

# Ocean Matters: Safeguarding Our Oceans

Promoting Evidence Based Awareness & Education in Schools to  
Safeguard Our Oceans



*Supported by:*

Department of State Consulate General of the United States in Chennai, India

## Project Background Note



THE ENERGY AND RESOURCES INSTITUTE  
*Creating Innovative Solutions for a Sustainable Future*



## Project Rationale

The Sixth Assessment Report of the Intergovernmental Panel on Climate Change titled, “Climate Change 2021: The Physical Science Basis”, indicates that sea level rise around Asia will be faster than the average global rate. Coastal cities will experience coastal erosion and more frequent and severe flooding in low-lying areas. Around 50 per cent of the flooding is due to thermal expansion, i.e. warmer oceans expand and occupy more space. The sea surface temperature in the Indian Ocean, including the Arabian Sea and the Bay of Bengal is heating at a higher rate than other areas and is likely to increase by 1 to 20 C. It is predicted that coastal areas can be inundated by 3 feet of water by the end of the century. NASA<sup>1</sup> has used IPCC data to assess sea level changes across the world, and it has identified 12 Indian cities that are likely to experience the brunt of climate change, if not contained. On the West coast, the cities of Mumbai, Mormugao and Mangalore feature on the list with an expected sea level rise of 1.90 feet, 2.06 feet and 1.87 feet respectively.

In addition to the possible impacts of climate change, coastal areas are affected by the fall outs of industrialization and urbanization such as changes in land use and land cover, biodiversity loss, increasing pollution levels (in air, water and soil) including the multiple cascading impacts of poor waste management and the over exploitation and depletion of the natural resource base. These have adversely impacted the coastal resource base in terms of declining wetlands, mangroves, reducing fish catch, coastal erosion and marine pollution across the coastal cities. Currently, India is the 12<sup>th</sup> largest source of marine litter and is anticipated to become the 5<sup>th</sup> largest source by 2025. Further, 80 per cent of the total marine debris originates from land-based sources which is either directly dumped into the ocean or gets carried to flowing water bodies through storm/open drains/runoff which in turn then get discharged into the seas. One of the largest components of marine litter is plastic. India consumes 16.5 mt of plastic annually (2017-18) of which 43 per cent is single – use plastic thus highlighting the gravity of the issue. The intensity of the development pressure, the prevailing coping strategies in operation and resilience influence the actual impacts in the coastal areas.

Given the above background, the proposed project plans to adopt a two-pronged approach to evidence based awareness for strengthening the Ocean health. *Scientific evidence will be gathered using the GLOBE protocol and the Marine Microplastic Monitoring Protocol*<sup>2</sup> wherein data related to climate change and marine plastic will be gathered to facilitate campaigns, awareness and action to bring about positive changes for improving ocean health.

