College, Zhejiang<br>University, China  |
| 12:20-14:00 | Lunch   |
|             | Session II: Applied Technologies to Advance<br>Sustainable Coastal Development  |
| Chair       | Prof. Su Jilan, Academician, Chinese Academy of<br>Sciences/Emeritus Director, Second Institute Of Oceanography,<br>MNR, P. R. China  |
| Rapporteur  | Wang Shuo, Fujian Institute for Sustainable Oceans (Xiamen<br>University)   |
| 14:00-14:20 | <b>Evaluating the Capacity Index of Sustainable Coastal</b><br><b>Development in the Context of Coastal Sustainability</b><br><b>Frameworks</b><br>Prof. Gil Jacinto, Academician, National Academy of Science and  |

Technology, Philippines

| 14:20-14:40 | Ecologically Engineering Artificial Coastal Defences at<br>Multiple Scales |  |
|-------------|--|--|
|             | Dr. Peter Todd, Associate Professor, National University of Singapore      |  |

| 14:40-15:00    | Sustainable Coastal Development Capacity Index in the<br>Context of Costa Rica<br>Dr. Priscilla Cubero Pardo, Technical Advisor, National Council of<br>Rectors & Associated Researcher, PRIAS Laboratory, National<br>Center for High Technology, Costa Rica |
|----------------|---|
| 15:00-15:20    | Sustainable Coastal Development in Thailand: Assessing<br>Governance in the Context of Tourism Urbanization and<br>Climate Change<br>Prof. Vilas Nitivattananon, School of Environment, Resources and<br>Development, Asian Institute of Technology, Thailand |
| 15:20-15:40    | Coastal Sustainability in Pakistan: Retreating Coastline,<br>Shrinking Barrier Islands, and Sinking Coastal Regions<br>Dr. Sajjad Muhammd, Research Assistant Professor, Department<br>of Geography, Hong Kong Baptist University, Hong Kong, China           |
| 15:40-16:00    | Coffee Break  |
| Panel Discussi | ion: Sustainable Coastal Development Capacity Evaluation  |

| Chair      | Prof. Lu Yonglong, Chair Professor, Xiamen University/Chief<br>Scientist, Fujian Institute for Sustainable Oceans (Xiamen<br>University) |
|------------|--|
| Rapporteur | Mariana Cullell Delgado, Fujian Institute for Sustainable Oceans<br>(Xiamen University)  |
|            | <ul> <li>Briefing on Capacity Index of Sustainable Coastal<br/>Development for Countries Along the Maritime Silk Road</li> </ul>         |

#### 2023

#### 16:00-17:20

Dr. Fu Yiqiu, Team Leader, editing team of the Capacity Index of Sustainable Coastal Development for Countries Along the Maritime Silk Road 2023

• Panel Discussion

#### **17:20-17:30** Summary and Conclusion

# 发言嘉宾简介与摘要 SPEAKERS & ABSTRACTS







促进海岸带可持续发展的管理实践 Governance Practices on Sustainable Coastal Development

主席 Chair

**Prof. Luky Adrianto** 



Dr. Luky Adrianto is Director and Professor of International Research Institute for Maritime, Ocean and Fisheries, IPB University, Indonesia. His first academic degree (B.Sc) was granted from IPB in Fisheries Sciences (major in Fisheries Socio-Economics) in 1993, and then M.Sc. in Fisheries Sciences in 2000 from Graduate School of Fisheries Sciences, Kagoshima University, Japan. His PhD was taken from the United Graduate School of Marine Environmental Sciences, Kagoshima University, Japan with a major in Fisheries Resources Management in 2004. He has been working for more than 20 years in the field of coastal and marine resources management, including fisheries management and governance. Since 2010, he is acting as Regional Task Force in Integrated Coastal Management (ICM) for the PEMSEA (Partnership of the Environmental Management of the Seas of East Asia) which he has been involved in the capacity building program for Cambodia, Thailand and Timor Leste. In the period of 2013-2018, Prof. Adrianto was also appointed as International Member of Academic Advisory for Coastal and Ocean Management Institute (COMI), Xiamen University. In 2015-2020, Prof. Adrianto was elected and appointed as Dean of Faculty of Fisheries and Marine Sciences, IPB University after his service as Director of the Center for Coastal and Marine Resources Studies (CCRMS), IPB University in the period of 2013-2015.



