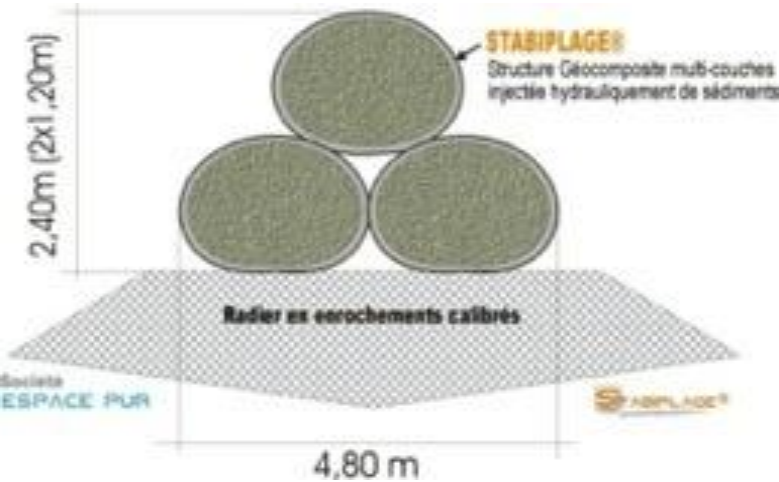





Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India



Presented to
The Honorable
Minister of Fisheries
Government of Kerala
1 July 2019




Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India



Contents

- Coastal Soil Erosion
- Project Profile
 - Brief
 - Location
- What we propose
- What is FASEP grant?
- About Us
- What we do
- What is STABIPLAGE?
- Project Reference
- Project Insurance
- Contact



Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India



Coastal Soil Erosion

- Kerala has a population of about 33 million, out of which 80% live in the state's nine coastal districts. The 600-km shoreline is densely populated and the pressure of habitation on the beaches has increased manifold in past three decades. Besides increasing tourism, business and industrial activity have played a major role.

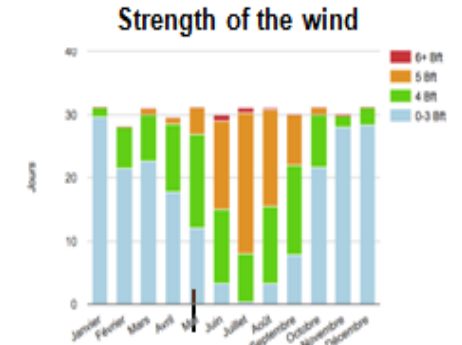
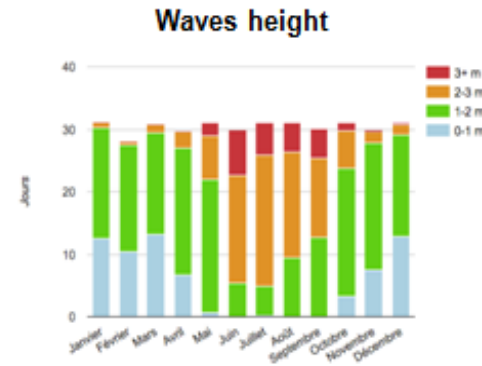
National Centre for Coastal Research (NCCR) report

- A report released in the year 2018 by National Centre for Coastal Research (NCCR), a department of the Ministry of Earth Sciences, says almost one third of India's coastline is eroded in the past 26 years.
- West Bengal, Kerala, Pondicherry and Tamil Nadu are among the top states where erosion is more than 40%. States like Odisha and Andhra Pradesh have seen more than 40% accretion, which means formation of land due to deposit of sediments. West Bengal has lost more than 99 sq. km of land due to the net effect of erosion and accretion.
- Today, one-third (33%) of the coast is under threat. The NCCR study shows a varying degree of erosion at different places along the seashore. While on the east coast 63% of the West Bengal coast is eroding, on the west coast, besides Kerala, the shoreline seems stable. The west coast, particularly in Kerala and Goa, is densely populated, unlike in the east where most people live away from coastline. However, Goa's shore is largely stable. Kerala is in a bad shape, as 45% of its coast is eroding.
- <https://www.preventionweb.net/news/view/61846>

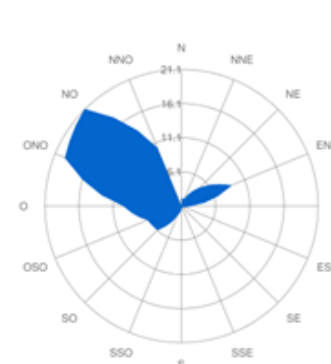
Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India



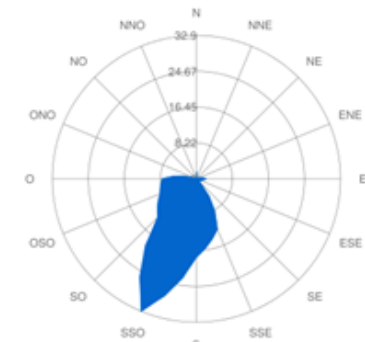
Coastal Erosion Map of Kerala




Direction of the wind




Direction of swell





Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India



Project Brief

Location

- The location evaluated for the Thottappally Soil Erosion Engineering project is about 850 meters towards the north of Thottappally harbour gate.

