



FINAL REPORT

BLUE FLAG BEACHES AS PLACE-BASED CLIMATE AND SUSTAINABILITY EDUCATION SITES IN INDIA

2022-2023 Case Studies Cohort
India

This research was conducted by

CEE

Centre for Environment Education

This research was made possible with funding from



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MONITORING AND EVALUATING
CLIMATE COMMUNICATION
AND EDUCATION PROJECT



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Blue Flag Beaches as Place-based Climate and Sustainability Education Sites in India | India Case Study

Summary

The Climate Change Communication and Education (CCE) case study focuses on raising awareness, fostering education, and inspiring action on sustainability and climate change, with a special emphasis on beach ecosystems and coastal communities. The program aims to empower Blue Flag beach managers as effective educators, redefine beaches beyond recreational spaces, and engage diverse audiences in climate change and coastal conservation efforts.

The study comprises three stages. Stage 1 involves a literature review of sustainability, environmental, and climate change education initiatives, focusing on coastal contexts at local, national, and international levels. Feedback from existing Blue Flag beach environmental education activities helps design immersive, hands-on educational activities aligned with India's climate vulnerabilities and socio-economic developmental settings. Stakeholder discussions with beach staff, educators, civil society, local administration officials, community members, and visitors provide insights into nurturing beaches as educational sites and addressing governance challenges. The study identifies target groups and learning outcomes for effective sustainability and climate education in beach settings, emphasizing scalability and relevance in coastal areas, particularly Blue Flag sites.

Stage 2 conceptualizes an educational framework, key principles, and approaches. Engaging interns and college youth allows experimentation and observation of place-based educational processes at Kovalam Beach, Kerala. Cultural, local, and regional contexts, along with indigenous knowledge, are incorporated in co creating and implementing educational activities with community and beach managers. Capacity-building transforms beach managers into educator-facilitators, gaining new perspectives on beach ecosystems' interconnectedness with climate and developmental aspects. This phase encourages a holistic approach to beach management, advocating responsible tourism and sustainable lifestyles in Blue Flag beaches.

In Stage 3, beach managers implement learnings, designing beach walks, activities, and engagement with visitors, students, and research institutions. The approach becomes more place-based, collaborative, hands-on, and action-oriented. Special groups like the National Cadet Corps and local fishing communities promote inclusivity and community collaboration, transforming beaches into spaces for exploration, learning, and addressing climate pressures and developmental challenges.

The case study reveals the potential of beaches as educational place-based learning sites, encouraging hands-on experiential learning, critical thinking, and self reflection. It identifies nature-based solutions, risks, vulnerabilities, and opportunities for climate action, instilling urgency and collective ownership of beach spaces. The study positively impacts local beach management practices, promoting eco-friendly facilities, biodiversity conservation, and nature-based solutions. It acknowledges the psychosocial aspects of climate change, fostering sensitivity among participants towards coastal communities' vulnerabilities.

The action-learning approach promotes environmental responsibility and community involvement, impacting beach management, conservation practices, and educational systems at various levels. The valuable experiences can benefit coastal communities, educational institutions, environmental organizations, researchers, academics, and NGOs. The study highlights the potential for blended learning formats, especially for Blue Flag beaches

internationally, encouraging scalability, cross-learning, and co-creation of educational materials. Its insights can be applied aligning well with India's new education policy, promoting sustainability and climate action tailored to local contexts, respecting identities, privacy, customary rights, culture, and local traditional practices. By transforming beaches into vibrant learning spaces, the study encourages responsible tourism, community involvement, and informed decision-making, contributing to climate resilience and governance.

Report

The CCE Initiative

The Climate Change Communication and Education (CCE) initiative is driven by the objective of promoting awareness, education, and action in relation to sustainability and climate change and its impact on beach ecosystems and coastal communities. The case study specifically concentrates its efforts on selected Blue Flag beaches, aiming to identify and curate educational opportunities in these beach settings. Through this approach, the CCE initiative endeavours to engage diverse audiences in a meaningful manner, incorporating hands-on learning experiences that are grounded in the specific context of each beach.

