

Executive Development Programme

on

Coastal Resilience Planning and Management

22nd January – 25th January 2025

A-CUPCB-SPAV

TRAINING OUTCOME REPORT



AMRUT Centre of Urban Planning
for Capacity Building
A-CUPCB-SPAV



Summary of Executive Development Programme(EDP) on “COASTAL RESILIENCE PLANNING AND MANAGEMENT”

Coasts are dynamic environmental regions which are continuously modified by the constant action of water and wind on land. Development pattern predictions around the world projects that Asia is likely to witness maximum increase in built-up areas and population concentration by 2030, a major percentage along the low-lying coastal stretches. The Indian coastline spanning 7,500 kilometres, including the mainland and the islands, is heavily concentrated with settlements, coastal industries, ports, major infrastructure investments, tourist destinations etc. within 50 kilometres from the ocean. Over the years the Indian coast is prone to the increasing frequency and intensity of coastal hazards such as tropical cyclones, storm surges, sea-level rise and coastal erosion. Considering the eco-system sensitivity, the vulnerability and the development significance of this environmental region; this common resource is often degraded and thus necessitates effective coastal resilience planning and management. This Executive Development Programme (EDP) aimed to equip participants with the knowledge and skills required to develop and implement strategies that enhance the resilience of coastal regions and communities through effective planning and management. The EDP session was designed to be highly interactive, combining theoretical knowledge with practical applications.

Objectives of the EDP:

- a) To understand the concepts and principles of coastal resilience.
- b) To identify and analyze the key hazards and vulnerabilities of coastal areas.
- c) To learn about best practices and innovative solutions in coastal resilience planning and management.
- d) To develop skills in creating and implementing coastal resilience plans.
- e) To foster collaboration and knowledge sharing among stakeholders.

The training session was conducted over FOUR days, with each day dedicated to specific modules and activities. The EDP session was divided into the following modules 1-7. In addition, coastal resilience planning was explained through multiple case studies and one hands-on session on field.

Module 1: Introduction to Coastal Area Planning and Coastal Resilience

Module 2: Coastal Zone Ecology and Conservation

Module 3: Coastal Hazards and Vulnerabilities

Module 4: Field Study - Exploring Coastal Resilience Planning

Module 5: Sustainable Coastal Development

Module 6: Stakeholder Engagement and Plan Implementation and Monitoring

Module 7: Coastal Resilience Planning and Governance: Strategies and Tools

The EDP utilized a mix of instructional methods to ensure an engaging and comprehensive learning experience – Lectures, Presentations, Interactive Discussions, Group Activities/ Workshops/ Exercise, Case Studies Analysis, Field Visits (Optional). Basic Spatial software that can be used were introduced to the participants as part of the case-studies explained.

Participants of the first EDP highlighted that the Executive Development Programme on Coastal Resilience Planning and Management is highly relevant for urban local bodies and researchers alike, as it equips officials with essential skills and knowledge to effectively address coastal challenges, and also help young planners to prepare plans that enhance resilience to climate change and focus on sustainable development practices for coastal urban areas.

Asst. Prof. Rajeev R.
Principal Instructor

Asst. Prof. Dr. Arpan Paul Singh
Principal Co-Instructor

Table of Contents

Table of Contents	4
EDP Day-wise Programme Schedule	5
EDP: Trainers' Team.....	7
Inauguration of EDP on 22-01-2025.....	8
Session Proceedings	10
Session1: Introduction to Coastal Area Planning and Coastal Resilience.....	10
Session 2: Coastal Zone Ecology and Conservation	10
Session 3: Coastal Hazards and Vulnerability	11
Session 4: Field Study - Exploring Coastal Resilience Planning through Case-study.....	12
Session 5: Sustainable Coastal Development	15
Session 6: Stakeholder Engagement and Plan Implementation and Monitoring	16
Session 7: Coastal Resilience Planning and Governance: Strategies and Tools.....	18
Session 8: Presentation on Vulnerability Mapping and Field Observations from Gilakaladindi Village by Participants	19
PARTICIPANT PROFILE	22
PARTICIPANT FEEDBACK.....	24
VALEDICTORY & CERTIFICATE DISTRIBUTION	26

EDP Day-wise Programme Schedule

DAY 1 (22-01-2025 Wednesday)

09:15AM to 10:30AM *Reporting of Participants and Registration Formalities*
Assembling of Participants in Lecture Room
Welcome Address and Context Setting - Principal Instructor
Introduction to the Centre of Excellence – Centre Coordinator
Inaugural Address – Director, SPAV
Introduction of the Participants and the SPAV EDP Session Trainers' Team
Tea Break

Module 1

10:30AM to 12:30AM

Introduction to Coastal Area Planning and Coastal Resilience

- Definition & Understanding of Coasts
- Coastal Zones and their significance – Geomorphology, Physical Characteristics, Ecology, Economy, Socio-Cultural etc.
- Introduction to Coastal Area Management – Principles, Concepts/ Approaches
- Inter-disciplinary nature of Coastal Area Planning and Management
- Complexity of Coasts and Stakeholders Involved
- Pressing Coastal Concerns
- Coastal Resilience – Principles

12:30AM to 01:00PM

SPAV Campus Tour

01:00PM to 01:45PM

Lunch Break

Module 2

01:45PM to 03:00PM

Coastal Zone Ecology and Conservation

- Understanding Coastal Ecosystems and their Ecological Processes
- Types/ Variety - Global, National and Regional
- Assessing Coastal Habitats, Ecological Concerns and Ecological Vulnerabilities
- Valuing Coastal Ecosystem Services
- Conservation Strategies for preserving biodiversity and enhancing coastal ecosystem services

03:00PM to 03:15PM

Tea Break

Module 3

03:15PM to 05:15PM

Coastal Hazards and Vulnerabilities

- Types of Coastal Hazards
- Case Studies of Coastal Disasters (Recent)
- Understanding Vulnerability – Physical, Socio-Economic and Ecological
- Identification of Vulnerability Parameters, Setting Weights
- Vulnerability Assessment Methods – using empirical literature/ case studies

05:15PM to 05:30PM

Orientation and Instructions for DAY 2: Field Visit

DAY 2 (23-01-2025 Thursday)

Module 4

09:00AM to 10:00AM

12:00PM

12:00PM – 04:00PM

04:00PM

Field Study - Exploring Coastal Resilience Planning through Case-study

- Introduce the field visit based Coastal Appreciation and Sensitization study
- Start for field Visit
- Reaching Machilipatnam
- Village/Site Visit in Case Area
- Return from Field

DAY 3 (24—01-2025 Friday)

Module 5

09:30AM to 11:30AM

Sustainable Coastal Development

- Principles and Concepts of Sustainability
- Sustainability in Coastal Development- Balancing Economic Growth with Environmental Protection in Coastal Areas
- Coastal Economic Potential incl. Blue Economy & Coastal Projects in India
- Strategies for promoting coastal tourism, coastal economy (industries) and coastal corridor development through case studies

11:30AM to 11:45 AM

Tea Break

Module 6

11:45AM to 01:00 PM

Stakeholder Engagement and Plan Implementation and Monitoring

- Importance of Stakeholder Engagement
- Collaborative Decision-making process and participatory approaches – Tools/ Techniques
- Contestations in Coastal Area Planning
- Community-based solutions to Coastal Area Planning – with case examples

01:00PM to 01:45PM

01:45PM to 03:00PM

02:45PM to 03:30PM

Lunch Break

Group Activity/ Mock-Consultations

- Project Management and Implementation
- Project Monitoring

03:30PM to 03:45PM

Tea Break

03:45PM to 04:45PM

04:45PM to 05:00PM

Coastal Vulnerability Study carried out by SPAV

Discussion/ Open-Hour for Q&A

DAY 4 (25-01-2025 Saturday)

