



Celebrating 25 years of excellence

Newsletter

Vol 9

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Amboori Kumbichal Kadavu bridge

www.kiifb.org



Kerala Infrastructure Investment Fund Board



Projects - Statistics

Department	KIIFB Approved Projects	
	No. of Projects Approved	Approved Amount (₹. in Crore)
PWD	527	₹ 39,375.83
Agriculture	1	₹ 21.43
Animal Husbandry	2	₹ 32.57
Ayush	2	₹ 204.28
Backward Classes Development Department	1	₹ 17.73
Coastal Shipping & Inland Navigation	19	₹ 3,518.20
Culture	17	₹ 499.57
Devaswom	2	₹ 138.51
Fisheries and Ports	26	₹ 642.88
Forest	13	₹ 636.94
General Education	158	₹ 3,229.76
Health & Family Welfare	106	₹ 6,854.96
Higher Education	70	₹ 2,343.50
Home	6	₹ 230.60
Industries	2	₹ 203.11
Information Technology	7	₹ 2,080.78
Labour & Skills	5	₹ 93.84
Local Self Government	29	₹ 842.78
Power	18	₹ 5,200.00
Planning & Economic Affairs Department	5	₹ 191.14
Registration	6	₹ 89.91
Revenue	5	₹ 95.00
SC/ST Development	10	₹ 182.23
Science & Technology Department	5	₹ 319.45
Sports & YA	42	₹ 987.65
Tourism	14	₹ 639.14
Transport	3	₹ 607.33
Water Resources	104	₹ 7,207.46
Total	1205	₹ 76,486.57

Projects under Land Acquisition Pool of ₹ 20,000 Crore		
PWD-NHAI	1	₹ 6,769 .01
Industrial Parks - 3 projects - ₹14006.13 Cr	6	₹ 16,420.73
Taking over of land from HNL - ₹ 200.60 Cr		
Kochi - Bangalore Industrial Corridor & Global City - ₹ 2214.00 Cr		
Total	7	₹ 23,189.74

KIIFB Approved Projects Grand Total		
Infrastructure Projects	1205	₹ 76,486.57
Projects under Land Acquisition Pool	7	₹ 20,000.00
Total	1212	₹ 96,486.57
<i>Fund disbursed to projects (as on 31/12/2025)</i>		₹ 38,293 Cr.



Editorial

After a gap, KIIIFB Newsletter again gives the picture of a bridge as its cover page – Amboori – Kumbichalkadavu Bridge. Maybe because bridges play a major role in the history of mankind, both as links that connect two lands and two cultures, and as a channel of new activities and interventions. The history of modern Kerala actually starts with a new social movement and a new bridge. The Kerala Reformation movement (1875–1925) and the Shornur Bridge (1870). They ultimately transformed Kerala's identity towards modernity. The letters and documents which are available in the Kerala Archives say that the Shornur Bridge has been completed in 1870, and it costed around 3 lakhs rupees, which was a contribution of the Cochin Princely State. New trade relations, easy transportation of goods and materials, and ultimately the extension of the Railway Lines to Middle and South Kerala were the benefits of the Shornur Bridge. Along with social reforms, a bridge also played a key role in modernising us! Amboori–Kumbichalkadavu Bridge was a dream of the Amboori village, which include around thousand and five hundred tribal and rural families, and it becomes a reality as a powerful symbol of justice and inclusion.

The article of Renju D R, our Junior Consultant, is about 'Auto Launching method in Precast Segmental Bridge Construction'. The Azhikode - Munambam Bridge which we expect to complete by May 2026, is the first of its kind bridge in Kerala under KIIIFB support.

The coastal and marine ecosystems which include mangroves, seagrasses and tidal/salt marshes, are among the most efficient natural carbon sinks. They are also called blue carbon ecosystems and Aiswarya A Kailas, Sustainability Engineer, writes about it in this issue. In the concluding part of it she mentions about Kerala's Blue Carbon landscape and the needs to strengthen it.

Carbon Neutral Coffee Park, which is a strategically planned infrastructure, is underway in Wayanad District, and Sam George, Jr. Project Engineer, tries to give us a bird's eye view of that project – both its vision and mission – in the last article that we include this issue – 'Carbon Neutral Coffee Park, Wayanadu.'

The usual items 'Economy and Market Watch' and 'Tender updates' are also there.

Happy reading!! STAY TUNED

Chief Editor

Office

2nd Floor, Felicity Square,
MG Road, Statue,
Thiruvananthapuram - 695001
Kerala, India.
Phone +91 (0471) 2780900
WhatsApp +919072000430



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*Amboori Kumbichal Kadavu bridge
Courtesy :
Mohammed Irshad R
Senior Inspection Engineer*



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Kumbichalkadavu Bridge: A Dream Realised

For more than five decades, a simple yet profound dream lived in the hearts of the people of Amboori Grama Panchayat and the twelve remote hamlets nestled within the Neyyar Wildlife Sanctuary. Nearly 1,500 tribal and rural families waited — for connection, for dignity, for hope. Today, that long-cherished dream becomes reality.

For years, their plea was the same: “A bridge to cross the Karippayar.” It went unheard. Lives were lost because hospitals lay beyond an unforgiving river. A lone ferry service provided by the Panchayat stood as the fragile link between life and death.

Today, with an allocation of ₹24.69 crore under KIIIFB, the Kumbichalkadavu Bridge rises as Kerala’s largest multi - span bridge — strong, enduring, and transformative. Yet, it is far more than concrete and steel. It is the embodiment of decades of tears, resilience, and unbroken hope. It is the fulfillment of a dream long denied. It is a powerful symbol of justice and inclusion for a people once pushed to the margins.

The bridge does not merely connect two riverbanks — it connects generations to opportunity, safety, and a future finally within reach.





KIIFB Approved Projects in the 55th General Body Meeting

The 55th General Body (GB) Meeting of the Kerala Infrastructure Investment Fund Board (KIIFB), held on 12th November 2025, accorded approval for a series of new projects and revised project costs across various departments, aimed at strengthening infrastructure development in the State.