Thottappally Beach Engineering

- The proposed STABIPLAG based design will be able to reclaim and build a beach of about 80 meters width from the seawall. The midpoint of the project will be exactly on the coastline west of Mahavishnu temple, Thottappally. The 'STABIPLAG' structure will be designed to reclaim and protect an area of 250 meters to the south and north of this location.

Project Location Coordinates

Latitude

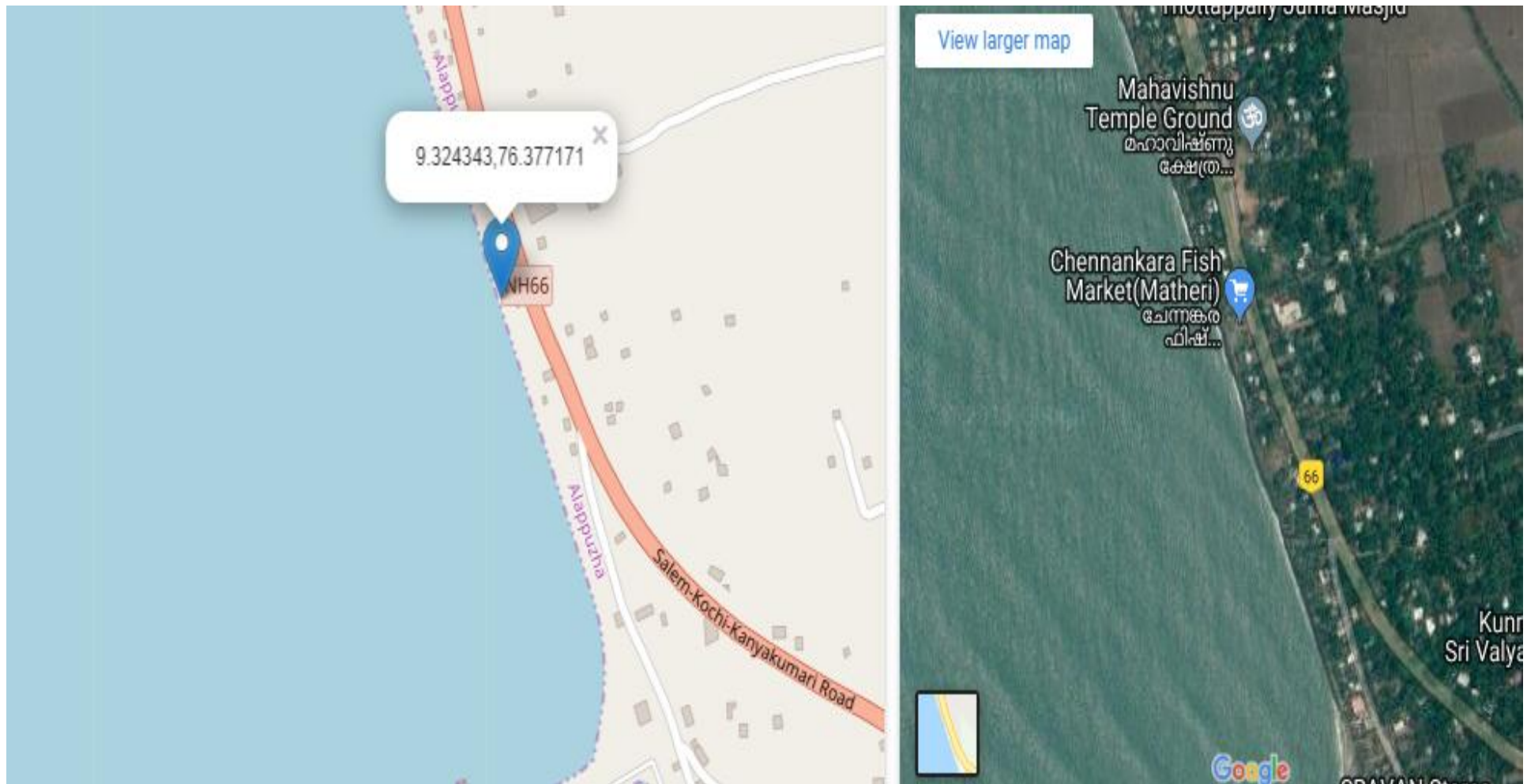
9.324343

Longitude

76.377171

Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India

Project Location

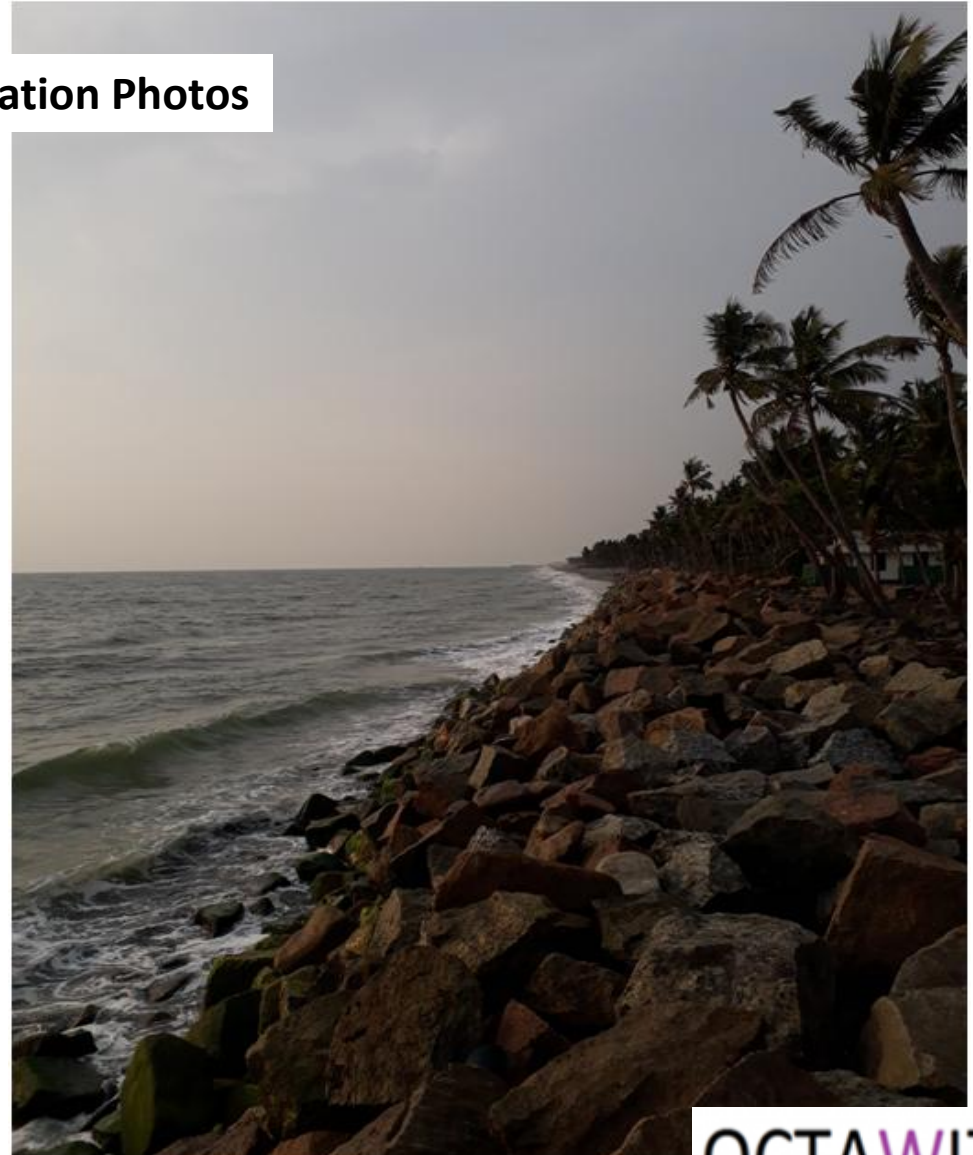




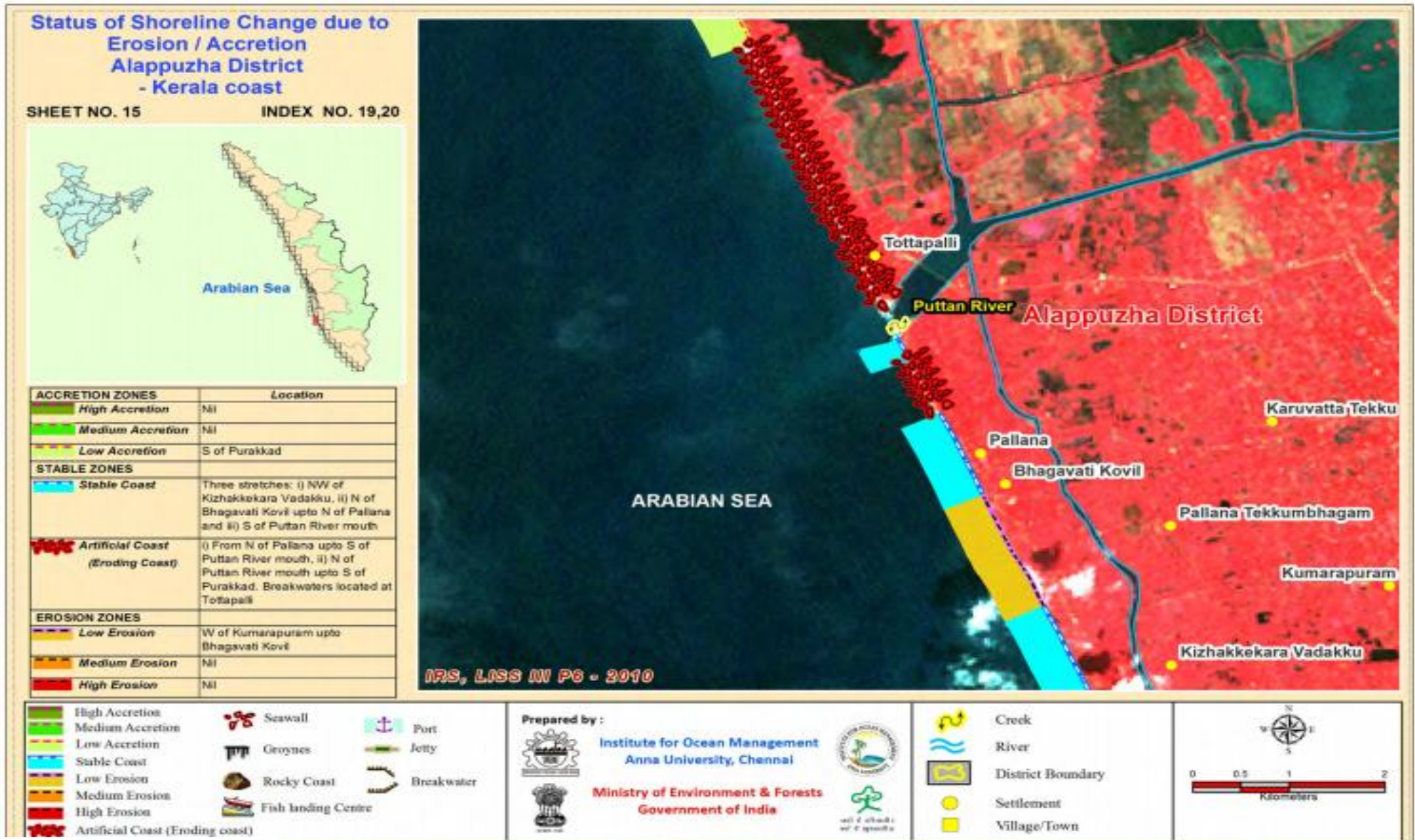
Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India