The case study aims can be categorized into three main areas. Firstly, it strives to equip beach managers with the necessary tools and knowledge to become effective educators. To achieve this, the program provides training in creating educational materials, developing interactive programs, and delivering informative presentations or workshops. By empowering beach managers with these skills, the study enables them to educate and raise awareness about the significance of beaches and marine ecosystems for both the environment and human life.

Secondly, the case study seeks to rectify any misconceptions people may have about beaches, emphasizing their role beyond being mere tourist attractions. The program employs a workshop approach, exemplified by the one held at the Eden Blue Flag beach in Puducherry. This workshop brought together Blue Flag Beach Managers from different locations, who collaborated to develop and test hands-on activities. Additionally, they co-created content for a toolkit based on their individual beach experiences. The educational activities derived from this collaborative effort primarily focus on raising awareness about climate change, coastal erosion, and other environmental and community issues.

Thirdly, the CCE case study places great importance on engaging a wide range of audiences in its initiatives. This encompasses the general public, beach visitors, school and college students, as well as beach managers and staff from Blue Flag beaches. Moreover, children enrolled in the National Cadet Corps (NCC) are a significant audience for the program. By targeting these diverse groups, the program endeavours to foster a collective understanding and encourage action in response to climate change and the conservation of coastal areas.

Through program's workshops and activities, content was identified for toolkit development for beach managers and facilitators. This would serve as a resource to organize fun and educational activities at their respective beaches, catering to local audiences, students, and beach visitors. It includes a diverse range of activities such as beach walks, the web of life activity, the "Who am I?" habitat game, fishing game, biodiversity assessment activity, coral reef activity, mangrove activity, and more. Workbooks can also be prepared to guide participants through these activities.

The case study is built upon the theory of change that centers around creating educational value in beach and coastal settings. This approach enables the program to curate place-based

learning experiences and inspire action among participants and educators. The research study also acknowledges the livelihood challenges faced by coastal communities, particularly due to emerging developmental projects on beaches. Collaboration with research students and organizations is actively encouraged to engage them with the beachgoers. Through education, the program seeks to create a cadre or community of practitioners who like to empower individuals, promote sustainable practices, and foster positive changes in behaviour and decision-making.

The Case Study

Centre for Environment Education (CEE) of India is conducting this research and. Shriji Kurup, Programme Coordinator of this organization is the key person of this project.

The main research question that guided our case study was: How can beaches be effectively utilized as educational place-based learning sites to enhance public understanding of interconnected natural systems, raise awareness about the impact of human activities and climate change, and promote effective environmental management and sustainability practices?

This research question encompassed several sub-questions, including:

- How does a facilitated exposure to marine and beach environments trigger sustainability and climate action educational value for beachgoers, particularly children and youth and in specific relation to Blue Flag beaches?
- How can beach managers equip themselves in the role of beach educators to curate the beaches for engaging beachgoers, particularly children and youth towards action-oriented learning for climate, environment, and sustainability aspects?
- How does interaction with the local community contribute to the acquisition of knowledge about the environment and marine ecosystems and appreciation for social citizen action?

Case study methods and participants

Research Processes: Considering the scope, objectives and participants of our case study, it employed action research methods across a three-stage process.

In Stage 1, a comprehensive literature review was conducted to explore existing sustainability, environmental, and climate change education initiatives, with a particular focus on coastal contexts at the local, national, and international levels. Feedback from ongoing Blue Flag beach environmental education activities was analysed to identify gaps and opportunities for developing immersive, hands-on educational activities tailored to the Indian context's climate vulnerabilities and socio economic settings. Valuable insights were gathered through online and offline discussions with various stakeholders, including beach staff, educators, civil society members, local administration officials, community members, and beach visitors. These discussions provided valuable perspectives on nurturing beaches as educational sites, understanding governance challenges, identifying target groups, and defining learning outcomes. The study emphasized the need to change the perception of beaches from mere event sites to valuable place-based learning environments.