Approval of New Projects

The General Body approved 19 new projects with a total outlay of ₹737.72 crore. The department-wise details are as follows:

- Animal Husbandry Department : ₹11.94 crore (1 project)
- Forest & Wildlife Department : ₹3.33 crore (1 project)
- Health & Family Welfare Department : ₹10.87 crore (1 project)
- Higher Education Department : ₹97.59 crore (2 projects)
- Public Works Department (PWD) : ₹483.25 crore (12 projects)
- Sports & Youth Affairs Department : ₹27.00 crore (1 project)
- Water Resources Department : ₹103.73 crore (1 project)

The General Body also approved revised estimates for 28 ongoing projects, revising the total project cost from ₹2,499.25 crore to ₹7,342.51 crore.

Consequent to the approvals accorded in the 55th General Body Meeting held on 12.11.2025, the cumulative approved project outlay of KIIFB now stands at ₹96,486.57 crore.

As on date, KIIFB has approved a total of 1,212 projects, comprising 1,205 Infrastructure Projects with an approved outlay of ₹76,486.57 crore and 7 projects under the Land Acquisition Pool with an approved outlay of ₹20,000.00 crore.

KIIFB Approved Projects - Grand Total		
Infrastructure Projects	1205	₹ 76,486.57
Projects under Land Acquisition Pool	7	₹ 20,000.00
Total	1212	₹ 96,486.57

These approvals reaffirm KIIFB's commitment to accelerating infrastructure development across critical sectors including health, education, public works, water resources, and social infrastructure, thereby contributing to the sustainable and inclusive growth of Kerala.

Auto-Launch Method for Erection of Precast Prestressed Segmental Bridge – A First-of-Its-Kind Bridge in Kerala under KIIFB Support

Renju D R, Junior Consultant

The rapid expansion of modern infrastructure, coupled with increasing expectations for speed, safety, quality, and sustainability, has necessitated the adoption of advanced technology that minimise disruption to the environment and public life. Conventional bridge construction techniques often face limitations in congested urban areas, over rivers, highways, railway corridors, and in environmentally sensitive locations. In this context, precast prestressed concrete segmental bridge construction has gained popularity worldwide over the past few decades.

In segmental bridge construction, the bridge superstructure is built using smaller segments, rather than a large continuous spans as in traditional methods. In precast segmental bridge construction, these segments are manufactured in casting yards and then transported to and assembled at the site. This way, casting of segments and erection of foundations and piers can be done parallelly saving considerable time. The work being executed at a special casting yard can ensure better quality and workmanship just as in a factory. This approach reduces construction time and cost, while also minimizing environmental impact and traffic disruption.

Several methods are available for erecting precast segments. Among them, **the auto-launch method using an overhead Launching Girder is widely adopted technique in segmental bridge construction.** In this method, a launching girder advances from an already completed span to

the next span to be erected, enabling systematic, span-by-span erection of the bridge superstructure without the need for extensive temporary supports below the deck. This way the area beneath the bridge span is left free for traffic to flow unhindered.



Auto-Launch method in Azhikode-Munambam Bridge

Once a span is erected, the launching girder is advanced longitudinally using controlled mechanical and hydraulic systems. Throughout the operation, alignment, stability, and structural stresses are continuously monitored to ensure safety and precision. This systematic and controlled progression enables efficient bridge erection even in locations where access beneath the bridge is difficult or restricted.

The auto-launch method significantly reduces dependency on ground-based support systems and offers several advantages, including improved construction efficiency, enhanced safety, and minimal disturbance to the area beneath the bridge. Owing to these benefits, the method is well suited for bridge construction over rivers, highways, railways, and environmentally sensitive areas, **and is particularly suitable for infrastructure projects executed or supported by KIIIFB, especially under challenging site conditions.**

Procedure of the Auto-Launch Method

The auto-launch process follows a well-planned systematic and repetitive sequence. After the erection of a span, the launching girder is moved forward to the next span position. Precast segments are then lifted, suspended from the launching girder, matched using the shear keys, epoxy applied, segment by segment, and accurately positioned in place. Temporary prestressing is applied to ensure uniform compres-

sion across the joints,

An important aspect of segmental construction is achieving uniform compression across the joints between adjacent segments. For this purpose, temporary prestressing bars are installed at the deck slab and soffit slab levels and stressed to the required force to ensure proper joint closure and structural integrity during erection. These prestressing bars are anchored to specially designed frames fixed to the deck and soffit slabs of the box segments.

The top frame is anchored to the deck slab, while the bottom frame is anchored to the soffit slab of the box segment. In addition to anchoring the prestressing system, the top frame also serves as a support system for suspending and positioning the segments during erection by launching girder. For jointing the segments, horizontal prestressing forces are applied through beams made of high-grade structural steel members fixed to the deck slab and soffit slab, ensuring effective load transfer and accurate alignment during segment assembly. On completion of the span, permanent prestressing is carried out as per design requirements.

This sequence of, launching the girder, erecting segments, applying prestressing, and completing the span, is repeated until the entire bridge superstructure is erected. Continuous monitoring of geometry, stresses, and stability is carried out at all stages to ensure accuracy and structural safety.



A cast segment with shear keys visible at end



Cast segments stacked at the stacking yard



Matching of segments



Advantages of the Auto-Launch Method

- Increased speed of construction with ability to create the substructure and superstructure parallelly.
- **Minimal disturbance below the bridge:** Eliminates the need for extensive scaffolding or falsework, reducing impact on traffic, waterways, and the environment.
- **Improved safety:** Most construction activities are carried out at deck level, reducing risks associated with working at height or over obstacles.
- **Efficient construction:** Allows repetitive, controlled erection of segments, resulting in better quality control and faster progress.
- **Suitability for challenging sites:** Ideal for crossings over rivers, highways, railways, and environmentally sensitive or congested areas.

- **Enhanced quality:** Controlled handling and prestressing ensure accurate alignment and uniform stress distribution across joints.

Limitations of the Auto-Launch Method

- **High initial investment:** Requires specialized equipment such as launching girders and prestressing systems. However the possession becomes an added asset for the contractor to bid for the next bridge at reasonable cost spreading.
- **Complex planning and execution:** Demands precise engineering, skilled manpower, and rigorous monitoring.
- **Limited adaptability:** Less suitable for bridges with sharp curves, highly variable spans, or complex geometries.
- **Equipment dependency:** Construction progress is closely linked to the availability and performance of the launching system.