Project Location Photos



Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India





Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India




What we propose

- **Espace Pur** propose to construct pilot project in Thottappally with grant assistance from FASEP fund sanctioned by Ministry of Finance Government of France.
- With the FASEP grant and support from Kerala government in the form of data and local resources we propose a Soil Erosion Engineering project in Thottappally with our patented technology 'STABIPLAGE'. The localized design will ensure a wide and long beach.
- Creating Beach - 'STABIPLAGE' is unique and not to be compared with Seawall, Breakwater or Groynes. 'STABIPLAGE' structure absorbs the energy from the waves and the sediments that are carried by littoral drift are deposited in and around the structure thereby creating beach.
- 'Espace Pur' conduct independent study to prepare DPR, as the technology is unique and focuses on creating beach.

What is FASEP grant?

- The FASEP grant is given to French companies for technology demonstration projects in developing countries, we hope to attract larger projects in India upon successful implementation of pilot project and purpose demonstration.
- The Private Sector Study and Assistance Fund (FASEP) is the instrument for donating project aid from economic and financial ministries. It comes in several formulas: the *FASEP-Etudes* mainly finances feasibility studies or technical assistance upstream of development project; the *green-FASEP Innovation* funds innovative technology demonstrator dedicated to the environment and sustainable development. Since 2000, € 327 million in donations have supported 508 services from more than 200 French companies in 84 countries.
- <https://www.tresor.economie.gouv.fr/Ressources/fasep>




Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India



About Us

- ‘Espace Pur’ is a specialist soil engineering company based in France; the company offers project consultancy and turnkey solutions to customers across the globe.
- The company was formed in 1997 and since its inception has been offering customized solutions in areas like coastal soil erosion protection, river protection, dewatering, bund construction, breakwater construction etc using the patented technology ‘STABIPLAGE’.
- The company has done research and feasibility studies in coastal areas of India since 2007 and has mapped and collected ground based information’s for successful implementation of projects in India. Our patented product ‘STABIPLAGE’ will be fabricated as per feasibility study conducted at a given location based on the solution required in areas like coastal soil erosion engineering, river protection, dewatering etc.
- ‘Espace Pur’ France has exclusive partnership with Indian company ‘Octagon World’, all projects in India will be undertaken by ‘Espace Pur’ France in joint collaboration with Octawiz Infra Tech the group company of Octagon World.
- For more info visit www.stabiplage.com

Note: The first version of the STABIPLAGE® was established on the beach of the “Couarde en Ré” (FRANCE) in 1986. At this date, the works did not have a cost of maintenance. The company was established later in 1997.



Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India



What we do

- Espace Pur provides turnkey solutions for Coastal Soil Erosion Engineering, Groyne (breakwater), dewatering, bund construction, dewatering etc using our environment friendly technology STABIPLAGE.
- The company also manufactures geo textiles, provides consultancy and feasibility study.

Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India



What is STABIPLAGE ?

- STABIPLAGE® structures absorb the energy of water currents without holding it, unlike rip-raps or any other 'hardcoded' technique as metal piles.
- STABIPLAGE is tailor made for a particular location after feasibility study. The impact of waves are absorbed and the position of STABIPLAGE is maintained for decades.