Module 7

09:30AM to 11:30AM

Coastal Resilience Planning and Governance: Strategies and Tools

- Approach towards preparing a Resilient Coastal Development Plan
- Policy and Regulatory Frameworks in Coastal Governance: CRZ, CZMA, CZMP etc.
- Integrating Climate Change Adaptation & Mitigation in Coastal Resilience Planning
- NbS as a strategy for building resilience
- Structural and Non-structural measures

11:30AM to 11:45AM

11:45 to 01:00PM

01:00PM to 01:45PM

01:45PM to 03:00PM

Tea Break

SPAV study on developing a Coastal Area Plan (cont. from Day 3)

Lunch Break

Closing Discussions, Valedictory Session, Distribution of Certificates

EDP: Trainers' Team

Chief Patron

Prof. Dr. Ramesh Srikonda
Director, SPA Vijayawada

Patron

Prof. Dr. Ayon Kumar Tarafdar
Head, A-CUPCB-SPAV



Mr. Rajeev R.
Principal Instructor (PI)
Assistant Professor, SPA Vijayawada



Dr. Arpan Paul Singh
Principal Co-Instructor (Co-PI)
Assistant Professor, SPA Vijayawada



Dr. Anurag Bagade
Assistant Professor, SPA Vijayawada



Dr. Ayon Kumar Tarafdar
Head, A-CUPCB
Professor, SPA Vijayawada



Ms. Anuja Shukla
Environmental Specialist,
World Bank



Dr. K.M. Khaleel
Ecological Expert, Course Director (Retd.)
Kannur University, Kerala



Dr. S Mohammed Irshad
Chairperson, CDD, Jamsetji Tata
School of Disaster Studies, TISS



Ms. Falguni Tailor
Assistant Scientific Officer,
IIT Gandhinagar

Inauguration of EDP on 22-01-2025

The 4 day Executive Development Programme titled “Coastal Resilience Planning and Management” was inaugurated on 22nd January 2025 (Wednesday) at SPAV Vijayawada campus. The sessions were held from the Conference Room of SPAV which is equipped with all infrastructure to support interactive sessions and lectures. This programme was meticulously designed for professionals and academics across diverse disciplines—planners, government officials, policy-makers, environmental engineers, disaster management experts, NGOs, and researchers— and aimed to equip participants with advanced strategies to address the complexities of coastal planning and management.

The inaugural session commenced with an inspiring Welcome Address and context setting by the Principal Instructor, Mr. Rajeev R, who underscored the critical importance of coastal planning in the urban context. An insightful overview of the programme structure, which includes 7 comprehensive modules and 9 expert lectures, crafted to delve into the multifaceted aspects of coastal resilience was introduced to the participants by the PI.

The Inaugural Address was delivered by Prof. Dr. Ramesh Srikonda, Director of SPAV, who officially inaugurated the event, highlighting its significance in advancing coastal resilience planning and management. His address underscored SPAV's commitment to academic excellence, capacity building, and sustainable urban development, marking a major milestone for the institution. Being located in Andhra Pradesh, a state with an extensive coastline of over 970 km, he emphasized that SPAV is uniquely positioned to drive research, policy recommendations, and capacity-building initiatives in coastal resilience and sustainable development. Further Dr. Ramesh, highlighted how SPAV can play a pivotal role in integrating climate-responsive planning, disaster risk reduction, and adaptive infrastructure strategies to address the region's coastal challenges and opportunities.

The Inaugural session's prestige was further elevated by the presence of Chief Guest, Mr. Jit Kumar Gupta, Former Chief Town Planner, who delivered a thought-provoking address on the principles of coastal resilience and its critical role in sustainable development. He emphasized the urgent need for adaptive coastal management to tackle climate change-induced challenges such as rising sea levels, storm surges, and coastal urbanization. Highlighting global best practices and Indian case studies, he stressed the importance of nature-based solutions, policy integration, and community engagement. His insightful speech served as a call to action for planners and policymakers to enhance **coastal resilience through innovative and sustainable strategies.

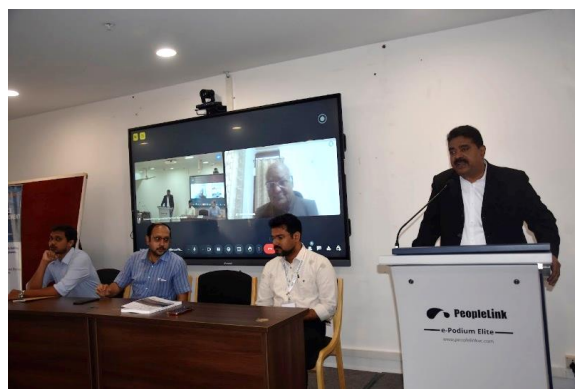


Figure 1 (Left and Right): Inaugural Session of the EDP on Coastal Resilience Planning and Management

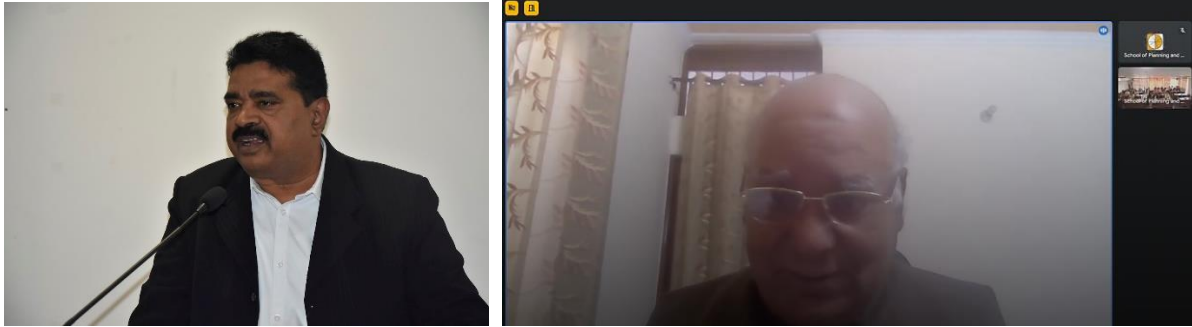


Figure 2 (Left and Right): Inaugural Address by Prof. Dr. Ramesh Srikonda and Shri. Jit Kumar Gupta

Dr. Ayon Kumar Tarafdar, Head of A-CUPCB-SPAV, further enriched the event by introducing the audience to the transformative vision of the centre. The AMRUT Division of Ministry of Housing and Urban Affairs (MoHUA, Government of India) has recognised SPA Vijayawada as one of the few centres in the country, that shall undertake top notch, cutting edge research, projects, and training in the field of urban planning and climate sensitive development. SPA Vijayawada has entered into a MoU with MoHUA Govt of India, for setting up of the “AMRUT Centre of Urban Planning for Capacity Building (A-CUPCB)” at SPA Vijayawada. He also highlighted the Centre’s ongoing research initiatives, capacity-building programmes, and its expanding collaborations with urban local bodies and think tanks in South India. This was followed by a round of introductions of all the EDP participants. The Principal Co-Instructor, Dr. Arpan Paul Singh, delivered the vote of thanks. This programme further proceeded with the insightful lectures by experts.

Session Proceedings

Session1: Introduction to Coastal Area Planning and Coastal Resilience

The first module was handled by the Principal Instructor, Asst. Prof. Rajeev R. (Expert, SPAV), who discussed on the topic “Introduction to Coastal Area Planning and Coastal Resilience”. This introductory session introduced the participants to the importance of protecting and sustainably managing coastal zones to enhance resilience against environmental and human-induced challenges, presenting them with facts and figures. Coastal zones include diverse features such as mangroves, bays, mudflats, dunes, estuaries, coral reefs, and backwaters, shaped by natural processes like weathering, erosion, and deposition. Key concepts such as the High Tide Line (HTL), marking the maximum reach of seawater during spring tides, the Low Tide Line (LTL), denoting the lowest water level, and the seashore, the area between HTL and LTL, were explained in addition to other key terminologies. The delineation of coastal areas categorized under distance-based (e.g., Coastal Regulation Zones), elevation-based (focusing on hazard vulnerability), and political-based (ensuring ease of governance and data collection) was also presented. The scenario of increasing coastline of India based on recent scientific studies was highlighted. The session emphasized the need for strategies that are ecologically healthy, economically viable, and socially inclusive, aiming to protect biodiversity, support livelihoods, and reduce risks from natural disasters and climate change. These approaches ensure the sustainability of coastal ecosystems while addressing the challenges of increasing vulnerability and promoting long-term resilience.