In Stage 2, the case study conceptualized an educational framework, key principles, and approaches. The engagement of interns and college students allowed for experimenting, observing, and obtaining primary feedback on place-based educational processes in beach settings. The research incorporated cultural, local, and regional contexts, as well as

indigenous knowledge, through consultations with the community and beach managers. This participatory approach facilitated the co-creation and development of educational activities, empowering beach managers to transition from routine operational roles to educator-facilitators. A significant milestone during this phase was the capacity-building program held at the Eden Blue Flag beach in Puducherry, where beach managers from different sites acquired new perspectives on beach ecosystems' connections with climate and developmental aspects. They also learned communication skills, designed place-based educational opportunities, engaged with local fishers and the community, and adopted a holistic approach to beach management. This transformation extended their role beyond Blue Flag-designated areas to address developmental activities and impacts in coastal regions, making Blue Flag beaches critical zones for advocating responsible tourism, climate adaptations, and sustainable lifestyles. The study aimed to foster a sense of collective ownership and pride among beach visitors and stakeholders for climate and sustainable actions in beach and coastal settings.

Stage 3 involved the implementation of the learnings and perspectives gained by beach managers at their respective sites. They independently created their own beach walks, activities, and engagement with beach visitors, students, and research institutions, aligning operational and managerial aspects with the principles of Blue Flag and responsible tourism. Continuous observation, feedback, and redesigning of the educational approach made it more place-based, collaborative, hands-on, and action-oriented. Engaging special groups like the National Cadet Corps (NCC) and students from the local fishing community promoted inclusivity, respecting local cultural aspects and fostering community collaboration. This led to beaches becoming spaces of exploration, discovery, learning, and collaboration, addressing biodiversity conservation, waste management, energy efficiency, and sustainable tourism practices. Public perception shifted from viewing beaches as recreational spots to recognizing their vulnerability to climate pressures and developmental challenges.

Methods employed:

Field Study: Through the engagement of intern, we conducted fieldwork at Kovalam Beach in Kerala, involving direct observations and measurements to gather primary and secondary data. These observations and measurements recorded information regarding the beach's physical characteristics, flora and fauna, waste management practices, and environmental changes.

Interaction with local community and stakeholders: Face-to-face interactions were held with the local inhabitants and fishermen at Kovalam Beach. These interactions aimed to capture the insights, experiences, and knowledge of the local community regarding the beach, its surroundings, and their livelihoods. The information obtained through these interactions provided a deeper understanding of the local community's relationship with the beach.

Literature review: Additionally, based on our preliminary research observations, we interacted both online and offline with beach managers, academic educators, CEE staff and conducted literature review with aim to generate a menu of suitable beach based-place based learning opportunities and broad activity ideas.

Designing hands-on activities: The following broad thematic activities were identified based on this exercise: Beach Walk and Plogging; Learning from fishers; Beach citizen science and mapping; Climate and coastal exhibition; Samvaad space; Sculpture and Art, Sports and Yoga; Sea Safety and Life skills - First Aid skills. These could be curated through a beach walk activity specifically designed for students and considering the specific beach contexts and local settings to provide environmental education, engage participants in physical and fun

activities, enhance their geographical knowledge, promote cultural and historical awareness, facilitate social and emotional learning through interactions with local community members, and raise awareness and positive action for sustainable development and climate change. The above broad thematic activities were mapped to specific learning outcomes covering cognitive, socio-emotional, motor skill dimensions. Trial run of the activities was conducted with selected participants and internally to identify practical effectiveness; logistical and safety issues; educational engagement value and place-based learning context. We explored how the place-based learning activities can reflect principles and approaches from Ocean Literacy Principles; Education for Sustainable Development (ESD) and Global Citizenship Education (GCE); Action for Climate Empowerment (ACE); LiFE (Lifestyle for Environment); Sustainable Development Goals (SDGs); Handprint; FEE - GAIA and FEE Young Reporters for Environment (YRE) program and materials mentioned in the UN Climate Change.

Training workshop: We designed and facilitated the Beach Life Education Workshop at Eden Beach, Puducherry, with the participation of Blue Flag Beach Managers from various locations in India. The workshop emphasized environmental education, protection, and sustainable development practices, providing training to beach managers and staff to become educators. They exchanged their perceptions and experiences of the challenges faced by beaches and developed strategies for educating the public about the environmental and climate action.