Desilting and rebalancing of a branch of the Loire, France



Branch silts up non-navigable

Navigable branch, STABIPLAGE® edge

Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India

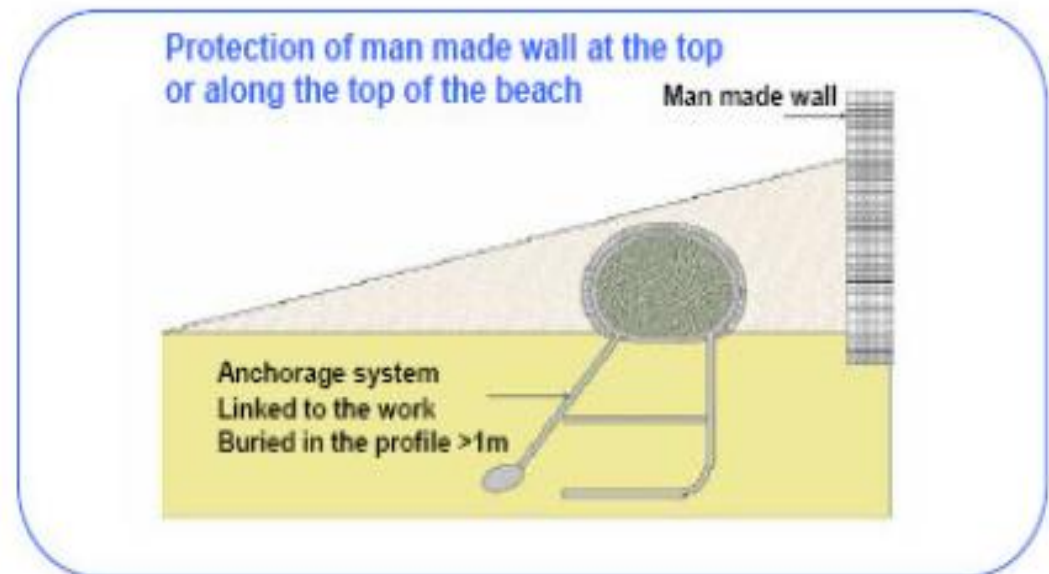
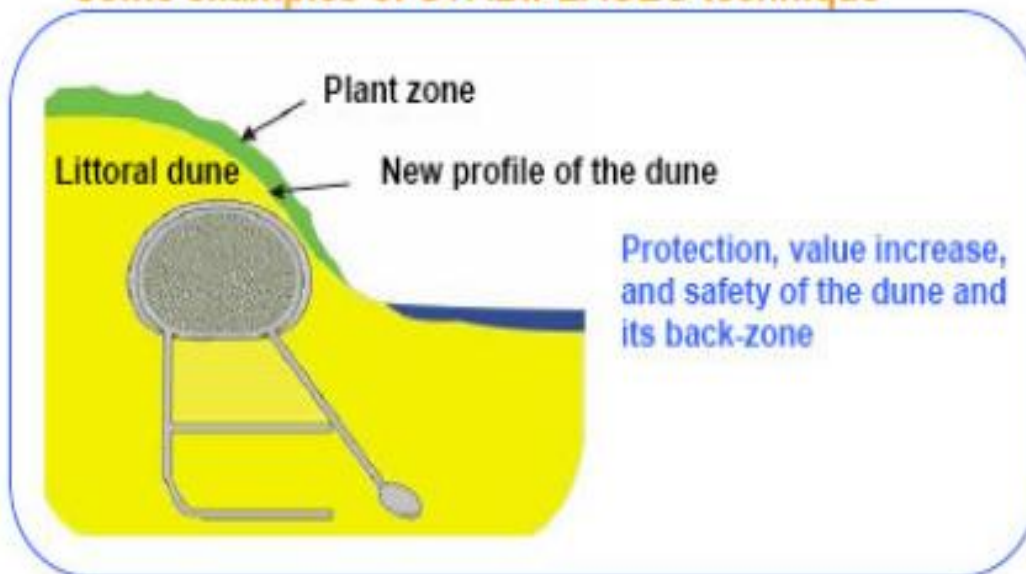


What is a STABIPLAGE® work?

A STABIPLAGE® is a multi-layer structure, forming a closed and permeable envelop – a kind of shaft – designed from geo-composite materials. The basic model is made of a minimum of 2 layers. Inside this multi-layer structure, sediments are injected: they will fill in the structure and constitute the core of the work.

The injection is realised from a masterminded hydraulic net that will enable to provide its shape to the STABIPLAGE®: once the injection completed, the work shows a monolithic body with a minimum of flat surfaces and a globally elliptic cross-section.