Figure 3 (Left) and Figure 4 (Right): Session 1 of the EDP for sensitising participants towards Coastal Resilience Planning by Asst. Prof. Rajeev R. (PI)

In conclusion, this session attempted to sensitize the participants on the significance and complexity of coastal zones which necessitate an integrated and multidisciplinary approach to planning and management. And underlined through discussion that strengthening coastal resilience is paramount in ensuring continued support to biodiversity, livelihoods, and economies in these critical coastal zones.

Session 2: Coastal Zone Ecology and Conservation

The second session on Module 2: Coastal Zone Ecology and Conservation was handled through online mode and joined by Ecological Expert, Dr. KM Khaleel. He discussed the critical role of coastal ecosystems in maintaining ecological balance, economic stability, and disaster resilience. It was highlighted how mangroves act as natural barriers, reducing coastal erosion, storing carbon, and protecting against storm surges. The session examined India's conservation efforts, particularly MISHTI

(Mangrove Initiative for Shoreline Habitats and Tangible Incomes) and community-led projects like the Kannur Kandal Project, which integrate habitat restoration with sustainable livelihoods.



Figure 5 (Left) and Figure 6 (Right): Session 2 of the EDP by Dr. KM Khaleel (Ecological Expert) on ‘Coastal Zone Ecology and Conservation’ – Online Lecture

The significance of India’s 75 RAMSAR sites in wetland conservation was also emphasized. However, challenges such as habitat degradation, pollution, climate change, and overfishing were discussed, along with strategies like Integrated Coastal Zone Management (ICZM), policy interventions, community engagement, and targeted mangrove restoration. The session concluded by stressing the need for adaptive conservation strategies and sustainable management to ensure the long-term resilience of coastal regions.

Session 3: Coastal Hazards and Vulnerability

The first half of this session was handled by Dr. Arpan Paul Singh, Principal Co-instructor of this EDP (Expert, SPAV), the on the topic of “Coastal Hazards and Disasters”. This session was an insightful exploration of coastal hazards and disaster management. Coastal hazards, as explained, can be either natural, and these hazards pose serious risks to life, property and ecosystems in coastal areas, with issues like oil spills and climate change making matters worse. Dr. Arpan emphasized that disasters occur when hazards cause widespread damage, casualties, and disruptions. He further clarified that a hazard is simply a process or event with the potential to cause harm, and when a community cannot cope with it, it is called a disaster.



Figure 7 (Left) and Figure 8 (Right): Session 3 of the EDP by Dr. Arpan Paul Singh (Co-PI) on ‘Coastal Hazards and Disasters’

The second half this Session 3, was handled by Dr. Ayon Kumar Tarafdar (Expert, SPAV) on the topic “Vulnerability and Coping Mechanisms”. His presentation provided a detailed breakdown of vulnerability. Dr. Ayon emphasized that vulnerability depends on several interconnected factors. Exposure determines how much risk a community faces from hazards, while sensitivity reflects its ability to resist and cope with impacts. Dr. Ayon highlighted adaptive capacity as a critical aspect, representing a community's ability to adjust and recover from shocks and challenges. Vulnerability, as he explained, is essentially the result of exposure to threats combined with the inability to manage the effects. The way the expert explained the relationship between vulnerability, exposure, and adaptive capacity helped the participants to understand how these elements collectively influence disaster risks and outcomes.



Figure 9 (Left) and Figure 10 (Right): Session of the EDP by Prof. Dr. Ayon Kumar Tarafdar on ‘Understanding Vulnerability and Coping Mechanisms’ continued with Hands-on-Exercise

The Day 1 concluded with a hands-on exercise on calculating the weighted vulnerability index depending on the identified parameters.

Session 4: Field Study - Exploring Coastal Resilience Planning through Case-study

The Day 2 began with an introduction to the task ahead to the participants on field by the Principal Instructor, Asst. Prof. Rajeev R., and a sample study carried out in Koraiuppam, Chennai, Tamil Nadu, by the instructor. Post this the participants accompanied by the PI Rajeev R., and the Co-PI Dr. Arpan Paul, started for field visit to Machilipatnam from SPAV campus at 10:30am. During the field visit to Gilakaladindi village in Machilipatnam, the group of 21 participants were divided into four teams to conduct focused surveys/ studies. The first team was tasked to engage with local fishermen to understand their daily routines, fishing equipment, and challenges, such as sand accumulation at the creek’s mouth, lack of navigational aids, and inadequate fish drying platforms. The second team examined housing typologies, analyzing construction materials and living conditions, and assessing vulnerability based on the built environment and infrastructure. The third team studied the socio-economic structure, uncovering issues like middlemen profiting more than the fishermen due to limited marketing channels etc. The fourth team was tasked to conduct household interviews, gaining insights into family structures, livelihoods, and community needs. All these interactions shed light on the village’s economic struggles, fishing challenges, and the role of government support during the non-fishing season, reinforcing the need for grassroots-level interventions; helping the participants understand aspects of vulnerability and resilience.



Figure 11, 12, 13, 14, 15 and 16 (Top to Bottom in sequence): Session 4 of the EDP – Field Visit at Gilakaladindi Village, Machilipatnam and Stakeholder Consultations

Following this, post lunch the participants along with faculty trainers visited the Machilipatnam Harbour construction site, a green-field, deep-water, multi-purpose port being developed under a public-private partnership (Planned for four berths across 685 hectares, the port aiming to handle 16.60 million tonnes of cargo annually); to understand coastal land reclamation and coastal development.



Figure 17, 18, 19, and 20 (Top to Bottom in sequence): Session 4 of the EDP – Field Visit at Machilipatnam Greenfield Port

The participants noticed that despite receiving CRZ and Environmental Clearances, the project has been delayed due to land acquisition issues, with only partial land handover completed.

The Day 2, Session 4 concluded with a visit to Machilipatnam Beach (Manginapudi Beach), where the topic of discussion and observation focused on poor management of beaches, beach pollution, beach littering, and coastal safety, etc. highlighting the need for better beach management and maintenance.



Figure 21 (Left) and 22 (Right): Session 4 of the EDP – Field Visit at Manginapudi Beach

The participants noticed that despite receiving CRZ and Environmental Clearances, the project has been delayed due to land acquisition issues, with only partial land handover completed.

Overall, the Session 4 tried to provided valuable insights to all participants into the socio-economic challenges of the fishing community, the developmental potential of the harbours, and gaps in local coastal tourism infrastructure that require urgent attention. The participants returned to SPAV by 08:00PM.

Session 5: Sustainable Coastal Development

The Day 3 began early with the first lecture under Session 5 by Dr. Anurag Bagade (SPAV) on the topic “Sustainable Coastal Development” with specific focus on sustainability indicators. Dr. Anurag’s session on sustainable coastal development provided valuable insights into balancing economic, social, and environmental goals, with a focus on protecting vulnerable coastal ecosystems.



Figure 23 (Left) and 24 (Right): Session 4 of the EDP by Dr. Anurag Bagade on ‘Sustainable Coastal Development’

He framed his discussion around the Sustainable Development Goals (SDGs), emphasizing their interconnectedness and the importance of tailoring them to address regional challenges. Dr. Anurag explained how the 17 SDGs, supported by 169 targets and measurable indicators, serve as a roadmap for sustainable development, particularly in coastal areas. A key highlight of the session was the importance of localizing SDGs. Dr. Anurag stressed the need for adapting global indicators to regional contexts through geospatial data analysis, which enables better monitoring and decision-making. He also discussed the role of open-source data in identifying spatial patterns and enhancing regional capacity for effective SDG implementation. The session seamlessly integrated technical aspects like data utilization with broader developmental objectives, offering a balanced perspective on theory and practice.

