

# Aavishkar

## Maharashtra State Inter-University Research Convention

**CATEGORY:**  
Engineering & Technology

**CODE NO.:**  
ET/UG/ 52

**LEVEL:**  
UG-STATE



**TITLE: TATrakshak (Partner in sustainable coastal infrastructure.)**



### Introduction:

“What matters the most for TATrakshak? Nature matters!”

At TATrakshak, we work at the intersection of coastal protection and ecological responsibility, addressing shorelines worldwide that are increasingly exposed to stronger waves, storms, and long-term climate stress. Our approach is rooted in the belief that resilient infrastructure must protect communities while respecting and working with natural systems, not against them.

### Problem Statement:

Coasts across the world are losing land and livelihoods due to intensifying wave action and storm events. Conventional seawalls and tetrapods blunt wave energy, but they increase carbon footprint, disturb seabeds, and offer no living or reusable defence. These hard structures protect temporarily, yet fail to regenerate ecosystems or adapt over time, leaving coastlines vulnerable in the long run.

### Aim & Objective:

- To design and deliver infrastructure that protects coastlines and communities while minimizing environmental impact.
- To become the world’s leading provider of sustainable, resilient, and innovative infrastructure solutions for governments, investors, and communities.

TAT रक्षक



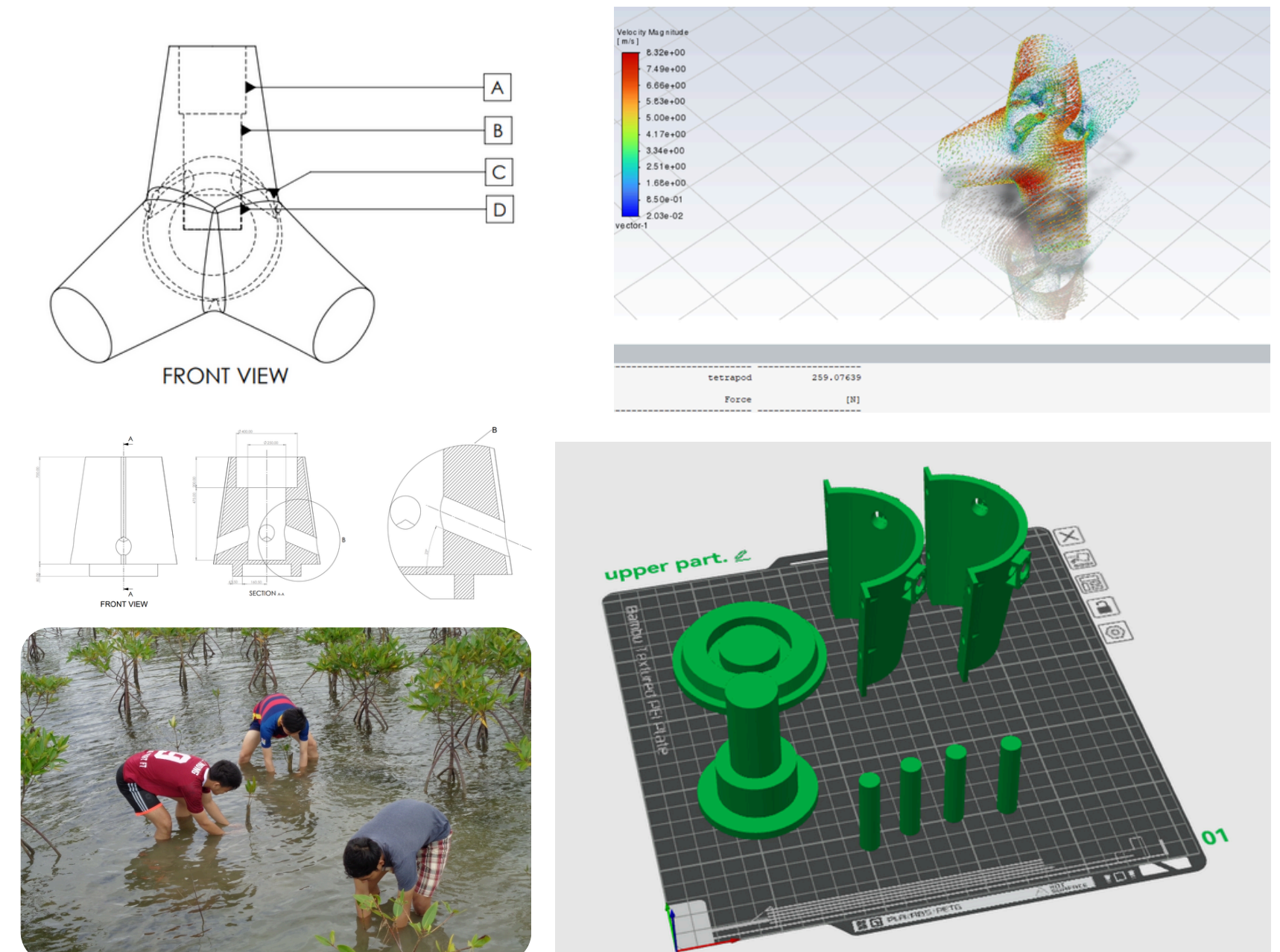
### Analysis and Observation:

- Conventional coastal structures prioritize immediate wave resistance but unintentionally increase carbon emissions, seabed disruption, and long-term vulnerability.
- Design simulations and material studies indicate bio-integrated Tripot geometry can reduce wave reflection and support sediment stability.



### Application & Utility:

- Coastal erosion control for vulnerable shorelines, river mouths, and estuaries
- Nature-aligned alternative to seawalls and tetrapods for long-term protection
- Suitable for government, port authorities, and disaster-risk reduction projects
- Enables low-carbon coastal infrastructure using recycled and bio-based materials
- Supports ecosystem restoration while maintaining structural coastal defence



### References:



Know more  
Website:



Poster  
link:

### Findings:

- Ecosystem Defence.
  - Circular Ecosystem.
  - Living Shield.
  - Life time Protection.
  - Strong and Shock Resistant
- At the end, Nature matters the most for TATrakshak.

### Conclusion:

Our solution turns coastal defence into living infrastructure—protecting communities while restoring ecosystems. Using industrial and agricultural by-products in GreenMix cuts waste, lowers carbon, and creates local value. Tripot’s bio-integrated design delivers long-term resilience, absorbs waves, and protects the seabed. With pilot validation and policy alignment, it can scale coast to coast. Bottom line: nature comes first—and TATrakshak acts on it.

**Our Knowledge Partners:**