Auto-Launch method in KIIIFB-Funded Project Azhikode–Munambam Bridge

The Azhikode–Munambam Bridge, funded by KIIIFB, is a landmark infrastructure project adopting an innovative precast segmental construction technique. The bridge is being constructed across Munambam Kayal as part of the Coastal Highway, connecting Azhikode in Kaipamangalam LAC (Thrissur District) with Munambam in Vypin LAC (Ernakulam District). The bridge consists of 12 spans, each having a span length of 52.60 m, resulting in a total length of 631.92 m. It comprises a two-lane carriageway of 7.5 m width with a 1.5 m wide footpath on either side, giving a total deck width of 12 m. On completion, the bridge will significantly reduce travel time and distance for goods transportation from Vallarpadam, while easing congestion on NH-66 and NH-544.

In the construction of this project, a conventional T-beam slab system has been adopted for the land spans, while the river spans are being constructed using the auto-launch method using precast prestressed segmental construction, **making it the first bridge in Kerala to employ this technology.**

The auto-launch method has been adopted for this project in view of the continuous use of the waterway by fishing boats travelling between the harbour and the sea, where uninterrupted navigation is essential for the livelihood of the local fishing community. The method eliminates the requirement for temporary supports within the waterway, which are typically associated with conventional construction techniques and could otherwise obstruct marine traffic. Further, the auto-launch method facilitates rapid construction of river spans without in-water supports, thereby preventing debris deposition, minimising water pollution, and ensuring that the project is executed in an environmentally responsible and community-friendly manner.



Completed Span and Matching of the Subsequent Span

Key Insights

- The Auto-Launch method offers a safe, efficient, and environmentally responsible approach to segmental bridge construction, particularly under challenging site conditions.
- The adoption of this advanced construction technique in the KIIFB-funded Azhikode–Munambam Bridge reflects KIIFB’s commitment to promoting innovation, sustainability, and engineering excellence in public infrastructure.
- **By enabling rapid construction while safeguarding environmental and community interests, the project stands as a testament to KIIFB’s role in facilitating modern, quality focused, resilient, and future-ready infrastructure for the State.**

BLUE CARBON: A NATURE-BASED CLIMATE SOLUTION FOR COASTAL RESILIENCE

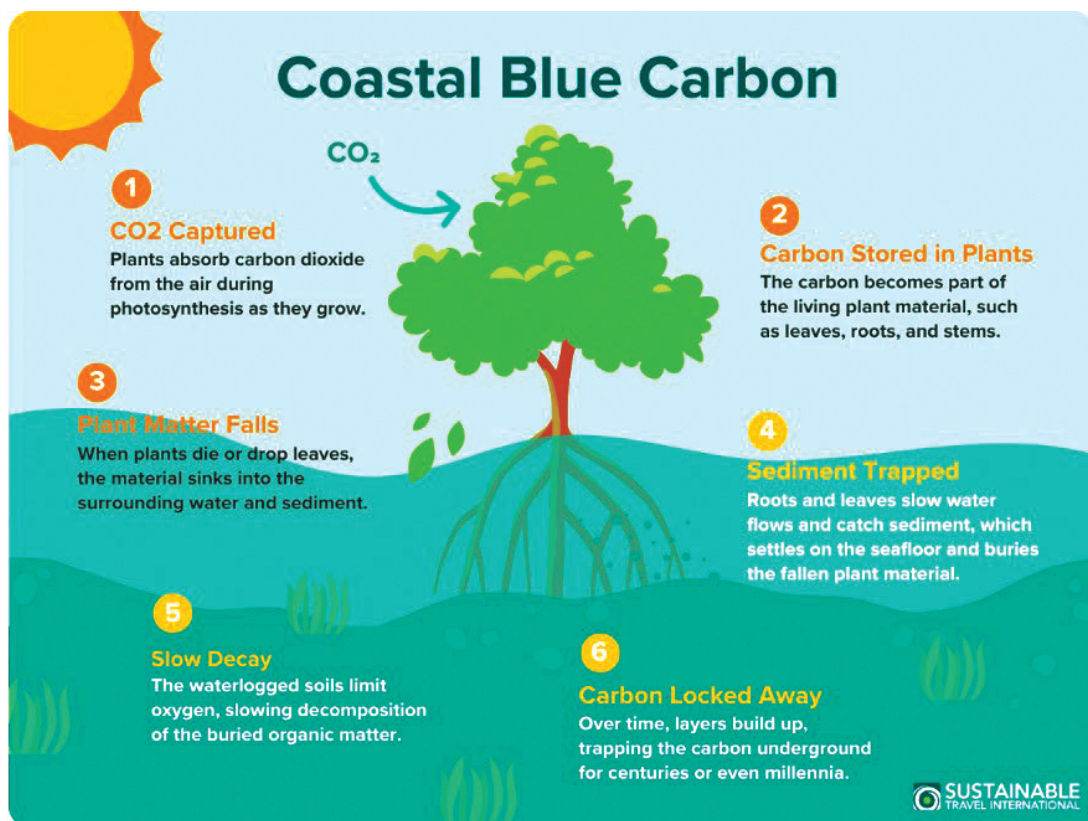
Aiswarya A Kailas, Sustainability Engineer (Infra.), ESG Wing

I. WHY BLUE CARBON MATTERS

The term blue carbon refers to the carbon captured and stored in coastal and marine ecosystems, primarily mangroves, seagrasses, and tidal/salt marshes. These ecosystems are among the most efficient natural carbon sinks, sequestering carbon in plant biomass and long-term sediment

layers for centuries to millennia (IPCC, 2019). Scientific assessments indicate that blue carbon ecosystems can sequester two to four times more carbon per unit area than terrestrial forests, making them a critical component of Nature-based Solutions (NbS) for climate change mitigation (Duarte et al., 2013).