This session was followed by a very interesting session on “Integrating Disaster Resilience into Coastal and Marine Spatial Planning for Sustainable Development” by Ms. Falguni Tailor (Expert, IIT Gandhinagar) in the morning half.

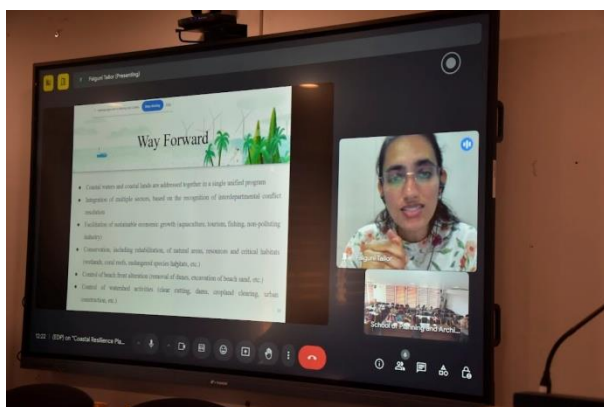


Figure 25 (Left) and 26 (Right): EDP Session 4 by Ms. Falguni Tailor (IIT-Gandhinagar) on ‘Marine Spatial Planning’ – Online Lecture

This session brought forward the interplay of Sustainable Development, Disaster Resilience, Integrated Coastal Zone Management and Marine Spatial Planning. The first section briefed the participants regarding the Marine Areas & Sustainable Development Goals. It also simultaneously brought to light the various Professions, disciplines and sectors associated to Coastal Management. The following section discussed the aspects of Disaster Resilience and the learnings from various conferences of Indo Pacific Cooperation Network held in Japan, Australia and South Pacific (Fiji and Tonga). It elaborated upon the different the SDGs and Stakeholders associated with different sectors in Disaster Resilience of a State/Country. The Third Section introduced the Concept of ICZM to participants though the example of Port Development activities in the Odisha Coast and its interplay with surrounding Environment (Flora & Fauna) of the Coast. It explained the inclusion of Stakeholders in these projects, their roles and functioning through the idea of 3-Tiered consultation method. Upon completion of this, the discussion moved towards Marine Spatial Planning Framework and the integration of various perspectives like Ecological, Social, Economic and Institutional Perspectives into MSP. The Module 05 Session 5 concluded with the brief elaboration of the Methodology involved in this planning framework and introduction to Conflict-Compatibility Matrix.

Session 6: Stakeholder Engagement and Plan Implementation and Monitoring

The Day 3 Session 6 was handled by Dr. Mohammed Irshad from TISS, Mumbai. Dr. Irshad's lecture emphasized the importance of stakeholder engagement in management, highlighting its hierarchical nature from information sharing to empowerment. Theoretical perspectives such as Corporate Planning Theory, Systems Theory, and Social Systems Theory were discussed, along with Arnstein's Ladder of Citizen Participation and Mitchell, Agle, and Wood's Power-Interest Grid, which categorize stakeholder influence. The role of monitoring, evaluation, and risk communication in managing stakeholder expectations was examined, stressing the need for structured engagement, two-way communication, and strategic decision-making. Collaborative approaches were emphasized as essential for balancing stakeholder interests, addressing risks, and ensuring project success.

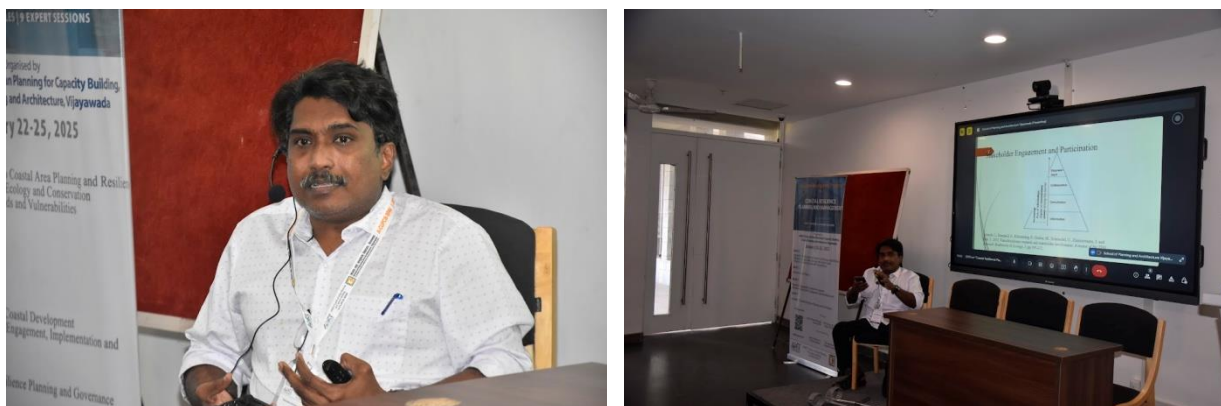


Figure 27 (Left) and 28 (Right): Session 6 of the EDP by Dr. Mohammed Irshad (TISS Mumbai) on 'Stakeholder Engagement'

This session was followed by a mock-consultation exercise (role-play exercise) post lunch, coordinated by Dr. Irshad and the PI, Asst Prof. Rajeev R., where participants engaged in a stakeholder discussion on a proposed port development affecting a fishing community facing coastal erosion. Participants were divided into seven groups representing fishermen, coastal development officials, deep-sea fishing executives, local government, development planners, the local MLA, and an NGO. Each group presented their concerns and perspectives, balancing development needs with community welfare.

Dr. Irshad highlighted key stakeholder dynamics, noting that power imbalances influence decision-making. He demonstrated through the exercise that the fisher community had a weaker voice, while deep-sea fishing executives held significant influence in steering discussions towards development. The exercise provided participants with insights into stakeholder engagement, power dynamics, negotiation skills, and effective communication, helping participants understand how real-world development discussions unfold and the importance of inclusive decision-making.



Figure 29 (Left) and 30 (Right): Session 6 of the EDP by Dr. Mohammed Irshad (TISS Mumbai) and Asst. Prof. Rajeev (PI, SPAV) – Mock Consultations as 'Role Play' exercise – Participants interacting during the exercise

This session was followed by a lecture by Dr. Arpan Paul on “Project Management and Implementation Strategies”. A structured approach to project identification and execution was emphasized by Dr. Arpan. The process began with idea generation, where problem tree analysis, SWOT analysis, and field discussions were used to identify root issues. Project appraisal was conducted to assess market, technical, financial, socio-economic, and ecological feasibility, followed by resource allocation and planning, supported by EIA and SEA. To ensure accountability and adaptability, community-based monitoring was implemented through social audits and participatory evaluations. Stakeholder engagement, risk assessment, and resource optimization were highlighted as essential for project success. Ultimately, the integration of analytical, technical, and participatory methods was shown to produce sustainable and impactful outcomes tailored to local needs.



Figure 31 (Left) and 32 (Right): Felicitation of Dr. Mohammed Irshad (TISS Mumbai) by the EDP Coordinators

After completion of the session 06, the expert from TISS, Dr. Mohammed Irshad, was felicitated by the SPAV EDP Trainers.