## Project Cities

- Mumbai
- Mormugao
- Mangalore

## Project Participants

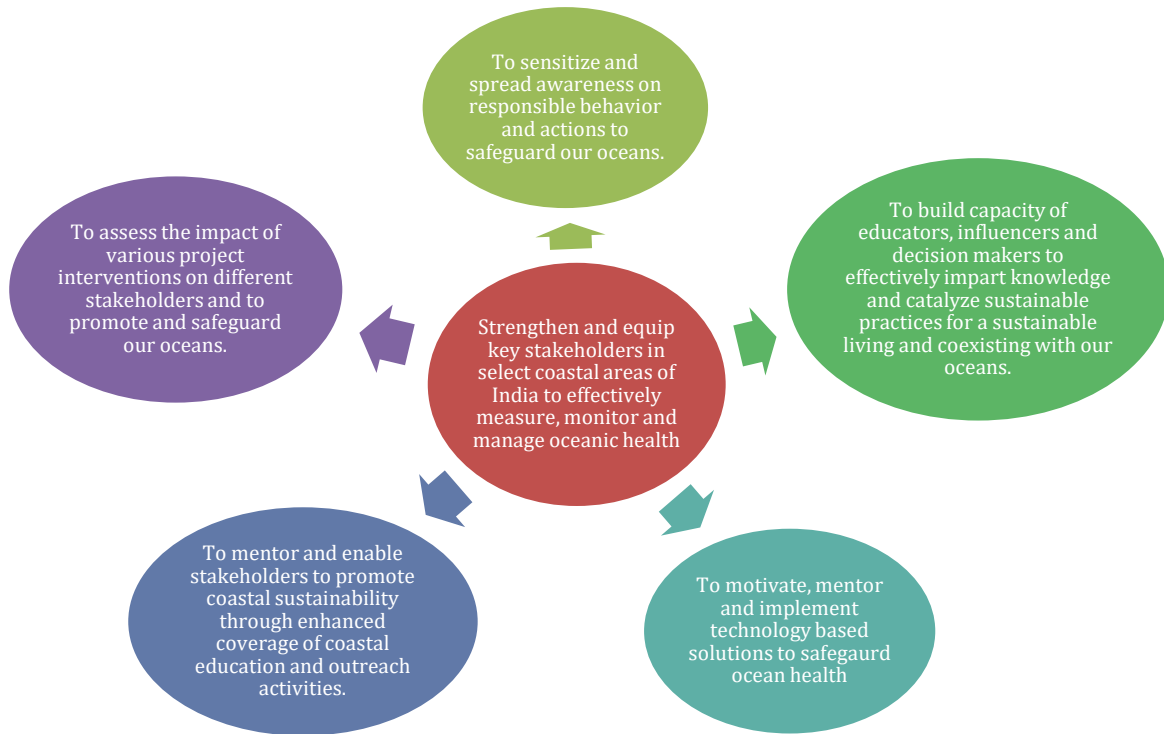
- School teachers and students from 100 schools
- Local community

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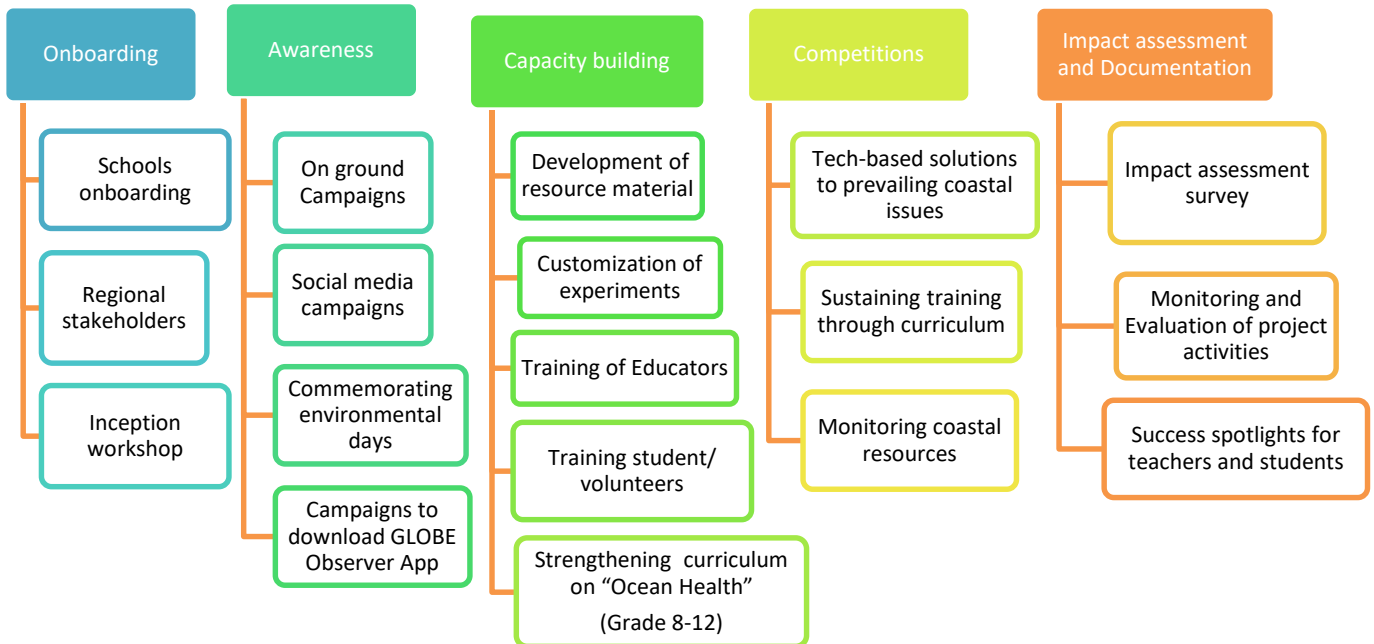
<sup>1</sup> Details available at : <https://www.republicworld.com/india-news/city-news/global-warming-nasa-tool-projects-these-indian-coastal-cities-could-be-submerged-by-2100.html>

<sup>2</sup> The Global Learning and Observations to Benefit the Environment (GLOBE) Program and the Marine Microplastic Monitoring Protocol aims at generating scientific data related to the Earth system, global environment and ocean health by engaging and empowering students and community to collect, analyse and document scientific data.