The Malaysian National Coastal Zone Physical Plan-2: A Paradigm Shift in Coastal Development

Wan Izatul Asma Wan Talaat

# **Keywords:** NCZPP-2, Coastal Development, NCVI, MSP **Abstract:**

The Second National Coastal Zone Physical Plan (NCZPP-2) is a strategic plan on land use outlining the direction of utilisation, conservation and management of coastal resources in Peninsular Malaysia and the Federal Territory of Labuan and serves as a guiding framework for planning and development of coastal zones in the areas. The plan incorporates strategic directions and implementation plans to build coastal areas and local communities' resilience, developed based on contextual measures and indicators of the Coastal Vulnerability Index (CVI). The directions of the NCZPP-2 are guided by the aim for optimal coastal resource management towards sustainable development, socio-economic survival and sustainable environment, with three main targets namely: (i) Integrated and Sensitive Development towards the Coastal Zone Shape; (ii) Resilient and Fast Recovery Economy, and (iii) Enhanced Infrastructure Facilities and Coastal Linkages Access. The Plan holds Four Thrusts namely: (i) Resilient Development to Disaster Risks (PB); (ii) Sustainable Ecological Assets and Ecosystem Services (AE); (iii) Strong and Effective Governance (TE); and (iv) Building Conscious and Initiative-Driven Communities (KB). Apart from presenting the first National CVI based on three parameters – physical, socio-economic and biodiversity, the NCZPP-2 sets out to formulate and implement Marine Spatial Planning (MSP) framework to guide the adoption of MSP at the local levels, which is pioneered by the Kuala Terengganu-Kuala Nerus MSP.

### **ABOUT THE SPEAKER**

Wan Izatul Asma Wan Talaat is a law professor and a qualified advocate and

solicitor. Her current and past research projects are mainly in coastal and marine environmental governance. Her works in environmental governance involves the interface between science and policy through translation of scientific findings into actionable plans and strategies by policy makers and implementers. She has been appointed to the IUCN World Commission on Environmental Law since 2014. She currently represents Malaysia to UNEP COBSEA Expert Group on Marine Litter Monitoring, while co-chairing the National Technical Working Committee on Seabed Mining Legal Framework and sits in the Technical Working Group for the National Marine Spatial Planning Policy Framework, and the National Technical Committee on MPA Blueprint.



Towards a Regional Governance Mechanisms for the Arafura and Timor Seas

Handoko Adi Susanto

# **Keywords:** Governance, Regional Mechanism, Strategic Action Program **Abstract:**

For the last 20 years, cooperation among the four littoral countries of the Arafura and Timor Seas (ATS) has embodied the spirit of United Nations Convention on the Law of the Sea (UNCLOS), which highlights the need for cooperation among countries sharing semi-enclosed seas. The envisioned transformation of the current project-based cooperation into a long-term Arafura and Timor Seas Ecosystem Action (ATSEA) program, supported by a formal regional governance mechanism, has the capacity to enhance sustainable, resilient, and inclusive development in the ATS region. This paper elaborates on the governance proposed to pave the way for establishing the ATSEA program at a regional scale and ensure the implementation of its Strategic Action Program. Supported by Global Environmental Facility, a three-year consultation process resulted in the four ATS countries agreeing on the design of a regional governance mechanism that promotes collaboration among the countries, cross-sectoral coordination, multi-stakeholder engagement, and partnerships with strategic development partners in addressing priority transboundary environmental issues. The countries also agreed on a phased approach to financing the regional governance mechanism including voluntary and in-kind country contributions, donor funding and other external sources in the short- and medium-term, while targeting full country funding in the long-term. The process leading to the signing of a Ministerial Declaration that will formalize the commitment of the four ATS countries to adopt the Regional and National Strategic Action Programs is explained and the governance and financial mechanisms to support their implementation discussed.