Session 7: Coastal Resilience Planning and Governance: Strategies and Tools

The Module 07 Session 07 was handled by the EDP PI, Asst. Prof. Rajeev R.. This session on Coastal Resilience Planning and Governance outlined the challenges, regulatory frameworks, and strategies for managing coastal areas in India. Coastal zones faced issues such as climate change, urbanization, environmental degradation, and socio-economic pressures, requiring effective governance to balance development and conservation. Coastal regulations in India, including the Coastal Regulation Zone (CRZ) notifications and the United Nations Convention on the Law of the Sea (UNCLOS), were key in protecting ecosystems while supporting economic activities. UNCLOS defined maritime zones, including Territorial Waters, the Contiguous Zone, the Exclusive Economic Zone (EEZ), and the Continental Shelf, each with specific rights for resource management. The lecture highlighted the Integrated Coastal Zone Management Plan (ICZMP) as a holistic approach, integrating environmental, social, and economic aspects, and promoting stakeholder engagement and adaptive management. Discussion on Coastal Resilience Planning focused on enhancing adaptive capacity through nature-based solutions, disaster risk reduction, and climate adaptation. In conclusion, effective coastal governance required a multi-faceted approach, combining regulatory compliance, stakeholder participation, and innovative solutions to build resilient coastal regions.

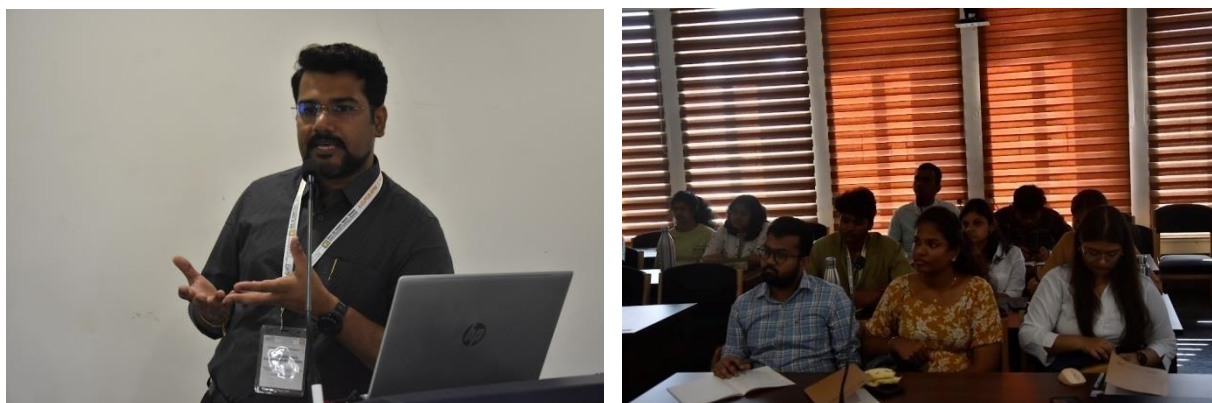


Figure 33 (Left) and 34 (Right): Session 7 of the EDP by Asst. Prof. Rajeev (PI) on 'Coastal Resilience Planning'

The last session of the EDP programme was the second session under Module 7 which was handled by Ms. Anuja Shukla (Environmental Specialist, World Bank). Ms. Anuja delivered the lecture on the strategic framework for a Blue Economy Policy, emphasizing its potential to achieve sustainable economic growth while conserving ocean and coastal ecosystems. The need for a policy that balances the sustainable use of marine resources with addressing climate change and enhancing ecosystem resilience was highlighted. The policy's vision focused on integrating socio-economic development with environmental sustainability, fostering innovation, and promoting resilience in marine and coastal ecosystems. Strategic pillars included comprehensive mapping of coastal and oceanic areas, creation of a National Data Centre for geospatial information, and marine spatial planning to balance sectoral demands such as fisheries, tourism, and energy. The policy also aimed at unlocking the economic potential of marine resources, developing resilient infrastructure, prioritizing research and innovation, and investing in education and skills development. Additional priorities included strengthening maritime security, enhancing international collaboration, and establishing systems to monitor economic contributions from Blue Economy sectors. Challenges such as inter-sectoral conflicts, data sharing gaps, funding constraints, and governance

complexities were identified as barriers to policy implementation. The importance of coordinated efforts, innovative solutions, and collaborative governance to realize a thriving Blue Economy was emphasized.

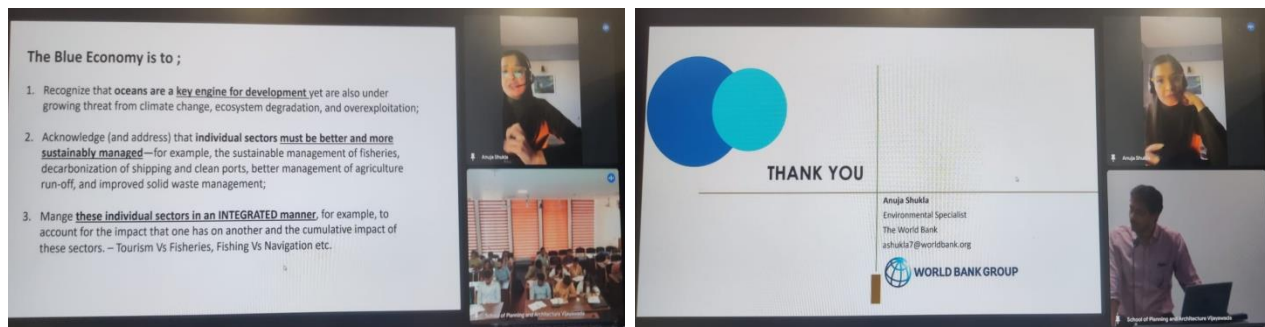


Figure 35 (Left) and 36 (Right): Session 7 of the EDP by Ms. Anuja Shukla (World Bank) on 'Blue Economy' – Online Lecture

The session concluded with a Q&A, where participants shared valuable insights on the proposed policy framework.

Session 8: Presentation on Vulnerability Mapping and Field Observations from Gilakaladindi Village by Participants

This session discussed the observations made by the students during the field study to the village of Gilakalandini. The students were divided into four groups while conducting the study and they presented their findings as such.

The first presentation discussed the location and presence of different resources and infrastructure that served the people of the village. Water sources, conditions of drains and streets and social infrastructure present in the village were noted and their weaknesses explored. The group marked down aquaculture farms and animal husbandry as important resources. Other resources used by the villagers were local building materials. Importance of religion in the village was also highlighted with the presence of a religious building at the beginning of most streets. Schools served as community shelter during times of disasters.

The second group noted down housing structure types (kucca, pucca, semi-pucca) as well as its condition and locations. The group conducted some interviews which informed them of the presence of various government schemes that have shaped the housing characteristics of the village. The presence of old houses at the central areas of the village gave a clue to the vulnerability of the houses that lie nearer to the river bank. These vulnerable houses had been replaced, or the people relocated through various government schemes. The major disaster that has impacted the community is the tsunami of 2004.

The third presentation was on the livelihood of the fishermen community. This group conducted several interviews and discovered that men were almost entirely into the fishing industry with approximately 95% catching exclusively fish while the rest 5% fished for crab. They informed the students about the different types of boats, their advantages and disadvantages. The fishermen were concerned about the competition with the local aquaculture at the markets and the safety issue they face while fishing. They also face difficulty in navigating around the mouth of the creek they use for access to the sea due to sedimentation. The seasonal nature of the profession makes the fishermen rely on a stipend given by the government, which is not sufficient according to them.



Figure 37, 38, 39 and 40 (Clockwise from Left): Presentation on Vulnerability Mapping and Field Observations by Participants

Lastly, interviews were conducted to get the narratives of other sections of the society. Men and women performed different roles in the community. The men are primarily fishermen but also work in retail and construction during off seasons. They also spend time and capital in repairing their boats during this time. While the level of education has been increasing, there has been no increase in employment opportunities. This forces them to remain fishermen through generations. The women were primarily concerned about education for girls and lack of water. They emphasized on the lack of proper educational and health facilities that force the villagers to seek them out in the nearby town of Bandar. Young people often migrate out of the village for this very reason. Throughout these interviews, the friendliness and hospitality of the villagers were noted.