Some examples of STABIPLAGE® technique

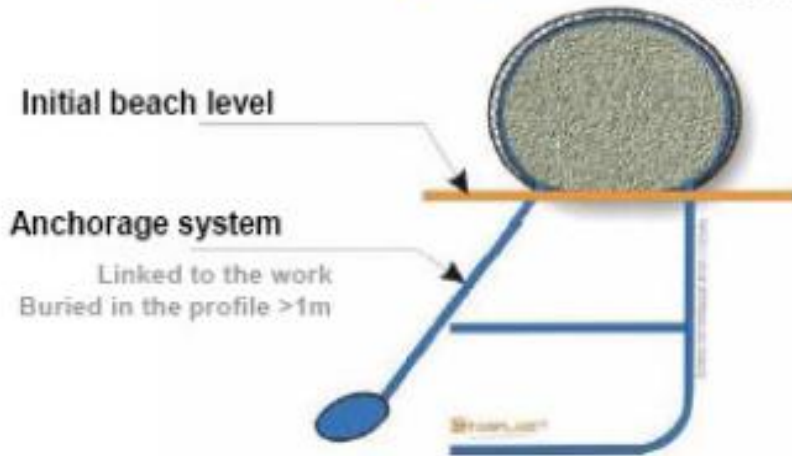


Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India



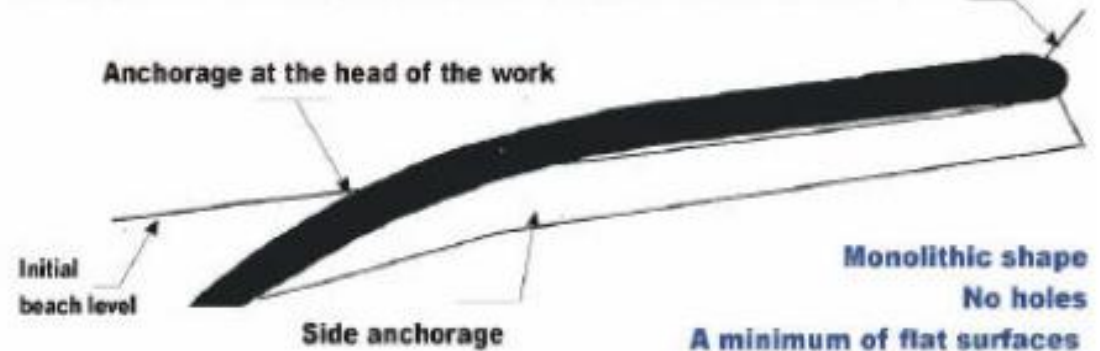
Pattern with anchorage system:

works set up perpendicular to the coastline and works emerged set up parallel to the coastline



Longitudinal view: example of a work set up perpendicular to the coastline

Anchorage from the basis of the work to the top of the beach/bottom of the dune



Any dimension possible: length, width, height

Pattern without anchorage system: seas or oceans with low tidal range, river and lake banks - immersed works

