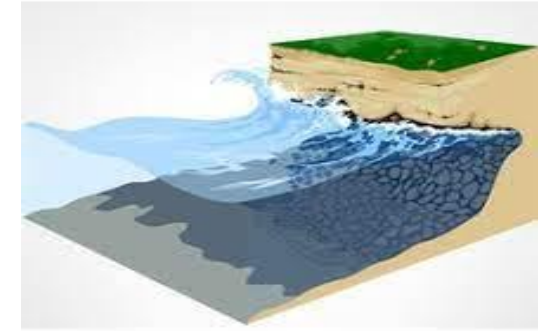


# Preliminary Project Assessment Report Sustainable Soil Erosion Engineering Technology Demonstration Project



ESPACE PUR  
STABIPLAGE®



Technology Partner – ESPACE PUR, France  
Funded by “FASEP” Ministry of Finance, France  
Recommended By – Government of Kerala  
Project Apprised and Approved By – NITI AAYOG – Govt. of India  
Implemented by KSCADC – Government of Kerala  
Coordinating Contractor – OCTAWIZ Infra Tech

**Project Location - Thottappally, Alappuzha, Kerala, India**

**OCTAWIZ**  
Infra Tech

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# Issues And Competence of Local Beneficiary

## The Theatre

- The state of Kerala is one of the most coastal erosion sensitive state in India and almost 40% of the states 580 kilometres is under sever strain due to rampant erosion.
- Kerala is the most densely populated state in India, with major cities and towns dotted along the coastline.



# Issues And Competence of Local Beneficiary

## CURRENT SYSTEMS IN PLACE - Seawall

**Seawall** – Construction of seawall with boulders is unscientific and not proven. This method of containing sea erosion is being continued despite environmental hazards and shortage of boulders. The boulders are hard substance and they do not absorb the potential energy of sea waves, thus the energy is transferred to the surrounding areas with the result that over a period of time the seawall sinks. This is not a permanent solution and needs periodic refilling with boulders. The recurring cost is also very high.



PICTURE OF SEAWALL BREACH IN KERALA

# Issues And Competence of Local Beneficiary

## CURRENT SYSTEMS IN PLACE - Tetrapod

**Tetrapod** – Tetrapods are man made designer boulders and are not suitable for containing coastal soil erosion, as the soil around the structure erodes over a period of time. Tetrapods are usually used to make off shore Structures or to make on shore groynes and for protection of seawall in reclaimed areas.

Tetrapod can damage and alter the coastline at locations far and near the structures.

Example: The Shanmugam beach in Trivandrum was eroded and damaged, this happened due to unplanned construction of GROYNES down south the beach.



TETRAPOD SINKING IN BEACH SAND



# Issues And Competence of Local Beneficiary

## CURRENT SYSTEMS IN PLACE - Geotube

**Geotube** – Geotubes can do wonders when applied in a scientific way. The technology is in use since 1960's and has wider applications in areas like dewatering, river flow management, soil erosion, containing coastal sea erosion, etc. Most of the Geotube contracts implemented in our part of the world is without proper Modelling and Studies. The Geotubes are to be designed after studies right from material selection for Geotube manufacturing to the knitting of the Geotube structure. The success comes only when the manufacturer of Geotubes offers turnkey solution. No manufacturer in India offers Turnkey Solution nor the contractors who take up the Project have technical knowledge or expertise to implement the project after feasibility study and modelling.