### **ABOUT THE SPEAKER**

Handoko Adi Susanto is the Regional Project Manager of the ATSEA-2 Project, a GEF funded program of Indonesia, PNG, Timor Leste, and Australia. He has over 20 years of experience working with USAID projects and NGOs such as The Nature Conservancy, Wildlife Conservation Society, and Rare. His areas of expertise include coral reef ecology, integrated coastal management, management of Marine Protected Areas, policy and development, and public funding. Handoko studied marine science at the IPB University, Indonesia. Handoko holds a Doctorate in Marine Biology and Conservation from Kyushu University, Japan, and a Master's in Integrated Coastal Management from the Asian Institute of Technology (AIT), Thailand.



Moving Towards National Strategy for Integrated Ocean Coastal Management (IOCM) in Timor-leste For A Decade (2023-2033)

**Mario Cabral** 

**Key Words:** Ocean Governance, National Ocean Policy (NOP), Integrated Ocean and Coastal Management (IOCM), Integrated Coastal Management (ICM) **Abstract:** 

Government of Timor-Leste must elaborate for its National Ocean Policy as an instrument to explore potential Blue Economy on how to govern and manage the existing of marine and coastal resources stewardship reflecting the shared vision "A healthy and secure ocean that sustains the livelihoods, prosperity and social and cultural values of the people of Timor-Leste in a fair and equitable manner." The combination of Integrated Coastal Management (ICM), Blue Economy will be used as a government program in one decade and strategy of Integrated Ocean and Coastal Management (IOCM). The IOCM is the foundation of laws, policies, rules, strategies, and plans based on ICM law, NOP, and the ten-year ICM initiatives development plan (2023-2033) at national and local levels by addressing ecosystem ocean-based and coastal management.

The successful of IOCM is needed to follow up on: 1) Implementing the NOP and reviewing the NOPSP by the inter-ministerial task team; 2) developing and adjustment of the Blue Economy Development Index (BEDI) to improve the overall score of 3.60; 3) create the ICM law and legal products from its derivatives, adjustment of NOP's vision by adding the ocean governance stewardship to current and future generations; and 4) develop national ICM strategy.

### **ABOUT THE SPEAKER**

Currently as a senior Lecturer of Fisheries and Marine Science Department of

Universidade Nacional Timor Lorosa'e (UNTL). Holds a Ph.D. S for Project Management with specialization in Ocean Governance and Management at Atlantic International University (USA), graduated his Master degree in Environmental Science with specialization in ICM of Gadjah Mada University (Indonesia), and bachelor degree in Marine Science of Diponegoro University (Indonesia). He has been working in both coastal Environmental Impact Assessment (EIA) and Integrated Coastal Management (ICM), Ocean Governance and Management with more than 20 years of professional work.



### China's Marine Spatial Planning Under the Territorial Spatial Planning Framework

Ye Guanqiong

# **Keywords:** Marine Spatial Planning, Transmission Mechanism, China **Abstract:**

Our study explores the history, path transmission, and main challenges currently faced in marine spatial planning in China. The development history of maritime and land relations, milestone events in China's marine spatial planning, existing types of marine spatial planning, and the development history of marine ecological protection red lines are discussed. The transmission mechanism of marine spatial planning under the territorial spatial planning system is deeply analyzed from four dimensions: policy, system, space, and technology. At the policy transmission level, the five-level and three-category territorial spatial planning system ensures the rigidity and consistency of planning; institutional transmission mainly achieves the integration of multiple plans and the coordinated operation of land and sea integration through planning terms, hierarchical systems, and planning content; spatial transmission is the logical extension from the "three zones and three lines" on land to the "two spaces and one red line" in the ocean; technical transmission is mainly reflected in the integrated implementation of "double evaluation" of land and sea; the core challenges faced by land-sea coordination in marine spatial planning include the connectivity, structural and functional changes, and resilience of the land-sea interlaced zone ecosystem, which are uncertain, as well as unresolved issues due to insufficient technical supports.