## Project Goal & Objectives



## Key Activities



## **Project duration**

- October 2021 to February 2023

## **What is in store for participating schools?**

- In-depth training and mentoring to use the internationally accredited GLOBE and Marine Microplastic Protocol.
- Opportunity to be part of the global network that engages the community in gathering scientific data.
- Participate in knowledge workshops and interaction with experts from GLOBE Asia Pacific, GLOBE Italy and Deakin University, Australia.
- Access to resource and IEC materials related to safeguarding ocean health.
- Avail certificate on completion of training and other assigned tasks.
- Lead campaigns and outreach to raise awareness on marine pollution and the role of oceans in climate change
- Engage in online and off line competitions and creative activities for students and teachers.
- Spotlight on best performing schools, teachers and students will provide visibility on multiple platforms.

## **Registrations and participation**

- All schools from the three cities need to register at the following link: <https://forms.gle/n9ErngHw7FhuT6gP8>
- All registrations will be reviewed and for each location through a consultative process a total of 100 schools will be shortlisted.
- There are no financial implications to the participating schools to be part of the program. The aim of the program is to train schools to help gather, analyse and document scientific evidence related to ocean health so that concerted actions can be taken to address these issues. Hence we are looking at commitment from schools to participate in the various project activities along the project duration to collectively address the above objective.
- The member schools will be provided full support from the project implementing team with regard to training, mentoring and provisioning of lab equipment's and resource materials to conduct and document the experiments. Participating schools are required to participate in the various project activities and carry forward the training by conducting experiments and projects.

## About the project partners

### TERI

The Energy and Resources Institute (TERI) is a not-for-profit institution engaged in research and awareness generation activities on energy, climate change, biotechnology, biodiversity and education. The Environment Education Area at TERI is mandated to carry out intensive work in the field of Education for Sustainable Development (ESD) across India as well as internationally. It has been working relentlessly on educating young people on environmental issues in relation to the existing social structure, cultural norms, economic realities and global trends of present times. It works in close cooperation with government bodies, UN agencies, multinational corporations and international youth organizations and networks. For more details log onto: [www.teriin.org](http://www.teriin.org)

### US Consulate

The U.S. Mission to India and its constituent Consulates General in Chennai, Hyderabad, Mumbai, and Kolkata oversee the U.S. government's efforts to strengthen its relationships with the people of India through speaker programs, academic, cultural and professional exchanges, alumni community engagement, higher education promotion, cultural preservation, English teacher training, and select grants to non-profit organizations, and through its American Spaces located in New Delhi, Kolkata, Chennai, Mumbai, Ahmedabad, and Hyderabad where Indians can learn more about America, engage with Americans, and contribute to the development of this important bilateral relationship. <https://in.usembassy.gov/embassy-consulates/chennai/>

### GLOBE- Asia Pacific

The Global Learning and Observations to Benefit the Environment (GLOBE) Program provides students and community with the opportunity to engage in collecting scientific data related to the Earth system and global environment. With the help of scientists protocols have been developed and validated by teachers for worldwide usage so as to create a global database of scientific evidence. For more details log in at: <https://www.globe.gov/> The GLOBE program is made possible through the support of various U.S. governmental agencies provided below:

- The U.S. National Aeronautics and Space Administration (NASA)
- The National Oceanic and Atmospheric Administration (NOAA)
- The U.S. Department of State (DoS)
- The National Science Foundation (NSF)

### Deakin University

Along with GLOBE Italy, Deakin University has developed and tested a marine microplastic monitoring protocol which will help in ascertaining the presence of microplastics in surface waters. Microplastics monitored under the protocol include textile fibres, both natural-origin textile fibres (cellulose and animal fibers) and man-made textile fibers (synthetic and artificial), and plastic objects (fragments, pellets, nurdles, microbeads, etc.).