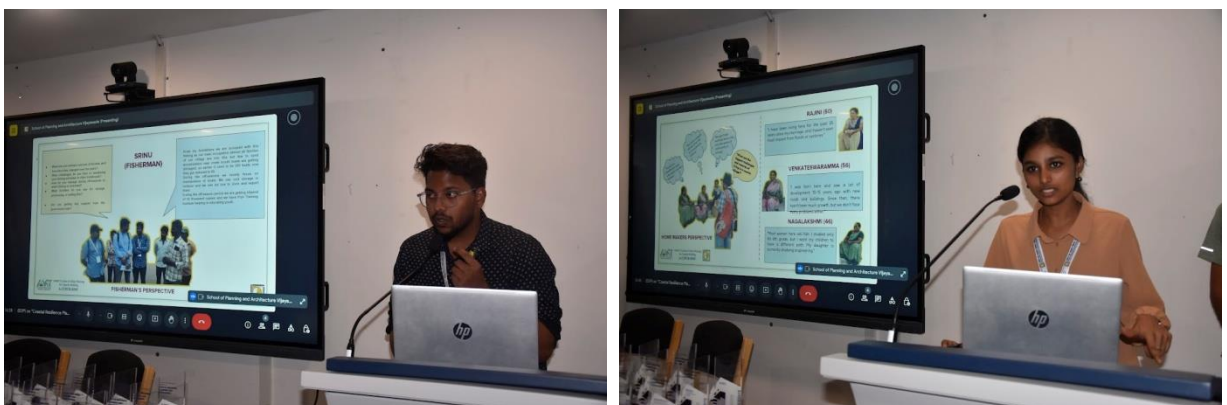


Figure 41 (Left) and 42 (Right): Presentation on Vulnerability Mapping and Field Observations by Participants



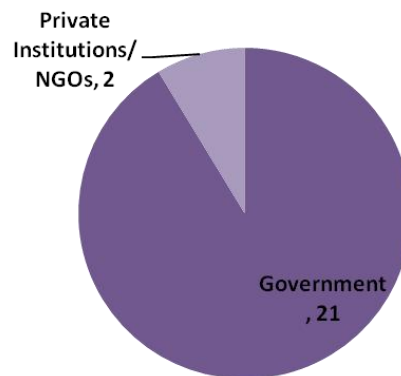
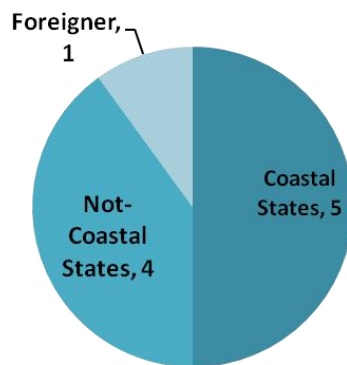
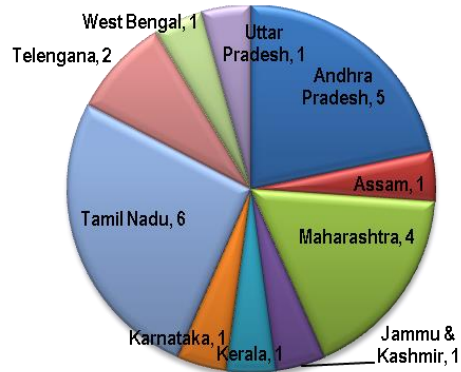
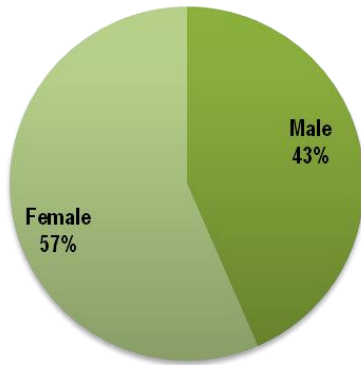
Figure 43, 44, 45 and 46 (Clockwise from Left): Interactive Dialogues between Participants & EDP Instructors

Each team presentation ended with a conclusion on the observation and an interactive discussion of problems faced by the village and possible solutions. This session was followed by Participant Feedback, Valedictory Session and Distribution of Certificates to all participants.

PARTICIPANT PROFILE

Registered and Attended						
S. No.	Participant Name	Participant	Participa	Participant Designation	Gender	State
1	Abeer Sanyour	EDP_24_02_01	Govt	Faculty, IIT BHU	Female	Uttar Pradesh
2	Naga Sai Mahesh Kanala	EDP_24_02_02	Govt	Officer, AP Maritime Board	Male	Andhra Pradesh
3	Nakka Sunny	EDP_24_02_03	Private/NGO	Business Development Associate, AIILSG	Male	Andhra Pradesh
4	Swathikka S	EDP_24_02_06	Private / Student	Independent Architect Planner, & PG Student Researcher	Female	Tamil Nadu
5	Krithikdev S	EDP_24_02_07	Private / Student	Independent Architect Planner, & PG Student Researcher	Male	Tamil Nadu
6	Ragapriya K	EDP_24_02_08	Private / Student	Independent Architect Planner, & PG Student Researcher	Female	Tamil Nadu
7	L.B.Sougandhika	EDP_24_02_09	Private / Student	Independent Architect & Student	Female	Telangana
8	Akshayaa Sathish	EDP_24_02_10	Private / Student	Independent Architect Planner, & PG Student Researcher	Female	Tamil Nadu
9	Muriki Rohit	EDP_24_02_11	Private / Student	Independent Young Planner, & PG Student Researcher	Male	Telangana
10	Yamin Rafi Mir	EDP_24_02_12	Private / Student	Independent Engineer Planner, & PG Student Researcher	Male	Jammu Kashmir
11	Samiksha Patil	EDP_24_02_13	Private / Student	Independent Architect Planner, & PG Student Researcher	Female	Maharashtra
12	Vardhanapu Vishal	EDP_24_02_14	Private / Student	Independent Young Planner, & PG Student Researcher	Male	Andhra Pradesh
13	Elijah Bakth Singh Kanchumarthi	EDP_24_02_15	Private / Student	Independent Young Planner, & PG Student Researcher	Male	Andhra Pradesh
14	Prajwal Kulkarni	EDP_24_02_16	Private / Student	Independent Architect & Student	Male	Karnataka
15	Nalam Sai Venkata Ishwarya	EDP_24_02_17	Private / Student	Independent Young Planner & Student	Female	Andhra Pradesh
16	Ajit Krishnakumar Kare	EDP_24_02_18	Private / Student	Independent Architect & Student	Male	Maharashtra
17	Jugal Singara	EDP_24_02_19	Private / Student	Independent Architect & Student	Male	Maharashtra
18	Sanskruti More	EDP_24_02_20	Private / Student	Independent Architect Planner, & PG Student Researcher	Female	Maharashtra
19	Muskan Varshney	EDP_24_02_21	Private / Student	Independent Architect & Student	Female	Assam
20	Divyashree Gurung	EDP_24_02_22	Private / Student	Independent Architect & Student	Female	West Bengal
21	V Ramya	EDP_24_02_23	Private / Student	Sociologist & Student	Female	Tamil Nadu
Registered but Could Not Attend Fully						
S. No.	Participant Name	Participant Num	Participar	Participant Designation	Gender	State
1	Bindu C A	EDP_24_02_04	Govt	Faculty, GEC, Thrissur	Female	Kerala
2	A. Prashitha Varshini	EDP_24_02_05	Private	Independent Architect	Female	Tamil Nadu

PARTICIPANT DIVERSITY



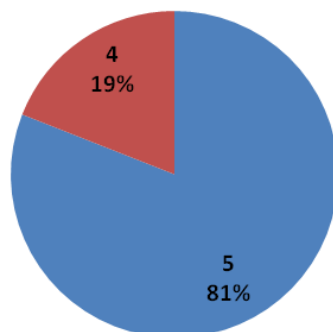
PARTICIPANT FEEDBACK

The Participant Feedback was obtained through Google Forms which was circulated to participants through email from the A-CUPCB-SPAV. A summary of the feedback received from the participants is presented below.

The participants agreed that sessions included a mix of in-depth lectures and introductions to emerging fields of study. The students felt that this variety allowed them to gain insights ranging from foundational knowledge to professional-level understanding. The combination of academic and practical learning made the workshop both informative and enriching.