Participant observations: We documented discussions, observations, and interactions during the workshop to capture the ideas, observations, and experiences of the participants related to environmental education and sustainability. Field activities, beach walks, and group discussions were conducted to promote environmental education and raise awareness about climate change, coastal erosion, and other relevant environmental and community issues.

Outreach and collaborative engagement: Through the trained Blue Flag beach managers, we conducted outreach and collaborative programs to engage with the public and assess their reactions and perceptions. The collaboration with Satyabhama Research Institute at Kovalam Blue Flag Beach Chennai, involved a program based on Electric Rays, which attracted a diverse audience. Data collection for this program was based on a pre-performed survey form specifically designed for children to assess their knowledge about the marine ecosystem. The World Earth Day Program at Eden Blue Flag Beach, Puducherry had active participation from NCC cadets, and the analysis of this program was based on focused group interactions with the participants, including documentation and analysis and sample feedback forms filled out by the participants.

Participants:

The research study involved a diverse range of participants, contributing to the success and effectiveness of our initiatives. The participants can be categorized as follows:

Blue Flag Beach Managers: The main participants were Blue Flag beach managers from various locations across the country, including Gujarat, Karnataka, Kerala, Puducherry, Tamil Nadu, and Odisha. These individuals were responsible for maintaining the high environmental standards of their respective beaches.

Beach Staff and Workers: The staff and workers at the Blue Flag beaches also actively participated in the programs. Their involvement was crucial in implementing the educational activities and ensuring their smooth execution.

Local administration and Coastal Community Inhabitants:

The local administration and the coastal communities in the specific beach areas played an important role in providing valuable insights, experiences, and knowledge about the beaches and their surroundings. Their active engagement contributed to a better understanding of the local community's relationship with the beach environment.

Research Organizations: Collaborative research organizations partnered with us to conduct specific programs. Their expertise and resources enhanced the research outcomes and helped in creating impactful activities.

Interested Groups: Various interested groups, such as environmental enthusiasts, community organizations, and volunteers, participated in the programs. Their involvement contributed to the success of awareness campaigns, community outreach programs, and educational activities.

School Children and youth: Students from schools and youth from colleges participated in the programs. Their engagement helped in achieving the objective of enhancing public understanding of interconnected natural systems and raising awareness about climate change and environmental factors.

National Cadet Corps (NCC) Cadets: The NCC cadets from nearby local schools participated in the World Earth Day Program conducted at Eden Blue Flag Beach, Puducherry. Their active involvement contributed to creating awareness about climate change and environmental factors.

Intern: An intern was involved as a participant in the project, contributing to the study's development, engagement, and implementation process. The intern played an important role in gathering insights, supporting activities, and overall research coordination.

The participation of these diverse groups brought together a wide range of perspectives, experiences, and knowledge, enriching our research outcomes. A registration sheet of participants in the beach programs is available, documenting the individuals involved in each program.

Advancing Quality CCE through this Case Study (findings)

In our case study, we made several important and interesting findings regarding the potential of beaches as a source of environmental and climate education. We concluded that beach experience should be curated through a sustainability and climate education lens to create experiential and motivational learning environments for diverse beachgoers, including students, youths, communities, general visitors, and local administration officials. By doing so, we can nurture a community of practice or citizen action practitioners who can effectively influence action for climate and sustainability. These findings have significant implications for environmental education and sustainability initiatives. To further support beach educators and participants, we recognize a major opportunity to design and offer a blended course that combines online and offline components at the beach site. This course would focus on beach sustainability and climate action. Our research found that beaches can play a crucial role in raising environmental awareness, promoting knowledge acquisition, and inspiring behaviour change. By leveraging the unique qualities of beach environments, such as accessibility, aesthetic appeal, and recreational value, educational programs can effectively engage individuals and communities in environmental issues. Notably, Blue Flag beaches have a unique advantage in this regard, as they comply with specific criteria and can enhance the role of beach managers as educators and influencers, going beyond routine beach operations management.