Figure 1. Storage of blue carbon in ecosystems



Source: Brajcich, K. (2025). Conservation International – Climate Change & Nature Blog

The storage of blue carbon in ecosystems, such as mangroves, involves processes that occur above the water, below the surface, and within the soil. Unlike forests, which store most of their carbon in living plant material, blue carbon ecosystems keep the majority underground. For example, seagrass meadows and salt marshes often store more than 95% of their carbon below the surface. Together, blue carbon

ecosystems store around 12 billion metric tons of carbon worldwide, and each year they add an additional 81 million metric tons of carbon to their soils (Brajcich, 2025). In addition to climate mitigation, blue carbon ecosystems support marine biodiversity, fisheries, food security, water quality improvement, and coastal protection, while enhancing resilience against erosion and storm surges (UNEP, 2021).

II. THE BUILDING BLOCKS OF BLUE CARBON ECOSYSTEMS

Mangroves

- Carbon-dense intertidal forests
- Provide storm protection and nursery habitats

Seagrass Meadows

- Cover <0.2% of the ocean floor but contribute disproportionately to carbon burial

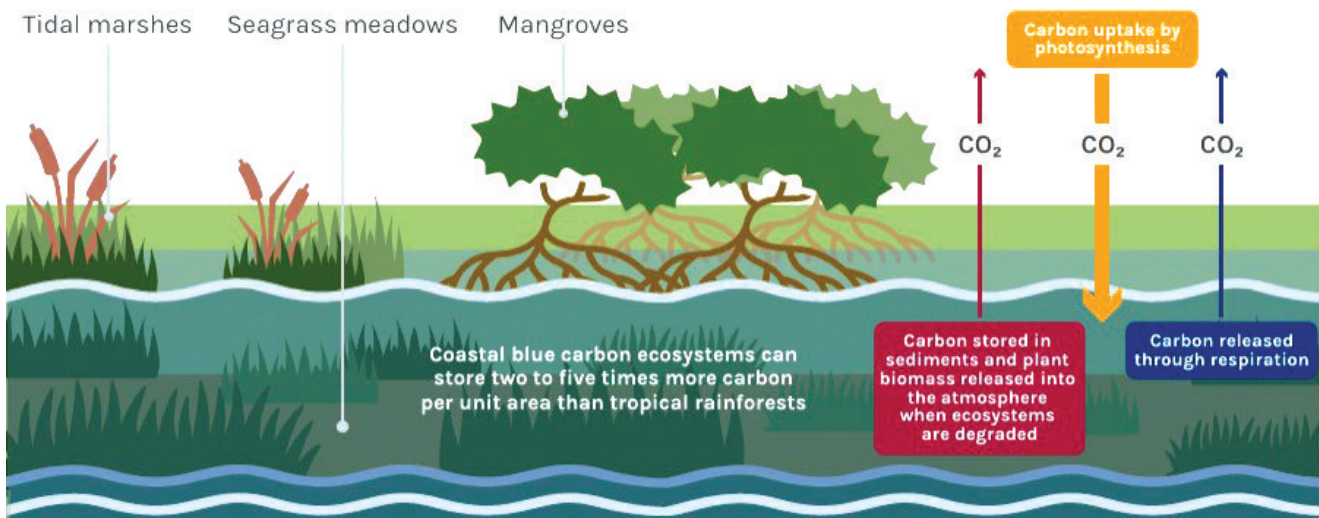
Tidal & Salt Marshes

- Stabilise shorelines and regulate nutrient cycles

A Global Climate Asset Under Threat

- Blue carbon ecosystems cover ~49 million hectares worldwide
- Nearly 50% of coastal wetlands lost since the 19th century
- Losses occur 4× faster than tropical forests
- Degradation releases long-stored carbon, contributing up to 19% of emissions from deforestation

Figure 2 Mangroves, seagrass meadows and tidal marshes as blue carbon ecosystems



Source: Schindler Murray & Milligan (2023), *The Blue Carbon Handbook*.

III. A GLOBAL CLIMATE ASSET UNDER THREAT

Blue carbon ecosystems are found across all continents except Antarctica and collectively cover approximately 49 million hectares worldwide (UNEP, 2021). However, they are among the most threatened ecosystems on Earth, being lost at four times the rate of tropical forests due to coastal development, pollution, aquaculture expansion,

and climate change impacts (IPCC, 2019).

Nearly 50% of global coastal wetlands have been lost since the 19th century, with ongoing losses estimated at 0.5–3% annually, depending on ecosystem type (UNEP, 2021). When degraded or destroyed, these ecosystems release stored carbon, contributing up to 19% of emissions associated with global deforestation (Pendleton et al., 2012).

Figure 3 Global distribution of blue carbon ecosystems



Notes: CO₂ = carbon dioxide; Sediment carbon sequestration is a process in which carbon dioxide is removed from the atmosphere and stored in the soil carbon pool.

Source: Schindler Murray & Milligan (2023), *The Blue Carbon Handbook*. *The Blue Carbon Initiative*.

IV. INTERNATIONAL ACTION AND PARTNERSHIPS ON BLUE CARBON

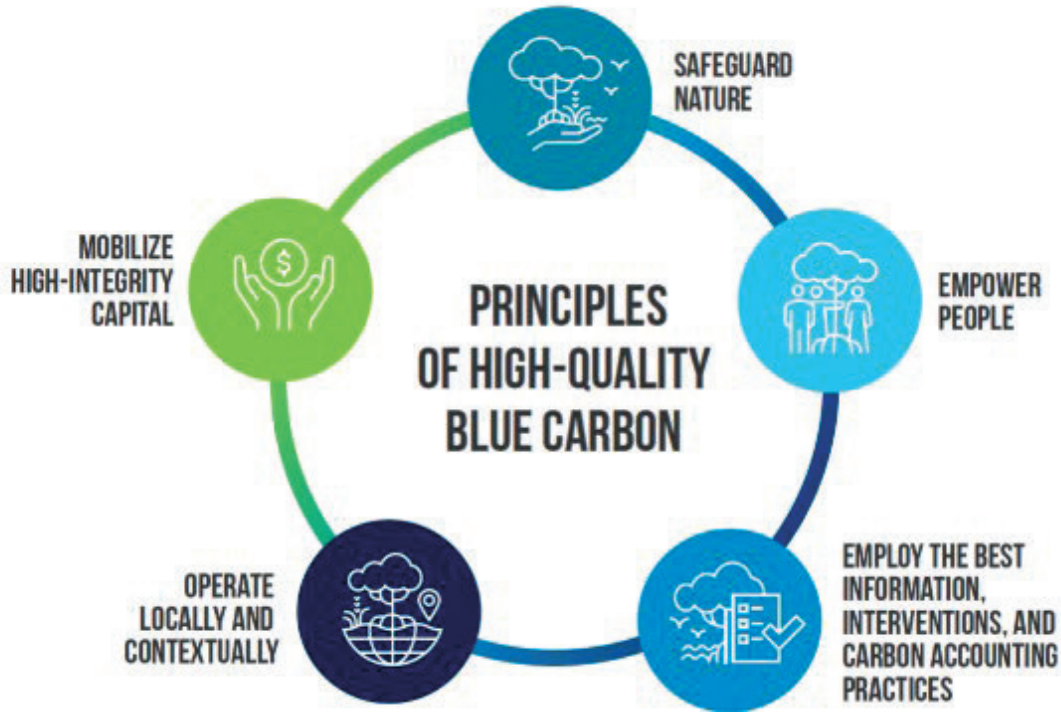
Recognising the climate significance of blue carbon, international cooperation has accelerated. (i) The Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO) supports science-policy integration for blue carbon conservation and restoration (IOC-UNESCO, 2022).(ii) The Blue Car-