### **ABOUT THE SPEAKER**

Guanqiong Ye, Associate professor, Ocean College, Zhejiang University. Dr. Ye is a member of GESAMP WG41, a member of Top Young talents of Zhejiang and Zhongying Young Scholars of Zhejiang University. Her research focuses on the integrated coastal management, marine spatial planning, marine ecological civilization and blue carbon management. Her researches have been funded by the NSFC, the Ministry of Natural Resources, NGOs, local governments and research institutes. Main research achievements have published more than 50 papers, including papers in Nature Communications, Liminology & Oceanography, STOTEN, Limnology & Oceanography, JGR-Oceans, JEM, Marine policy, and OCM.

# 议题二 **SESSION II**



### 促进海岸带可持续发展的技术应用 **Applied Technologies to Advance Sustainable Coastal Development**





Prof. SU Jilan, physical oceanographer, Honorary Director of the Second Institute of Oceanography, Ministry of Natural Resources, China; Academician of Chinese Academy of Sciences; Ph.D. of the University of California, Berkeley Fellow of the

Third World Academy of Sciences (TWAS); Foreign Member of the Russian

Academy of Natural Sciences. He has published over 100 research articles. He has

also undertaken national policy studies on future development of oceanography

in China and on the protection and management of China's coastal ecosystems.



Evaluating the Capacity Index of Sustainable Coastal Development in the Context of Coastal Sustainability Frameworks

**Gil S. Jacinto** 

#### Abstract:

As coastal regions face escalating environmental challenges and growing socioeconomic demands, the pursuit of sustainable coastal development has gained paramount significance. Among the evolving array of indices and concepts in this domain, the Capacity Index of Sustainable Coastal Development (CISCD) is being proposed as a potential tool for evaluating the readiness and resilience of coastal areas. However, its efficacy and relevance warrant critical scrutiny within the broader landscape of coastal sustainability.

This presentation endeavors to assess the CISCD against established coastal sustainability frameworks, encompassing indices such as the Coastal Vulnerability Index (CVI), Integrated Coastal Zone Management (ICZM), and the Sustainable Development Goals (SDGs). By juxtaposing these models, we aim to discern the strengths and limitations of the CISCD in addressing the multifaceted challenges inherent in coastal areas.

The analysis will delve into the CISCD's ability to holistically account for ecological, economic, and social factors, its adaptability to varying coastal contexts, and its potential to foster integrated decision-making. Ultimately, this assessment aims to contribute to the ongoing discourse on coastal sustainability and inform future research and policy endeavors in this vital field.

### **ABOUT THE SPEAKER**

Gil S. Jacinto earned a doctorate in marine chemistry from the University of Liverpool in the United Kingdom. He was a Professor at the Marine Science Institute at the University of the Philippines Diliman before retiring in December 2020. He was also the University of the Philippines System's Assistant Vice-President for Academic Affairs (Internationalization). Dr. Jacinto was elected as an Academician to the National Academy of Science and Technology this year. For the past decade, he has served on the Scientific Advisory Group of the UNESCO-Intergovernmental Oceanographic Commission Sub-Commission for the Western Pacific (IOC-WESTPAC).



#### Ecologically Engineering Artificial Coastal Defences at Multiple Scales

**Peter Todd** 

#### **Abstract:**

Coastal urbanisation and climate change are driving the global proliferation of artificial coastal defences. These structures have significant effects on the ecology of marine habitats, leading to the loss of biodiversity and associated ecosystem services. For example, seawalls are generally more homogenous and steeper than natural shorelines and, because of these differences, they are poor surrogates for the habitats they replace. Ecological engineering—the integration of ecological principles and engineering for the benefit of both humans and nature—is a form of Nature Based Solution that is being increasingly adopted to alleviate the negative impacts associated with coastal defences. One of the more successful eco-engineering strategies is to add tiles with complex topographies, microhabitats, and water-retaining features. These can increase the richness and abundance of species reminiscent of native communities. Moving forward, how can we incorporate habitat complexity and green elements at multiple scales into new coastal defence designs, and what additional benefits may they be able to provide?