Psychosocial dimension

During our interactions and observations with local coastal communities and fisherfolk, we identified that these communities are struggling with various psychosocial aspects of climate change. Rising sea levels, changing weather patterns, and disruptions to industries like fishing and tourism have led to financial insecurity and stress. Some communities face the potential loss of their homes and cultural heritage, while natural disasters like hurricanes and storm surges have resulted in trauma and mental health issues. Additionally, environmental anxiety and a sense of cultural disruption further impact the mental well-being of these communities. Those dependent on traditional fishing express anxiety about the financial losses they have experienced over the years.

To address these challenges, our research focused on promoting community engagement and collaboration. Beach Managers from Blue Flag beaches were facilitated to have an active interaction with the fishers and local community, particularly to understand their vulnerabilities to developmental and climate impacts. This has heightened their sense of responsibility towards conservation, mitigation and adaptation measures. Towards this beach managers have also taken actions to restore the sandy beach biodiversity, especially conserving and promoting the sand binders like the *Ipomea* spp. due to which beaches have improved resilience against erosion and a relief or sense of security for coastal communities of adopting soft interventions rather than heavy infrastructure. This is in a way contributing towards the decade of ecosystem restoration too. By fostering a sense of collective responsibility and resilience, we aimed to address the knowledge gaps regarding climate change impacts on coastal ecosystems and livelihoods. Our educational design encouraged active participation, providing opportunities for engagement, collaboration with coastal communities to share their experiences, concerns, and perspectives.

Action-learning dimension

In terms of the program's design, we incorporated action-learning aspects to encourage participants' engagement and experiential learning. Several hands-on programs and initiatives were implemented, allowing participants to explore the beach and nearby marine environments. They learned about different species and their habitats, contributing to citizen science projects and collecting data to monitor the ecosystem. Workshops, expert presentations, creative projects, group discussions, and reflection sessions were held to deepen understanding and encourage connections between individual actions and broader environmental issues.

Climate justice

The program also addresses climate justice and other social justice issues intersecting with climate change. By educating beach managers and empowering them to become educators themselves, we emphasize the importance of beaches and marine ecosystems for both the environment and human life. We raise awareness about the impact of climate change on these ecosystems, as well as the local communities and fishermen who depend on them for their livelihoods. Additionally, by engaging with schools, colleges, and visitors, we promote environmental responsibility and create opportunities to address social justice issues related to climate change. Our aim is to foster a more equitable and sustainable future by encouraging active participation in conservation and adaptation efforts.

Indigenous knowledges/participatory methods influence

Indigenous knowledges have also influenced our project design, development, and implementation. We actively sought consultations, conducted interviews, and held workshops involving the fishing and local community. Elderly villagers across different age groups were part of the beach managers interaction session. Their knowledge and perception about beach environment, human activities and behavioural changes across different generations brought interesting dimensions of understanding and appreciation among the participants. Their insights and knowledge regarding beaches, marine ecosystems, and the impacts of climate change were incorporated into the project's goals and activities. We value the participatory processes used to ensure their voices were heard and their knowledge integrated into our project.

Cultural and regional contexts influence

Cultural and regional contexts play a significant role in the design, development, and implementation of our program. We recognize that different cultures have their own values and perspectives regarding the environment, education, and community engagement. To address this, we actively engaged with local stakeholders, prioritizing their opinions and considering their socioeconomic conditions and livelihood patterns. By incorporating their perspectives, we aimed to develop approaches and hands-on activities that are more relevant, effective, and sustainable in engaging and benefiting the beach managers and participants to be sensitive to the local community contexts and respect their cultural identities.

Sharing learnings across geographies

In terms of geographies/places that would benefit from learning about our research and project, we identified several regions:

Coastal Communities: Coastal communities located near Blue Flag Beaches would greatly benefit from learning about our research and project. These communities rely on beaches and marine resources, such as fishing and tourism, for their livelihoods. Educating beach managers and promoting sustainable practices can help preserve these resources for future generations and ensure the well-being of the local community.