bon Initiative (BCI)—co-led by IOC, Conservation International, and IUCN—focuses on developing carbon accounting methodologies, financial incentives, and policy frameworks for conservation and restoration (Blue Carbon Initiative, 2023).(iii) The International Partnership for Blue Carbon (IPBC), launched at UNFCCC COP21 (Paris, 2015), has expanded to over 54 partners by 2022, fostering global collaboration (IPBC, 2022).



5 Principles to Secure the Future of Blue Carbon

Figure 3 Global distribution of blue carbon ecosystems



Source: Meridian Institute, 2022, World Economic Forum

V. INDIA'S COASTAL CARBON WEALTH

India's ~11098.81 km (Government of India, Ministry of Ports, Shipping and Waterways, 2025) coastline hosts diverse blue carbon ecosystems, including mangroves, estuaries, lagoons, and seagrass habitats. The country's mangrove cover is estimated at 4,992 km², with significant concentrations in the Sundarbans, Gujarat, Odisha, Andhra Pradesh, and the Andaman & Nicobar Islands (FSI, 2021).

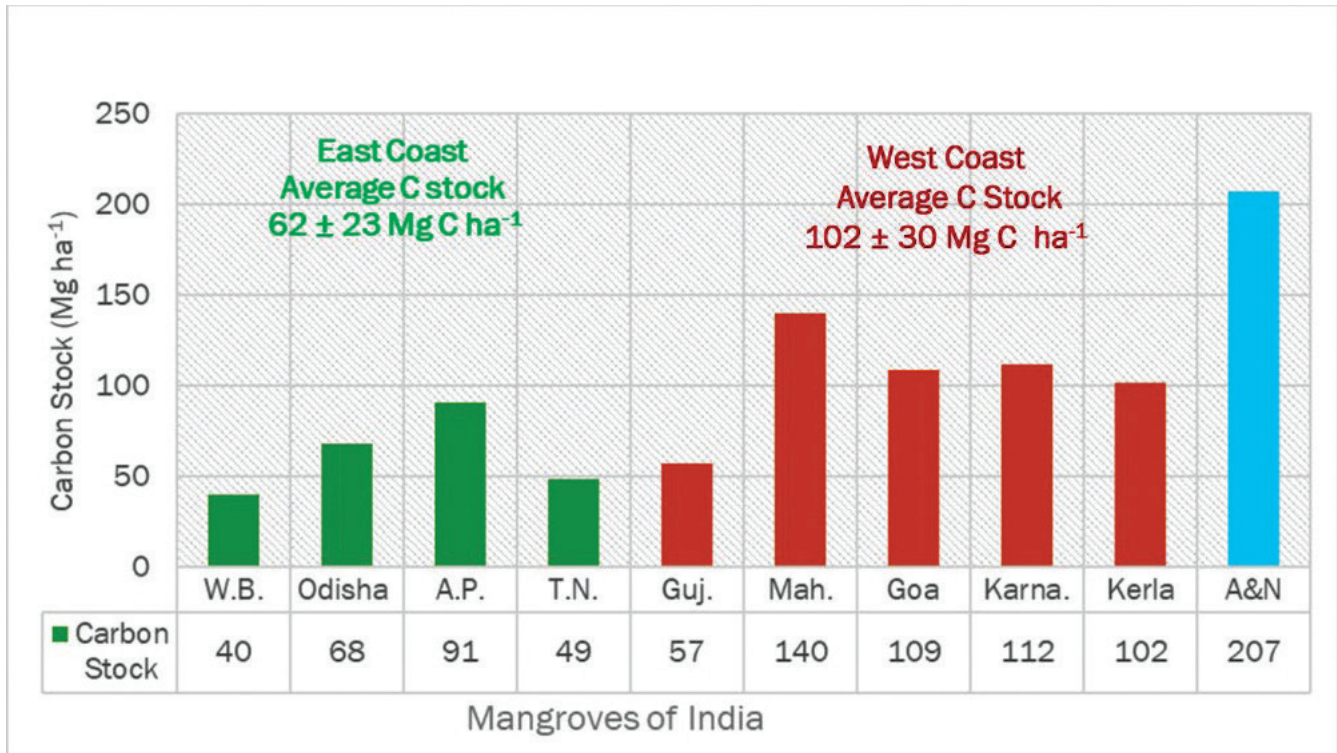
Blue carbon conservation aligns with national policy instruments such as the National Action Plan on

Climate Change (NAPCC) and the Coastal Regulation Zone (CRZ) Notification, although systematic blue carbon accounting remains an emerging area (NCSCM, 2020).