#### **ABOUT THE SPEAKER**

Dr. Peter Todd is an experimental marine ecologist who focusses on urban marine systems. His research is multidisciplinary—synthesizing elements of biology, geography, and engineering to answer ecological questions. His team has over a decade designing and testing a wide range of biodiversity enhancements for artificial coastal structures. Dr Todd is currently an Associate Professor in the Department of Biological Sciences, National University of Singapore, where he runs the Experimental Marine Ecology Laboratory. He has published over 150 peer-reviewed papers on coastal systems and his lab's research is featured regularly in both local and international media.



Sustainable Coastal Development Capacity Index in the Context of Costa Rica

**Priscilla Cubero Pardo** 

**Keywords:** coastal growth, human population, environmental impacts, urban development, indicators

#### Abstract:

Costa Rica is in Central America and has a marine territory ten times bigger than its land territory. Coastal development has been increasing continuously since the beginning of the present century along both the Pacific and Caribbean coasts. Development inside basins that discharge in the sea cause accumulated effects in the coastal zone. Even though in the three coastal provinces human population growth shows the highest rates, and visitation by foreign tourists reaches the highest numbers, in those three coastal provinces the index of multidimensional poverty is the highest. A fact: 55% of the development in those provinces is composed by residential projects mostly owned by foreigners and middle-high to high class nationals, which raises the style and cost of living, but impoverishes the local people. Because of development, environmental impacts keep increasing, while the beauty of the coastal area in the country keeps moving economic interests under governmental policies and impact environmental assessment procedures that fail to integrate the fragility of the coastal and marine stripe to secure sustainability. An analysis of the indicator system proposed in the Sustainable Coastal Development Capacity Index is made concluding that it can be useful to guide coastal development policies if modifications to some of the indicators are applied.

### **ABOUT THE SPEAKER**

Biologist with 23 years of experience in research applied to management

processes in marine habitats in Costa Rica, Ecuador, and Mexico, through the design of technical tools that consider economic alternatives within visions of sustainable management. Those tools have served as bases to design plans that regulate the way marine spaces and resources are used, taking the fragility of natural ecosystems into account, to ensure that such development does not exceed the resistance and recovery capacity of ecosystems. During the last nine years, I have been involved in decision making related to human development in Costa Rica.



Sustainable Coastal Development in Thailand: Assessing Governance in the Context of Tourism Urbanization and Climate Change

#### **Vilas Nitivattananon**

**Keywords:** Climate change; Coastal urbanization; Governance; Infrastructure and services; Sustainable coastal development

#### Abstract:

This presentation provides status and trend for sustainable coastal development in Thailand, with a focus on assessing coastal areas in the eastern sub-region. of Thailand - a popular destination in Southeast Asia, facing rapid tourism-related urbanization and associated consequences of environment and climate change (CC). The case aims to assess the relationships between tourism, coastal areas, the environment, and CC in the context of tourism urbanization; and recommend strategies for enhancing the governance of coastal areas. Rapid urbanization from tourism development is the main driver of environmental changes and makes the areas vulnerable to CC-related risks. While water scarcity and pollution are found the most critical environmental issues of the destinations, coastal areas are negatively affected in terms of increased pollution and resource degradation. They have also been exposed to different CC-related problems while the risks of accumulative impacts of both environment and CC have not been adequately recognized or addressed. Public infrastructure integration and optimization to enhance coastal areas' environment and climate resilience are suggested.

### **ABOUT THE SPEAKER**

Dr. Vilas Nitivattananon is a professor of Department of Development and Sustainability, and a former Dean of School of Environment, Resources and Development, at Asian Institute of Technology (AIT). He has academic background in engineering, economics and systems management, with a PhD degree from University of Pittsburgh, USA. His areas of specialization and research interest include systems approach and management, urban competitiveness and resilience, climate change and urbanization, waste recycling and management, strategic and sustainable infrastructure development, sustainable tourism, and sustainability and impact assessment. He is editorial board members of several international journals and has published more than 100 articles in international journals and conference papers and book chapters.