Tourist Destinations: Popular tourist destinations with Blue Flag Beaches attract a significant number of visitors, both domestic and international. These tourists can benefit from learning about the importance of beaches and marine ecosystems, promoting responsible tourism practices and minimizing their impact on the environment.

Schools and Educational Institutions: Schools and educational institutions near coastal areas provide excellent platforms for sharing knowledge about marine ecosystems and climate change. Integrating educational materials and interactive programs into their curriculum can educate students about the significance of beaches, marine conservation, and the impact of climate change.

Environmental Organizations and NGOs: Collaborating with environmental organizations and NGOs working on coastal and marine conservation can amplify the reach and impact of our project, allowing for wider dissemination of knowledge and greater engagement with relevant stakeholders.

Our key learnings emphasize the importance of engaging with coastal sustainability issues, including human psychological barriers, social settings, local norms, and broader developmental discourses. This engagement allows us to identify effective talking points and engagement strategies that can positively impact participants' knowledge, attitudes, and behaviours. The coast presents a high potential for transformative experiences, and by carefully designing beach experiences and self-reflective hands-on learning activities, we can create a window of opportunity to motivate individuals towards climate and sustainability action. It is crucial for participants, as well as all beachgoers, to develop a sense of ownership of the beach, fostering personal growth, critical thinking, and questioning societal and governance norms and systems.

Furthermore, regional influences such as climate change impacts, developmental plans, political and cultural settings, and technologies significantly shape climate and sustainability education (CCE). Tailored approaches are necessary and possible therefore at specific beach sites to effectively address these factors. Beach managers can play a pivotal role in transforming themselves into influential educators and proactively implementing sustainable practices across wider coastal areas. By embracing the beach as a place-based learning opportunity, it has the potential to become a site for positive citizen action, fostering a fresh perspective that goes beyond recreational activities. It fosters fresh perspectives on interconnected ecosystems, socio-economic contexts, climate, and coastal development, encouraging experiential learning, critical thinking, and self-reflection. By identifying nature-based solutions, risks, vulnerabilities, and climate action opportunities, it instills urgency and a collective sense of responsibility for beach environments. Participants are empowered to take positive actions for climate and sustainability.

These insights highlight the need to engage with sustainability issues, psychological barriers, social settings, local norms, and broader discourses in coastal areas. By leveraging transformative experiences, encouraging critical thinking, and considering regional influences, we can create meaningful and impactful climate and sustainability education programs that inspire positive change among beachgoers and beyond.

Impacts of the Case Study

Impacts at the Internal Level

Our analysis of the most important impacts derived from our case study indicates strengthening of organization's / institutional knowledge towards CCE approach, the conceptualization of quality CCE, and the broader implications and impacts at various levels. It has the potential to drive positive change in environmental education initiatives.

Case Study has had a key contribution in informing our organization's CCE approach and the conceptualization of quality CCE. It aligns with our organizational strategy to invest in outdoor experiential education, such as camping and curated tours, to enhance the learning experience. Since the organization also functions as the National Operator for the Blue Flag in India, the case study learnings also are useful to disseminate best practices and experiences for cross-learning and there is a conscious organizational strategy to evolve the Blue Flag beach sites as demonstration and learning sites for climate and sustainability education. The case study emphasizes the importance of encouraging local beach management to capacity build their staff as educators. This involves providing training and resources to beach managers, enabling them to effectively deliver climate and sustainability education programs. Furthermore, the case study highlights the need to develop a broad curriculum and activities that suit different beach settings, fostering place-based learnings for

climate and sustainability education. This allows for customized educational experiences that are relevant and engaging for participants.

To further enhance our CCE approach, the case study recommends building a scope organizationally for developing blended learning courses and training modules. These courses would be designed for teachers, beach managers, youths, and practitioners, aiming to provide comprehensive knowledge and skills in climate and sustainability education. We envision offering these courses through the CEE

Academy, connecting participants with appropriate experts, and providing onsite field-based training at Blue Flag beach sites. This approach combines online and offline components, ensuring a holistic learning experience that leverages the unique qualities of beach environments.