Scientific Evidence from Indian Mangroves

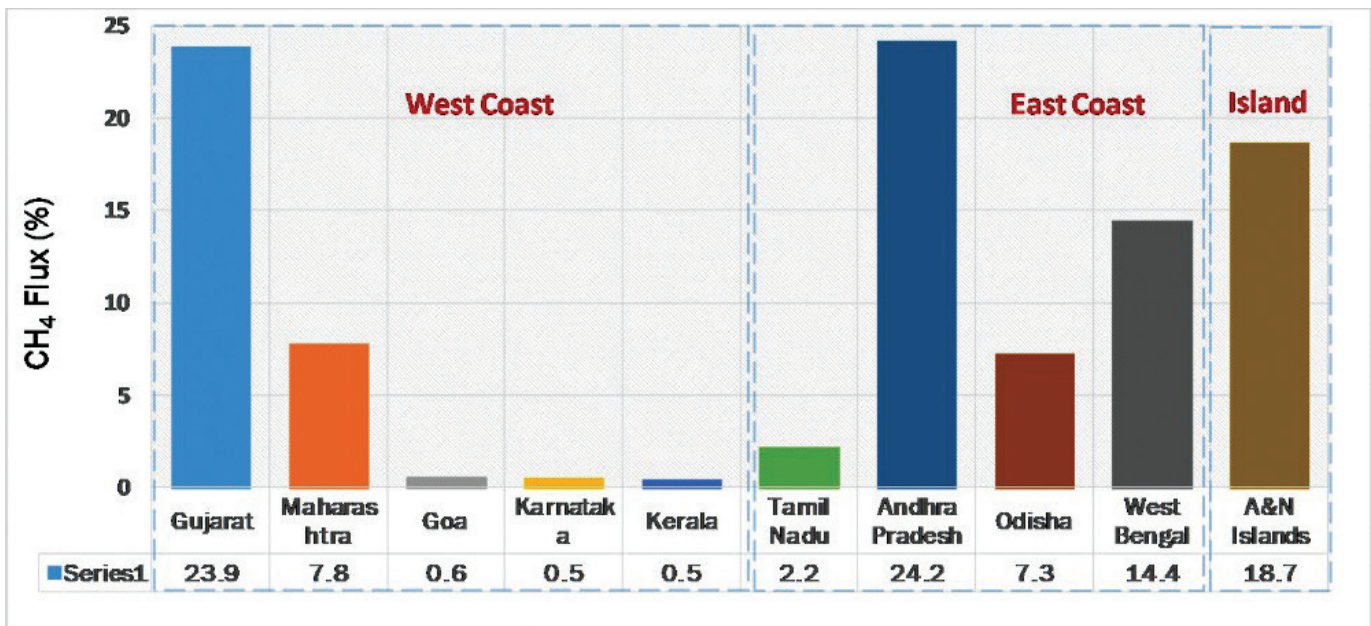
- ❖ Higher CO₂ and CH₂ fluxes along the east coast
- ❖ Total CO₂ emissions: ~5,020 Gg CO₂e/year
- ❖ Total sediment carbon stock: ~41.5 Tg C

Figure 5 State-wise % contribution of CO₂ fluxes from mangrove ecosystems



Source: NCSCM (2020),

Figure 7 Total Sediment Carbon Stocks (Mg C ha⁻¹) from Indian Mangrove Ecosystems



Source: NCSCM (2020),



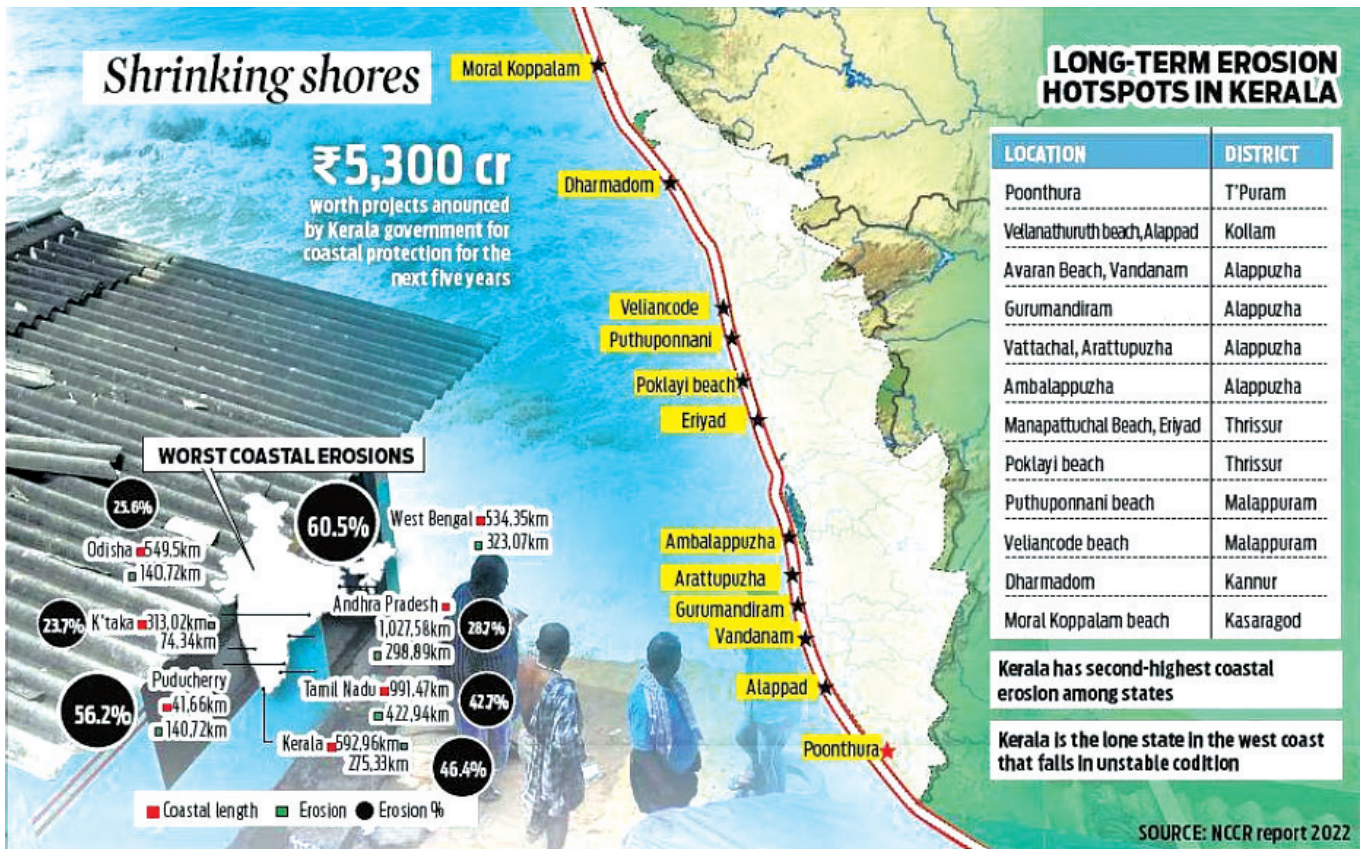
VI. KERALA'S BLUE CARBON LANDSCAPE

Kerala's coastline, extending approximately 600.15 km, encompasses interconnected blue carbon ecosystems including backwaters, estuaries, mangrove stands, and seagrass meadows. Key systems such as Vembanad–Kol, Ashtamudi, Kayamkulam, and Akkulam–Veli deliver significant blue