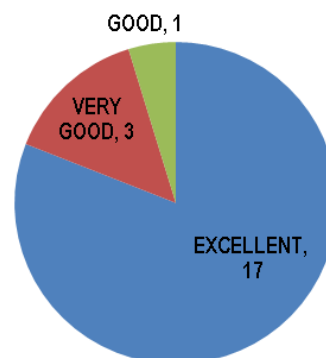
One of the highlights was the field study component, which offered hands-on learning opportunities and facilitated meaningful interactions with villagers. This aspect was particularly appreciated as it emphasized flexible data-gathering methods and created a platform for knowledge exchange. Another standout feature was the stakeholder role-play activity, which students found both informative and engaging. These interactive elements provided a dynamic learning experience, encouraging active participation and critical thinking.

Q1. How useful do you think has been the design of the Curriculum with respect to the Subject Theme, for the given duration?



SCORE - 5
 81%- VERY WELL DESIGNED (5)
 19%- QUITE WELL DESIGNED (4)

Q2. How did you find the quality of lectures?



Q3. How did you find the quality of study materials distributed?



Q4. What do you think of the practical applicability of the training programme?

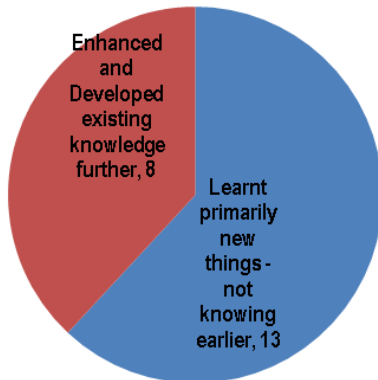


The workshop also emphasized weak governance issues in India. Students felt that this helped connect theoretical concepts to real-life scenarios. This focus on governance challenges resonated deeply with participants, as they could relate the discussions to their own experiences.

Q7. Through this programme you...

Q8. Do you think you would recommend someone to take this training, if offered in future?

Q9. Do you think there is anything that can be improved ?



100% Yes, I would recommend

95% satisfied with the way the EDP was.

Overall, the workshop successfully blended academic rigor with practical application, leaving a lasting impact on the attendees.



Figure 47: Group Photo – EDP Participants and SPAV Trainers: Coastal Resilience Planning and Management

VALEDICTORY & CERTIFICATE DISTRIBUTION

The PI, Co-PI and Trainers together presented the participants with their participation certificates and mementos for their successful completion of the EDP. Followed by which, the PI, Asst. Prof. Rajeev R. proposed the Vote of Thanks. After this a group photo was taken. Few photographs of this session is placed below.



Figure 48 (Top Left): Valedictory Session hosted by EDP PI, Asst. Prof. Rajeev R. (SPAV),
Figure 49, 50, 51, 52 and 53 (Clockwise from Top Right): Presentation Certificates to EDP Participants

EDP POSTER



AMRUT Centre of Urban Planning
for Capacity Building
A-CUPCB-SPAV



A Four-Day Executive Development Programme

COASTAL RESILIENCE PLANNING AND MANAGEMENT

22ND-25TH
JANUARY
2025

acupcb.spav.ac.in

04 Days | 07 Modules
09 Expert Presentations | Live Case Study

BLUE ECONOMY

IMPROVED COAST

RESILIENT COMMUNITIES



Purpose of the Programme

Coasts are dynamic environmental regions which are continuously modified by the constant action of water and wind on land. Development pattern predictions around the world projects that Asia is likely to witness maximum increase in built-up areas and population concentration by 2030, a major percentage along the low-lying coastal stretches. The Indian coastline spanning 7,500 kilometres, including the mainland and the islands, is heavily concentrated with settlements, coastal industries, ports, major infrastructure investments, tourist destinations etc. within 50 kilometres from the ocean. Over the years the Indian coast is prone to the increasing frequency and intensity of coastal hazards such as tropical cyclones, storm surges, sea-level rise and coastal erosion. Considering the eco-system sensitivity, the vulnerability and the development significance of this environmental region; this common resource is often degraded and thus necessitates effective coastal resilience planning and management.

PROGRAMME STRUCTURE

22ND
JAN

Module 1: Introduction to Coastal Area Planning and Coastal Resilience
Module 2: Coastal Zone Ecology and Conservation
Module 3: Coastal Hazards and Vulnerabilities

23RD
JAN

Module 4: Field Study

24TH
JAN

Module 5: Sustainable Coastal Development
Module 6: Stakeholder Engagement and Plan Implementation and Monitoring

25TH
JAN

Module 7: Coastal Resilience Planning and Governance: Strategies and Tools

This Executive Development Programme (EDP) aims to equip participants with the knowledge and skills required to develop and implement strategies that enhance the resilience of coastal regions and communities through effective planning and management. The EDP session will be highly interactive, combining theoretical knowledge with practical applications.

Key highlights

- Concepts and Principles of Coastal Resilience.
- Spatial Analysis in GIS
- Interactions and lectures by experts from Academia and Industry
- Tools and techniques for Coastal Assessment
- Vulnerabilities study of Coastal areas.
- Best practices and Innovative solutions in Coastal Area Planning
- Preparing and Implementing Coastal Resilience Plans.
- Fostering Coastal Collaboration and Knowledge sharing.

Targetted Audience

- Academicians
- Practicing Professionals
- Government officials
- Young Planners

Register Here



REGISTRATION OPEN!

For Registration, Fees and Detailed programme,
visit: https://acupcb.spav.ac.in/capacity-building/edp_24_02/

Accommodation for Participants will be provided on request basis.

Registration Deadline : 18th January , 2024 01.00pm

For further details , Contact : Asst. Prof. Mr. Rajeev R
+91 8129794964 rajeevnair@spav.ac.in

Patrons

Prof. Dr. Ramesh Srikonda
Director, SPAV

Prof. Dr. Ayon K Tarafdar
Head, A-CUPCB-SPAV

EDP Programme Coordinated by

Asst. Prof. Rajeev R
(Principal Instructor)

Asst. Prof. Dr. Arpan Paul
(Principal Co-Instructor)

Asst. Prof. Dr. Anurag Bagade

Prof. Dr. Ayon K Tarafdar

EDP Brochure

Programme Overview

- 04 Days
- 07 Modules
- 09 Expert Lectures
- 01 Live case study

Registration Details

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18th January, 2025 01.00pm



योजना तथा वास्तुकला विद्यालय, विजयवाड़ा
School of Planning and Architecture, Vijayawada
The Institute of National Importance, Ministry of Education, Govt. of India



Purpose of the Programme

Coasts are dynamic environmental regions which are continuously modified by the constant action of water and wind on land. Development pattern predictions around the world projects that Asia is likely to witness maximum increase in built-up areas and population concentration by 2030, a major percentage along the low-lying coastal stretches. The Indian coastline spanning 7,500 kilometres, including the mainland and the islands, is heavily concentrated with settlements, coastal industries, ports, major infrastructure investments, tourist destinations etc. within 50 kilometres from the ocean. Over the years the Indian coast is prone to the increasing frequency and intensity of coastal hazards such as tropical cyclones, storm surges, sea-level rise and coastal erosion. Considering the eco-system sensitivity, the vulnerability and the development significance of this environmental region; this common resource is often degraded and thus necessitates effective coastal resilience planning and management.

This Executive Development Programme (EDP) aims to equip participants with the knowledge and skills required to develop and implement strategies that enhance the resilience of coastal regions and communities through effective planning and management. The EDP session will be highly interactive, combining theoretical knowledge with practical applications.

Target Audience

The training session is designed for Planners, Government officials, Policy-makers, Environmental/ coastal engineers, Disaster management professionals, Non-governmental organizations (NGOs), Academics and researchers in the field of coastal management.