External envelope

External shell
Resistant to abrasion, UV
Permeable

Inner envelope

Interix permeable filter

Sand injected



Layer against water undermining effects

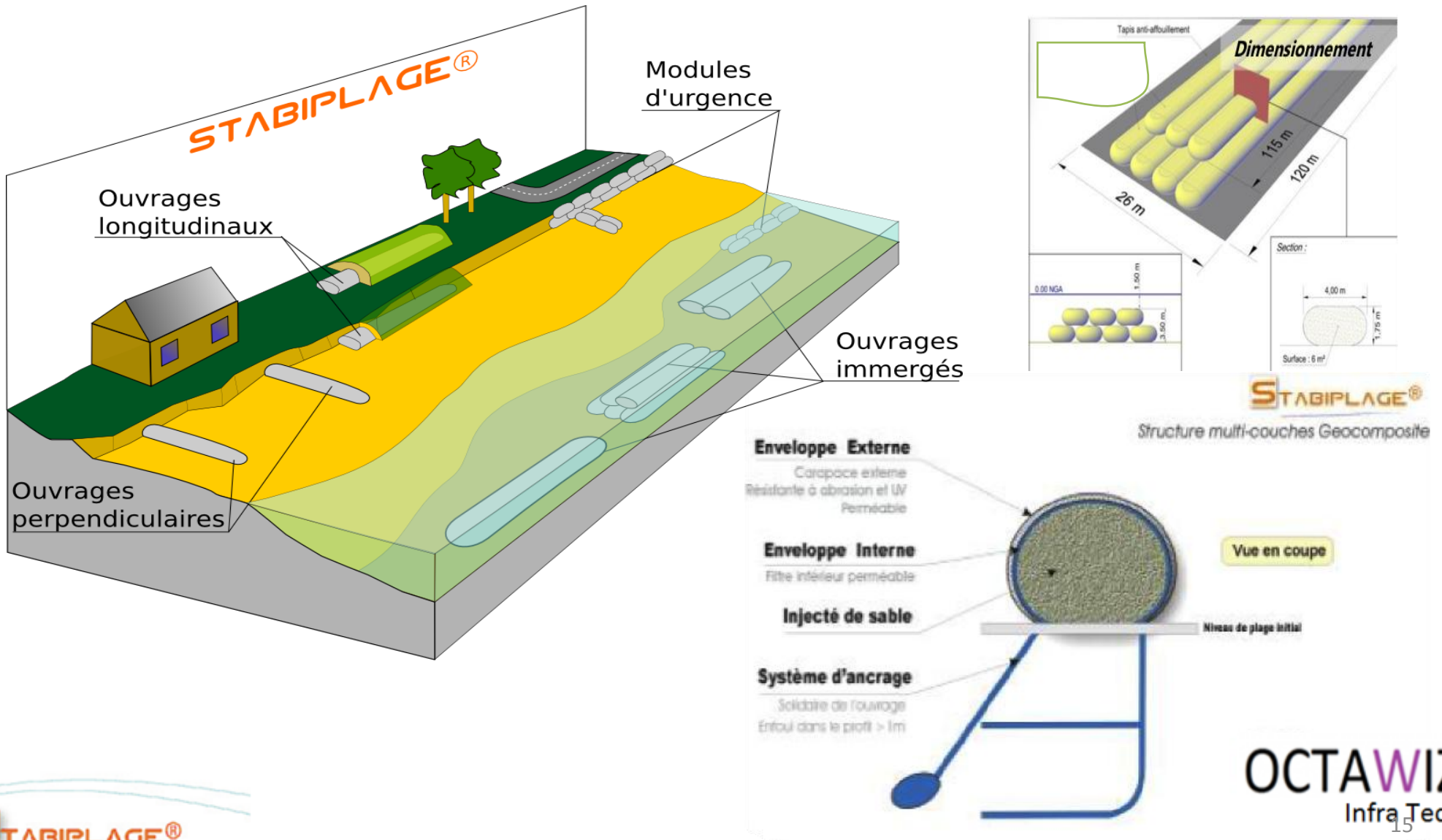


Any dimension possible: length, width, height

Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India



STABIPLAGE® - a unique solution developed by Espace Pur



Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India



- Project Reference

Details of Groyne & Soil Erosion Engineering Projects by ESAPCE PUR France

GROYNE	SL	Name of Project	Project Location	Customer Name
	1	Life-size experimentation of the raising of the low-water level with the laying of 4 thresholds	Ingrandes-sur-loire/Meslet Island-Loire	Marine Public Administration-Nantes
	2	Breakwater groyne	Pierre&Vacances-Sainte anne - Guadeloupe	Pierre & Vacances

Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India



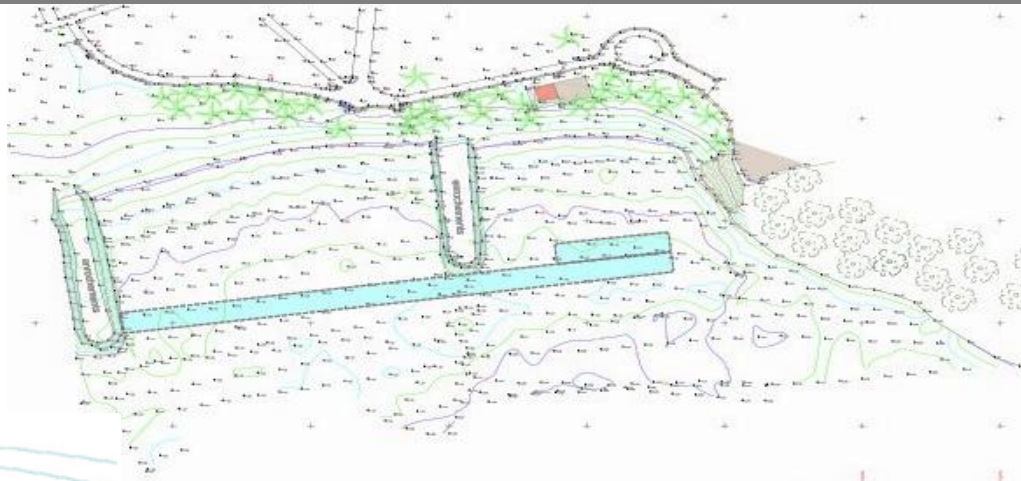
SOIL EROSION	SL	Name of Project	Location Location coordinates	Customer Name
	1	To stop the formation of a breach in the dune and to widen the beach	Arzon-Morbihan-Brittany	County Council
	2	To put a stop to the coastline backward movement	Sarzeau-Beg Lann Beach-Brittany	Environment Department of the town
	3	To secure the infrastructure and to increase the value of the littoral area	Beach of the Grève Blanche-Le Guilvinec-Brittany	Le Guilvinec town
	4	To put an end to marine erosion and to provide security to the camping, at the right side of the Lorraine Cross monument	Graye-sur-mer-Normandy	Graye-sur-mer town
	5	Protection of the dune	La Trinité sur Mer-Kervilhen beach-Morbihan-Brittany	Morbihan County Council
	6	To secure a road, behind the dune	Cap Lopez-Gabon	TOTAL GABON
	7	Protection of oil infrastructures facing a strong marine erosion and a risk of submersion	Muanda-Site of Mibale-Congo DRC	Perenco Company
	8	Beach re-creation	Anse Figuier-Martinique	Riviere Pilote town
	9	Protection of the telecommunication cable	La Torche beach-Plomeur-Brittany	Orange Telecom
	Protection of a dune in a fragile and natural site	Loc an beach-Baria Vung Tau province-Vietnam	Science and Technology Department (D.O.S.T.)	
12	Protection of the dune	Rémire Montjoly-Montravel beach-Guyane	Remire Montjoly town	

Recreation of a beach for a PVCP hotel complex

Hurricane Maria Pass, 18, 19 September 2017



Plan of the installation



- Beach soil erosion engineering, reclaimed 80% of the sand of the beach.