Coastal Sustainability in Pakistan: Retreating Coastline, Shrinking Barrier Islands, and Sinking Coastal Regions

Sajjad Muhammad

**Keywords:** Coastal Sustainability; Coastal Management; Coastal Hazards; Coastal Erosion; Coastal Subsidence

#### Abstract:

Coastal regions face significant multiple challenges (e.g., shoreline changes and subsidence). This talk will present our findings to understand and address these challenges for the sustainability of Pakistan's coastal regions.

Using remote sensing and data analysis techniques, our work focused on morphological changes along the coastline over the past three decades. Widespread erosion was observed, posing risks to coastal communities and infrastructure. A correlation between erosion and rising sea levels is evident. The stability of barrier islands, crucial for coastal defence, was also evaluated. Diverse erosion rates among the islands were identified, emphasizing the need for prompt measures to mitigate erosion and preserve their services through effective coastal planning. Additionally, the investigations quantified vertical ground displacements as a contributing factor to coastline erosion, with substantial subsidence rates observed. Factors such as rapid urbanization and failed drainage systems were identified as significant contributors, necessitating comprehensive management strategies.

This talk will specifically focus on the retreating coastline, shrinking barrier islands, and sinking coastal areas in Pakistan. Urgent action is required, and viable solutions should be proposed to manage and sustain coastal regions. Insights provided will guide policymakers and stakeholders in developing effective coastal management strategies that consider sea-level rise, land subsidence, and anthropogenic factors. *For Pakistan to strive towards a more sustainable future, the time to act is now!* 

### **ABOUT THE SPEAKER**

Dr. Sajjad works at the Department of Geography, HKBU and is a member of the Centre for Geo-computation Studies and the Smart Society Lab. He obtained his PhD from CityU Hong Kong and was a visiting scholar at Princeton University, USA (2018-19). Dr. Sajjad works on the frontiers of interdisciplinary climate research (Integrated Physical science, Environmental & Urban Systems Modelling, and Technology) to explore the risk-resilience-sustainability nexus using spatial-data science approaches and provide practical solutions. He maintains research interests in Coastal & Environmental Sustainability, Geo-AI, Machine Learning, Location Intelligence, and interdisciplinary Climate Science. Geospatial applications (i.e., Remote Sensing and GIS) are central to most of his research.



# 专题讨论 PANEL DISCUSSION





Dr. Lu Yonglong is a Chair Professor of Xiamen University, the Dean of College of the Environment and Ecology, Xiamen University, and Distinguished Professor of Chinese Academy of Sciences (CAS). Dr. Lu is also an elected fellow of The World Academy of Sciences (TWAS), foreign member of Russian Academy of Science, foreign member of Academia Europaea (AE), and fellow of International Science Council. He serves as an Associate Editor for Science Advances, and he is the Founding Editor-in-Chief of Ecosystem Health and Sustainability, and Founder and Associate Editor of Environmental Development: Transdisciplinary Journal of SCOPE. His research interests include Sustainability Ecology, Environmental

Geoscience and Management, and Environmental Ecology. As an active environmental ecologist, he has published 360 papers in peer reviewed journals

such as Science, Nature, Science Advances etc.

## PANELISTS

### Kawser Ahmed



Prof. Kawser Ahmed received Ph.D. and Post-doc in Oceanography from the Atmosphere and Ocean Research Institute, the University of Tokyo. He is the founding chairman of the Department of Oceanography, former Chairman of the Department of Fisheries and also the founding Director of the International Centre for Ocean Governance (ICOG), University of Dhaka.