EDP Programme Coordinated by

Asst. Prof. Rajeev R
(Principal Instructor)
Asst. Prof. Dr. Arpan Paul Singh
(Principal Co-Instructor)
Asst. Prof. Dr. Anurag Bagade
Prof. Dr. Ayon Kumar Tarafdar

Patrons

Prof. Dr. Ramesh Srikonda
(Director, SPA Vijayawada)
Prof. Dr. Ayon Kumar Tarafdar
(Head, A-CUPCB-SPAV)

For further details, contact:

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AMRUT Centre of Urban Planning
for Capacity Building
A-CUPCB-SPAV



22nd to 25th
January 2025

An Executive Development Programme COASTAL RESILIENCE PLANNING AND MANAGEMENT



acupcb.spav.ac.in

COASTAL RESILIENCE PLANNING AND MANAGEMENT

Why? Participate in EDP

- To understand the concepts and principles of coastal resilience.
- To identify and analyze the key hazards and vulnerabilities of coastal areas.
- To learn about best practices and innovative solutions in coastal resilience planning and management.
- To develop skills in creating and implementing coastal resilience plans.
- To foster collaboration and knowledge sharing among stakeholders.

Deliverables and Outcomes

- Enlighten the participants on:
- The approach and methodology to build coastal resilience in India.
 - Steps to developing a Coastal Resilience Plan.
 - Best practices and innovative solutions in coastal resilience planning and management.
 - Skill-sets to foster collaboration in the target communities and to implement the coastal resilience plans.

Programme Structure

Day-1	Module 1: Introduction to Coastal Area Planning and Resilience - Definition and Importance - Key Concepts and Principles - Global and Regional Contexts Module 2: Coastal Zone Ecology and Conservation - Coastal Ecosystems and Ecological Processes - Coastal Ecological Vulnerability - Coastal Ecosystem Services - Conservation Strategies Module 3: Coastal Hazards and Vulnerabilities - Types of Coastal Hazards - Case Studies of Recent Coastal Disasters - Coastal Vulnerability - Physical, Socio-Economic, Environmental (Ecology and Cultural) - Vulnerability Assessment Methods (Case Studies from Literature) - Showcasing a Vulnerability study using software
Day-2	Module 4: Field Studies Exploring Coastal Resilience Planning through a Live-study
Day-3	Module 5: Sustainable Coastal Development - Principles and Concepts - Coastal Economic Potential Incl. Blue Economy and Coastal Development in India - Strategies for Sustainable Coastal Development Module 6: Stakeholder Engagement, Implementation and Monitoring - Stakeholder Engagement and Participation - Risk Communication and Public Awareness - Collaborative Decision making - Project Management and Implementation Strategies - Monitoring and Evaluation Techniques using Community support
Day-4	Module 7: Coastal Resilience Planning and Governance - Coastal Risk Mapping - Steps in Developing a Coastal Resilience Plan - Integrating Climate Change Adaptation and Mitigation - Coastal Governance - Structural and Non-Structural Measures including Nature-Based Solutions

All modules shall introduce Case Studies and Best Practices, as required. In addition, participants will understand coastal resilience planning explained through ONE - live case study also.

READING MATERIAL

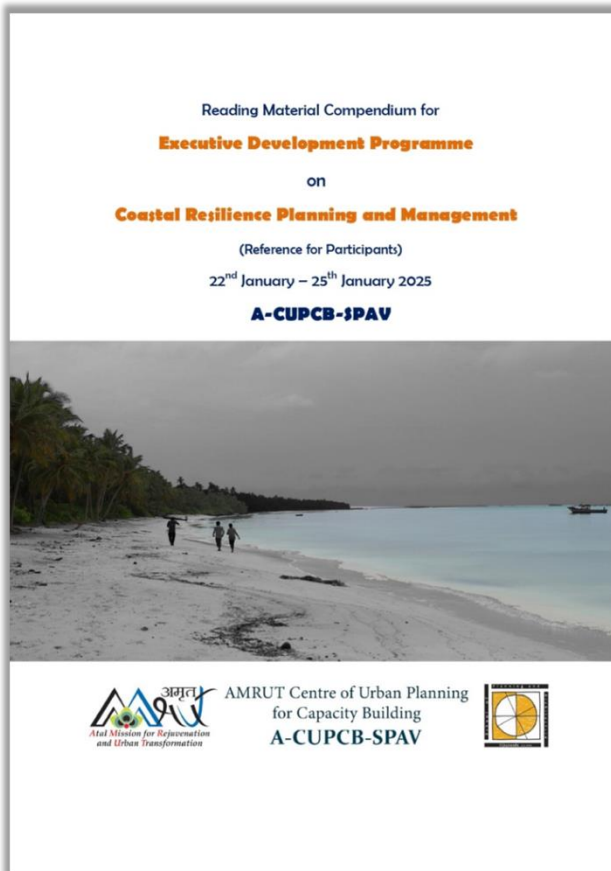


Table of Contents

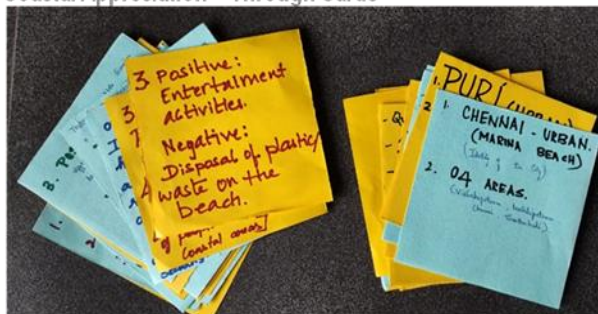
Preface.....	3
Message from Head, A-CUPCB-SPAV	4
Table of Contents	5
EDP Day-wise Programme Schedule	10
EDP: Trainers' Team	12
About SPAV	13
About A-CUPCB-SPAV	14
Module 1: Introduction to Coastal Area Planning and Coastal Resilience	15
Overview of Coastal Zones and Their Significance	15
Defining the Coastal Zone	15
Understanding the Complexity of Coasts	16
What is Coastal Area Management?	17
What is Coastal Resilience?	18
Key Points	18
References and Suggested Readings	18
Module 2: Coastal Zone Ecology and Conservation	20
Understanding Coastal Ecosystems and Their Ecological Processes	20
Coastal Ecosystem Services: Significance and Valuation	20
Assessing Coastal Habitats and Ecological Sensitivity	21
Coastal Zone: Area of Environmental Concern	22
Step-by-Step Guide to Analyzing Coastal Eco-Sensitivity	24
Strategies for Coastal Biodiversity Conservation	25
Key Points	25
References and Suggested Readings	26
Module 3: Coastal Hazards and Vulnerability	27
Types of Coastal Hazards	27
Case Studies of Recent Coastal Disasters	27
Understanding Vulnerability	28
Vulnerability Assessment Methods	28
Coastal Vulnerability Index (CVI) and Parameters	29

EDP on Coastal Resilience Planning and Management organized by A-CUPCB-SPAV

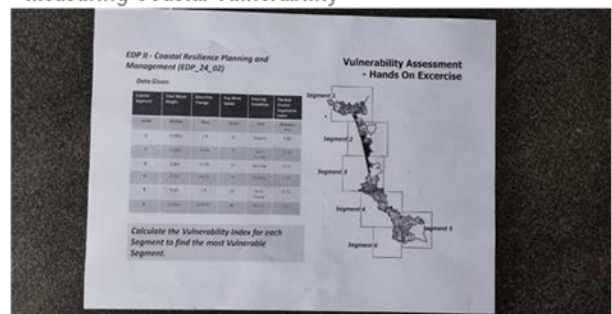
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EDP Exercises & Study Techniques Employed

Coastal Appreciation – Through Cards



Measuring Coastal Vulnerability



Mapping Vulnerability of Coast: Gilakaladindi, Machilipatnam Port and Beach



Mock Stakeholder Consultations Exercise





**Executive Development Programme on
Coastal Resilience Planning and Management**
22nd January – 25th January 2025



**AMRUT Centre of Urban Planning
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A-CUPCB-SPAV**