carbon sequestration, flood attenuation, and livelihood benefits. However, accelerating pressures from urbanisation, land reclamation, pollution, and sea-level rise are degrading ecosystem integrity, highlighting the need for systematic baseline assessment, monitoring, reporting, and verification (MRV) to support conservation, restoration, and potential integration into blue carbon finance mechanisms.

Erosion, Human Intervention & Climate Stress

Figure 8 Coastal erosion accelerated after estuarine modifications for harbour development disrupted natural sediment transport and increased shoreline vulnerability.



Source: The New Indian Express, 2023

Nearly half of Kerala's coastline is eroding, making it the second most affected state in India. The loss of beaches—natural sediment buffers—has increased shoreline vulnerability. Harbour construction, estuarine modifications, seawalls, and sand mining have disrupted sediment transport, intensifying erosion alongside climate-driven sea-level rise and storms.

CONCLUSION: A BLUE OPPORTUNITY FOR KERALA

Blue carbon ecosystems are critical to climate mitigation, adaptation, biodiversity conservation, and sustainable development. Restoring Kerala's 600.15-km coastline represents a strategic investment in climate resilience and the blue economy. Mainstream-



ing blue carbon into policy and planning can position Kerala as a leader in nature-based climate solutions.

Through A Blue Opportunity for Kerala, KIIFB's support for mangrove plantation enables systematic blue carbon assessment and pilots pathways for carbon trading. By financing restoration of mangroves, seagrass, and coastal wetlands, the initiative strengthens permanent carbon sinks, supports biodiversity, and aligns Kerala with global climate commitments, demonstrating measurable global climate benefits from regional action.

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Carbon Neutral Coffee Park, Wayanad

Sam George,
Junior Project Engineer, Project Appraisal Division

Introduction

The Wayanad's carbon-neutral coffee concept comes from a broader vision under the Carbon-Neutral Wayanad Programme, a long term sustainability initiative to reduce greenhouse gas emissions, protect biodiversity and add value to local agricultural products like coffee. Coffee grown here, especially shade grown Robusta, has relatively low emissions due to agroforestry practices, abundant tree cover, and traditional farming methods, making it a strong candidate for "carbon-neutral" branding when coupled with proper environmental measures.

The key idea is not just planting more trees, but also building infrastructure and processing facilities that minimize carbon emissions during processing, roasting, packaging and export, helping farmers earn more for environmentally sound coffee.

Carbon Neutral Coffee Park is a strategically planned infrastructure, that is underway in Kalpetta district, aimed at strengthening the coffee value chain exploring the potential coffee production in Wayanad. It acts as a central facility for coffee processing, quality control, roasting and branding under low-carbon standards, while adhering to principles of environmental sustainability and carbon neutrality.

Since Wayanad's coffee sector stands at a crossroads as thousands of farmers struggle with low productivity, stagnant profits, and the climate crisis, the Carbon Neutral Coffee Park has been launched as a comprehensive intervention to move growers

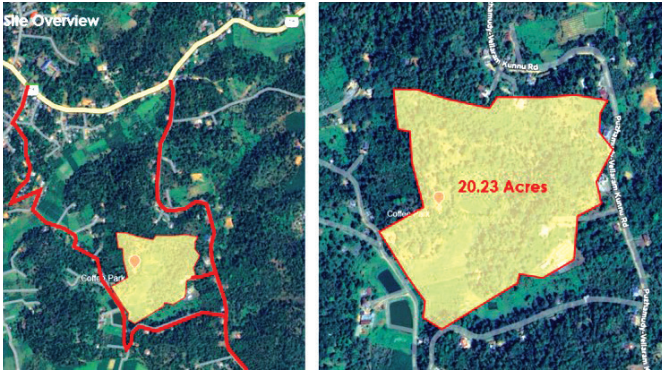
up the value chain. Now, Wayanad coffee, especially specialty Robusta — has drawn global attention, Dutch coffee professionals and European buyers have shown interest because of its low-carbon and quality potential. Farmers are also benefitting from higher global coffee prices, giving them more incentive to adopt improved practices.

By introducing quality-focused processing, the project aims to transform Wayanad coffee from an undifferentiated "filler" commodity into a unique specialty product. This facility will serve as a profitable demonstration unit designed to reposition Wayanad Robusta on the global stage.

The initiative leverages a significant shift in the global market: while climate change destabilizes Arabica production through rising temperatures and pests, high-quality, wet-processed Robusta is emerging as a resilient and sought-after alternative. By establishing local wet processing, the project enables smallholders to access premium markets and better prices, positioning Wayanad as a leader in sustainable, climate-smart coffee production.

The project integrates manufacturing, training, research, tourism, and support infrastructure within a unified campus, designed in response to the ecological sensitivity and topographical characteristics of the region.

The Engineering Design component of the project provides the spatial and infrastructural framework necessary for efficient operations, safety, sustainability, and long-term resilience.



Engineering Design Approach

The project site spans approximately 20 acres and is characterized by sloping terrain, existing plantations, and a centrally located water body. The engineering design has been developed with emphasis on:

- Minimal disturbance to existing terrain and vegetation: The site planning prioritizes minimal disturbance to existing terrain and vegetation by aligning building footprints, circulation networks, and infrastructure corridors with natural contours. This approach reduces earthwork, preserves existing plantation areas, and supports slope stability and microclimate regulation
- Preservation of natural drainage and hydrological systems: Natural drainage and hydrological systems have been retained and strengthened through terrain-aligned drainage channels, bioswales, and rainwater harvesting measures. The central water body functions as a stormwater retention and groundwater recharge system, ensuring that post-development runoff patterns closely resemble natural conditions
- Functional segregation of activities with controlled integration: The spatial layout ensures clear functional segregation of

activities—manufacturing, administration and training, tourism, and support functions—while enabling controlled integration through planned circulation and shared infrastructure. This enhances safety, operational clarity, and regulatory compliance without compromising connectivity.