He was the Dean, Faculty of Earth and Environmental Sciences, University of Dhaka before he joined Ministry of Planning, Peoples Republic of Bangladesh as Secretary. He received UGC Gold Medal in 2017 and received Deans Award during 2012 to 2014 and 2015 to 2017. He has more than 200 research publications to his credit and 100 conference/seminar/workshop papers. He supervised so far 170 doctoral, M. Phil and M.S. students.



#### **Hoy Sereivathanak Reasey**

Asst. Prof. Hoy Sereivathanak Reasey, is a head of Department of Natural Resource Management and Development, Royal University of Phnom Penh (RUPP - Cambodia), he has been involved in academic career since 2007 until now with his post-graduated background in Natural Resource Preservation and Rational Exploitation (VNU-HCM, Vietnam), Environmental Governance (ANU, Australia), and Integrated Coastal Management (ICM) (AIT, Thailand). The focus of research and teaching is on environmental regulation and policy. As a consultant with expertise in Environmental and Social Safeguard, he has worked with several ministries and the World Bank to prepare appraisal documents for development projects. Beside of his above position, he also plays an important role in coordinating of the PEMSEA Network of Learning Centers (PNLC) in Cambodia as a national hub of ICM knowledge and experience sharing.



#### **Gabriel Yong Yit Vui**

Gabriel graduated with BSc (hon) in Geological Geophysics from Reading University (UK) in 1986 and Masters in Environmental Analysis & Dynamics from Hull (UK) in 1999. He has taught courses on coastal geomorphology and integrated coastal management at UBD. He was involved in the ASEAN-Australian Coastal Zone Environment & Resources Management Project (1999), draft Brunei Darussalam's Coastal Environmental & Resources Profile for ASEAN COST, and most recently, served as national expert in a regional consultation forum on the development of a science-based decision support system for coastal and marine environment organised by ASEAN Centre for Biodiversity in April 2022.



#### Ali Khamis Al-Araimi

Mr. Ali Khamis Al-Araimi is an expert of integrated coastal management. He is currently serving as the Director of the Agricultural and Fisheries Control Department in Al Sharqiyah South Governorate, Ministry of Agriculture, Fisheries and Water Resources, Sultanate of Oman. He participated in many activities and training courses, including a 100-day ocean graphic cruise in the Strait of Hormuz for the ROPME Sea Area, which is a UN Environment Programme, as well as in programs generated by FAO for by-catch reduction device in the shrimp fishery of the Gulf of Oman. He has also worked as an expert at the Fujian Institute of Oceanography in Xiamen during 2011-2013.





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#### Hainan Tropical Ocean University



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| Xiaoqin |  |

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#### 普乐格(厦门)生物科技有限公司 Pulege (Xiamen) Biotechnology Co., Ltd.

苏清海 Su Qinghai

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总经理,福建海洋可持续发展研究院(厦门大学)特约研究员 General Manager, Pulege (Xiamen) Biotechnology Co., Ltd/Special Joint Researcher, Fujian Institute for Sustainable Oceans (Xiamen University)



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## 厦门大学 Xiamen University



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| Dong Siqi               | College of the Environment and Ecology                |
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# 梁嘉琪 建筑与土木工程学院Liang Jiaqi School of Architecture and Civil Engineering

# 用餐安排 MEAL ARRANGEMENTS

|           | 用餐时间          | 用餐地点                 |
|-----------|---------------|----------------------|
|           | Time          | Location             |
| 早餐        | 07:30 - 10:00 | 二楼海鲜自助餐厅             |
| Breakfast | 07.30 10.00   | Seafood Cafeteria 2F |
| 午餐        | 11:30 - 14:00 | 二楼海鲜自助餐厅             |
| Lunch     | 11.30 11.00   | Seafood Cafeteria 2F |
| 晚餐        | 18:00 – 21:00 | 二楼海鲜自助餐厅             |
| Dinner    | 10.00 21.00   | Seafood Cafeteria 2F |

请留意:早餐凭房卡用餐;自助午餐晚餐凭餐券用餐。 Note: Please present your room key for breakfast, coupons for lunch and dinner.



# 会务组联系方式 SECRETARIAT

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