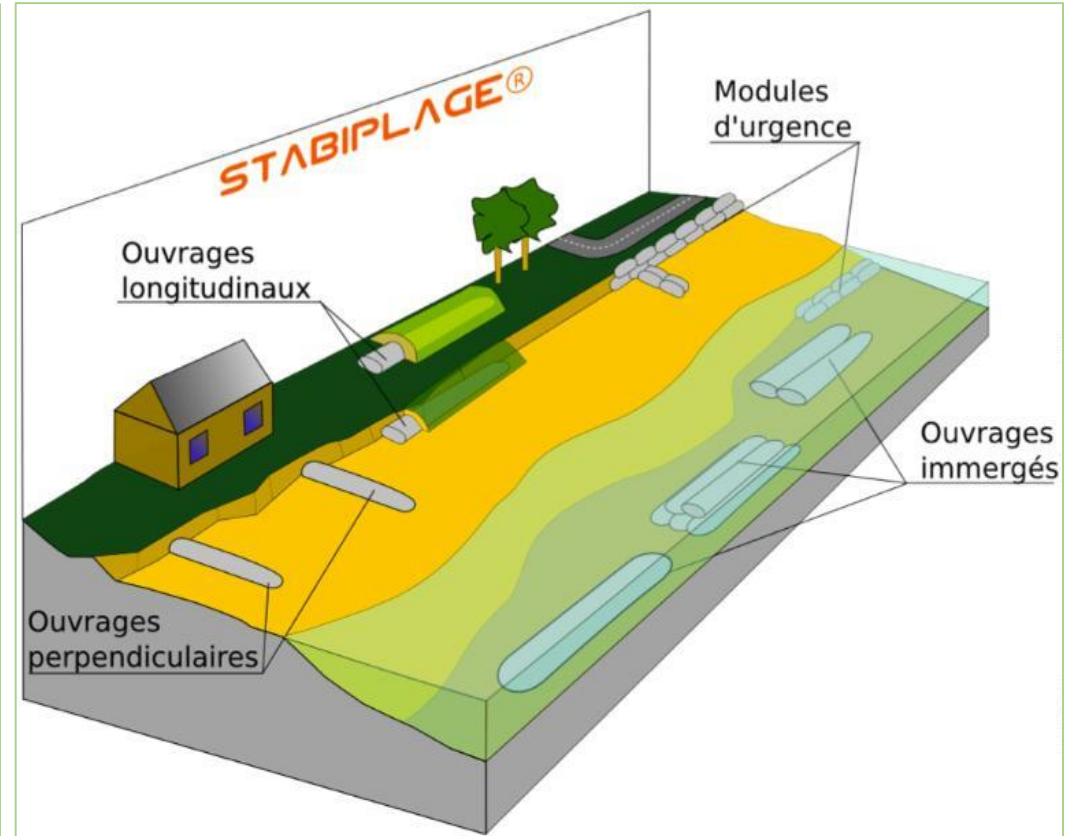


GEOTUBE PROJECT IMPLEMENTED WITHOUT SCIENTIFIC STUDY IN INDIA

# Issues And Competence of Local Beneficiary

**STABIPLAGE** - 'ESPACE PUR's patented technology 'STABIPLAGE' is designed and laid along the coastline to absorb the potential energy of the waves and thus only a minimal energy is transferred to the surrounding areas. When the potential energy is absorbed, there is no downward movement of the structure and the structure remains stable and ensures that the sediments that come with the wave are captured and deposited along the coastline where the STABIPLAGE is in place. The STABIPLAGE technology, once in place, will ensure that the beach is nourished and rebuilt over a period of six months to one year.

Wave and wind are the important parameter in design of these structures. Wave and wind interaction of a location is examined in detail and the extreme conditions of waves and winds are considered while designing and finalising the blueprint of 'STABIPLAGE'.



STABIPLAGE STRUCTURE DESIGNED AND LAID  
BASED ON WAVE AND RELATED STUDIES

# Issues And Competence of Local Beneficiary

## Doing things Differently...

### **Work with nature...**

- In managing natural forces, a permanent and sustainable solution can be accomplished only when we plan to go with the force of nature and not against it.

### **Areas that need a relook...**

- Mining of boulders has created irreparable damage to the ecosystem and this paves way for natural disasters like flooding and cyclones every year. Nature has its own ways of maintaining equilibrium. Natural reserves needs to be conserved for future generations and not to be destroyed for commercial gains.



# Progress Report From After The First Contact

- The first contact was made after the summer of 2018, and on March 2019 ESPACE PUR team made a presentation and interacted with the then Fisheries Minister Mrs. Mercykutty Amma and government officials, in order to better understand the issues and identify the needs of the local area selected for the project.
- The project was placed before the Kerala Cabinet for discussion and was approved, the Government Order was issued on 2/11/20219 Order No.37/2019
- The report was prepared by KSCADC and forwarded to Department of Economic (DEA) affairs, Government of India, for processing of FASEP grant.
- DEA moved the proposal to 'NITI AAYOG' Govt. of India for appraisal and evaluation.
- File under process with Ministry of Fisheries, Animal Husbandry & Dairying Department of Fisheries.

# Grant Processing

- The FASEP grant is given to French companies by Ministry of Finance , Government of France for technology demonstration projects in foreign countries.
- The grant will be used to prepare Detailed Project Report and implementation of works.
- The respective heads of grant utilization are given below:
  - Modeling
  - Financial Study
  - Social and Environmental Studies
  - Manufacturing of STABIPLAGE Structures
  - Transport
  - Implementation of works
  - Monitoring and Evaluation of the project
  - Project Management.

# Grant Amount

- The FASEP Grant requested is for 833,500 Euros (Eight Lakh Thirty Three Thousand Five Hundred Euros)
- The grant from 'FASEP' is given directly to the French company ESPACE PUR for the implementation of the pilot project in India, and the transaction is "Cash in Kind".
- The STABIPLAGE necessary to rebuild beach is made and shipped from France to India and there is no cash transfer to India.
- The implementing agency KSCADC shall make arrangements for present and archival data from respective agencies and shall also make arrangement for sand, required to fill the structure.
- The project will be executed by ESPACE PUR's technicians and Engineers and shall be assisted by OCTAWIZ Infra Tech the local partner and consulting contractor.

# Operational Process -1

PHASE -1	STUDY	TECHNICAL / FINANCIAL / SOCIAL / ENVIRONMENTAL
		Overview of existing studies and data (Hydro-sedimentology, Bathymetry, Environmental Studies)
		Collection of new data (Granulometry, Bathymetry...)
		Analysis of the global functioning of the site
		Designing of technical solution (s) – Technical characterisation of the solution (s) (Size, Positioning, Kind of works, Material)
		Modelling
		Impacts estimation (Hydro-sedimentary, Landscapes, Socio-economics)
		Cost analysis and budgeting
		Monitoring method establishment
		Preparing final roadmap

# Operational Process - 2

PHASE -2	WORKS	OPERATIONAL DEPLOYMENT
		Implementation survey
		Manufacturing of the STABIPLAGE structures in our factory
		Implementation and Hydraulic injection
		Works realization with OCTAWIZ Infra Tech
PHASE-3	MAINTENANCE	MONITORING AND MAINTENANCE
		On site visit and works maintenance once a year
		Monitoring of site in collaboration with local universities or research groups / Institutions





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