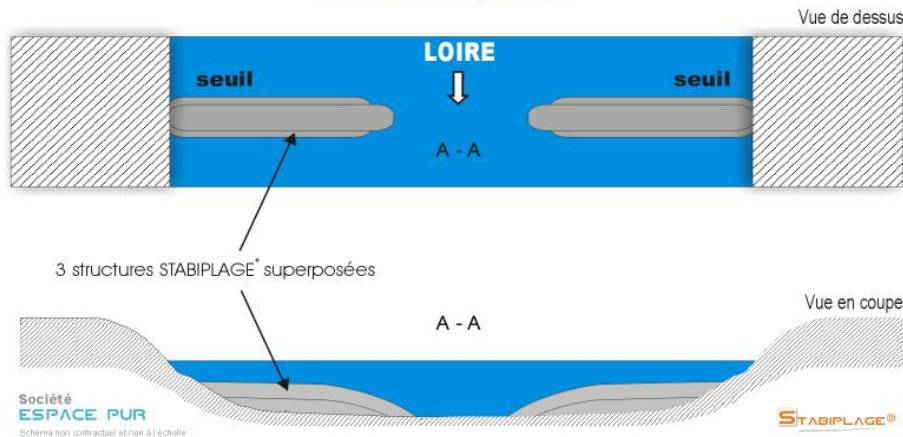
- The beach of the town of Sainte Anne, 6 km away, was submerged.

Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India



Estuary Protection

Schéma de principe



OCTAWIZ
Infra Tech

Turnkey Solution for Coastal Soil Erosion Protection Engineering in Thottappally - Kerala - India



Project Insurance


न्यू इंडिया एश्योरन्स कंपनी लिमिटेड
मुंबई क्षेत्रीय कार्यालय - 1,
201 मॉडिल, न्यू इंडिया भवन,
34/38 वीक स्ट्रीट,
पोस्ट, मुंबई - 400 023



REF/MRO-1/Fire & Engg/2018-19 24th October, 2018

Kiran Jacob
Regional Manager
Fire and Engg Tech Dept.

79
MRO-1
24/10/18

Re: Approval of CAR policy (wet risk) for
M/s. Department of Tourism, Government of Kerala & OCTAWIZ Infra Tech
TSE: Rs. 7,00,00,000/-
Project period: 12 months

Sir,

We are in receipt of request for approval of CAR Policy (wet risk) from our D.O. 110600 covering work which involves Reclamation & restoration of beach at Shangharugham beach, Trivandrum, Kerala.

1. Name of the Principle: Department of Tourism, Government of Kerala
2. Name of the Contractor: OCTAWIZ Infra Tech, 16/302, Industrial Area, Alleppey
3. Project period: 12 months
4. Contract value: Rs. 7 Cr
5. Project description: The work involves restoration/ reclamation of beach with the technology developed by Geo textile (Polyethylene & Polypropylene). They are taking up the restoration of 1 km of Shangharugham beach, Trivandrum, Kerala. The restoration works will be carried out near to the seabase in most cases between the existing rock work and shoreline.
6. Extended Maintenance period: 4 Months
7. Add-on Covers opted: EQ and STFI

Rating is as per ALET-EWT. We may agree for a discount of 80% on Basic CAR Rate. Rates for CAT perils are as applicable. Deletion of EQ and STFI is not allowed. Rates for CAT perils are as applicable.

TSE is Rs. 7,00,00,000/- which lies within B.U limit. Excess and Rates for Add on covers would be as per standard policy terms and conditions. Add-on Covers which are out of scope of the ALET-EWT are excluded. Our approval is subject to adherence of all terms, conditions and endorsements applicable under CAR policy and NO Known Latent reported till acceptance of Proposal and NO Deviation is allowed from standard terms. Approved terms are subject to the condition that there is no deterioration of loss history from the date of approval and upto the inception of cover. Wordings as per MUMCH Re Wet Risk Endorsement to be attached to this policy.

Recommended for your approval with D.O's recommendation.

V. Madhavi
Vice Manager
(Admin. Officer)

(Encl: As Above)

Octawiz Infra Tech approached The New India Assurance Company Ltd for insurance cover, based on our proposal a new vertical was created for coastal wet insurance. Sanction letter was issued on 24/10/2018.

Béatrice Cornic
CEO

www.stabiplate.com

Tél : 02 98 87 08 53

Mob : 06 08 24 04 18

ESPACE PUR
STABIPLAGE®

OCTAWIZ Infra Tech

16/302 Industrial Area Alleppey 688003 Kerala
roshan@octagonlimited.com HP: +917090466066