Impacts at Different Levels

At the local level, the case study's implications are significant. By incorporating the Blue Flag mandate into our CCE approach, we contribute to the preservation and sustainable management of coastal areas. Encouraging local beach management to nurture personnel like beach managers to transform as educators enhances their capacity to deliver effective educational programs and improved beach management services. The development of a broad theme based, and place-based learning activities fosters a deeper understanding of local ecosystems and their connection to climate change. It has scope to involve local communities as active participants and knowledge partners. The local administration also tends to support such initiatives as it creates a unique educational brand value for the beach, enhanced visitor experience and engagement and a collective sense of ownership of the beach and coastal landscape. The avenues for the local administration to initiate positive citizen engagement activities like beach cleanups, public outreach is amplified as the educational value dimension fosters responsible tourism, better monitoring and verifications and deeper interest to pursue sustainable and climate friendly practices.

Furthermore, the study positively influenced local beach management practices, with investments in eco-friendly facilities, beach biodiversity conservation, and erosion control. There is a growing focus on promoting eco-friendly practices, energy efficiency, inclusivity, and safety for visitors and communities.

The beach managers have also strengthened their skills in coastal biodiversity conservation, especially nurturing and promoting sand binders like *Ipomea* spp. This enhanced beach resilience against erosion has also created a sense of security for coastal communities through soft interventions. These efforts also contribute to the decade of ecosystem restoration.

The case study's broader scope extends to the regional and national levels, by promoting the scope for integration of CCE into regional and national programs like the Lifestyle for Environment (LiFE) – a flagship program of the Government of India. The case study has scope to strengthen the formulation of comprehensive strategies for climate and sustainability education in the Blue Flag beaches in India. The opportunity to develop blended learning courses and training modules helps build the capacity of teachers, beach managers, and practitioners, leading to a more skilled workforce dedicated to delivering quality CCE. This, in turn, strengthens regional and national educational systems and contributes to a more informed and engaged citizenry.

At the intergovernmental level, the case study's impacts have the potential to open up collaboration and knowledge sharing among international NGOs like the Foundation for Environment Education (CEE), Blue Flag International; Young Reporters for the Environment (YRE) and Eco Schools. By aligning our CCE approach with Blue Flag principles and best practices, we contribute to international efforts to promote sustainable coastal management and education. The study emphasizes the potential for a blended learning format, especially for Blue Flag beaches worldwide, facilitating scalability, cross-learning, and co-creation of CCE materials. Sharing our experiences and findings with relevant intergovernmental organizations can facilitate the development of guidelines and recommendations for effective CCE implementation

Applicability and Scaling of the CCE Initiative

The case study learnings indicate that the place-based hands-on activity based CCE approach is relevant and can be applied in the context of the Government of India's new Education policy, which emphasizes a paradigm shift in learning and teaching methodologies. The focus on fostering critical thinking, creativity, citizen action, responsible behaviour, outdoor-nature education, climate and sustainable practices aligns with the goals of the case study.

Educators in both formal and non-formal settings can draw inspiration from the case study to reconsider beach and coastal sites as opportunities for place-based education. They can curate learning experiences based on local contexts, allowing students to connect with their environment and understand the importance of sustainability and climate action. They can tailor learning experiences to local settings, promoting sustainability, climate action, and respecting local identities and practices.

Furthermore, the case study highlights the importance of nurturing a cadre of volunteers, youths, and learners who are motivated to be mentors for sustainability and climate action at the beach. This approach can be replicated in the Indian education system, encouraging students to take an active role in environmental conservation and become advocates for sustainable practices.

The case study also suggests the potential for offering the beach education program in a blended learning format, combining online and offline components. This approach can facilitate scaling up and reaching out to a wider audience of learners interested in acquiring knowledge and skills for climate and sustainability action in the context of beach and coastal management. The case study highlights the power of place-based education in raising climate and sustainability awareness. Transforming beaches into vibrant learning spaces encourages responsible tourism, community engagement, and informed decision-making, ultimately contributing to climate resilience and governance.



This research was conducted by



This research was made possible with funding from