- Operational Efficiency: The engineering design prioritizes operational efficiency through clear functional planning and optimized movement systems. The site is provided with two distinct access points—one dedicated to industrial activities catering to manufacturing operations, logistics, staff, and service vehicles, and a separate tourism access designed for regulated visitor entry through ticketing and security controls. This segregation of access minimizes operational conflicts, enhances safety, and ensures uninterrupted industrial functioning

The site planning and spatial organization ensure that built infrastructure is harmonized with the natural landscape, thereby reducing environmental impact while improving functionality.



Spatial Layout and Zone-wise Detailing

The overall spatial layout divides the campus into four major functional zones, each planned with specific engineering, infrastructural, and operational objectives.



Zone 01 – Manufacturing Zone

Location: North-East
 Total Built-up Area: 63,802.60 sq. ft

The Manufacturing Zone forms the core operational component of the Coffee Park. Its location has been strategically selected to allow unhindered access for heavy vehicles while ensuring isolation from visitor-oriented activities.

Key Features:

- Facilities for wet processing, drying, curing, roasting, and primary packaging
- Linear spatial organization aligned with coffee processing workflows
- Structural design accommodating heavy machinery loads and vibration control
- Dedicated service corridors for utilities and maintenance
- Direct connectivity to logistics infrastructure including weighbridge facilities

The zone has been engineered to ensure compliance with safety norms, operational efficiency, and provision for future expansion.



Zone 02 – Administration and Training Zone

Location: Centre
 Total Built-up Area: 51,968.89 sq. ft

This zone serves as the institutional and knowledge centre of the project and supports administrative, training, and residential functions.



Facilities Include:

- Administrative offices and R&D and certification spaces
- Training centres with classrooms of varying capacities
- Library and staff rooms
- Orientation hall
- Dining and kitchen facilities
- Dormitory accommodation with supporting amenities

The zone enables efficient institutional functioning while supporting capacity-building and on-site accommodation.



Zone 03 – Tourism and Experience Zone

Location: South-West
 Total Built-up Area: 19,202.20 sq. ft

This is the most immersive and publicly visible

part of the project situated on the south-western slope of the site, this zone is designed to leverage natural topography, views, and biodiversity to deliver an immersive visitor experience.



Key Components:

- Ticketed Entry Gate with Buggy Embarkation Bay
- Limited On-Site Tourist Parking (6 slots)
- Coffee Experience Centre and Coffee Museum
- Elevated deck walks and viewing platforms
- Guest cottages
- Retail spaces and café
- Public amenities

This zone acts as the public interface of the project, combining education, tourism, and sustainability awareness.



Figure 7-11 Render of the Dormitories



Figure 7-6 Render of the deck walk

Zone 04 – Ancillary Support Functions

Total Built-up Area: 904.90 sq. ft

This zone accommodates essential support infrastructure required for smooth operation and visitor management.

Facilities Provided:

- Security cabins
- Ticket counters
- Buggy points
- Biogas plant
- Solar energy installations

- Waste management facilities

Though limited in area, this zone plays a critical role in operational control, energy sustainability, and carbon-neutral functioning.

Circulation and Movement Planning

The circulation system follows a loop-based hierarchy, ensuring clear segregation of movement:

- Industrial Loop for manufacturing and logistics

7.6.1 Industrial Loop

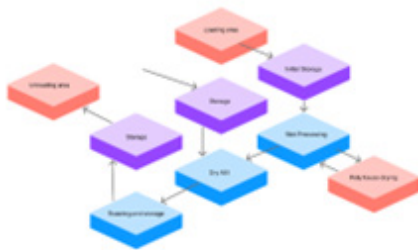
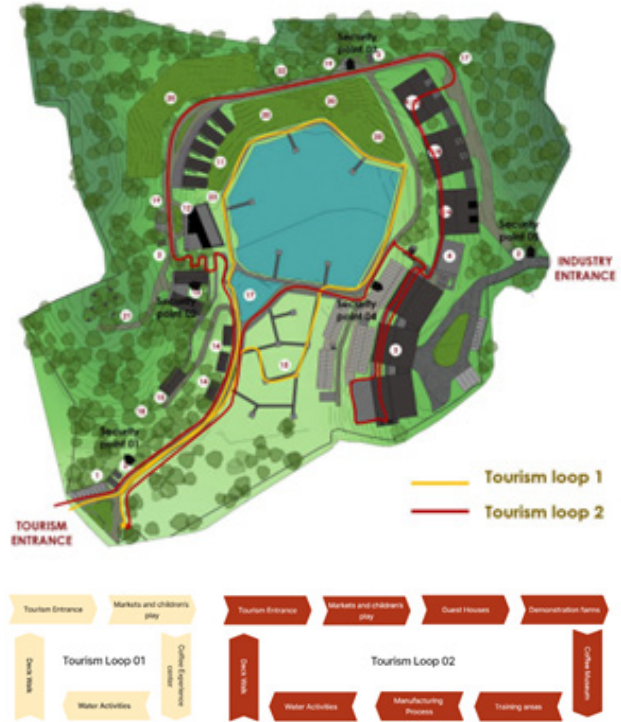


Figure 7-2 Spatial Process Flow

- Administrative / Academic Loop for staff and trainees



- Tourism Loop for visitors



This arrangement reduces conflicts between different user groups, enhances safety, and improves operational efficiency.

Integration of Sustainability and Carbon-Neutral Systems

The spatial planning is reinforced by integrated engineering systems, including:

- Sustainable Materials:** Steel and brick structures with large openings ensure structural strength, thermal comfort, natural ventilation, and daylight; locally sourced materials reduce emissions and support the local economy.
- Earth-Friendly Techniques:** Stilted buildings minimize earth cutting, preserve vegetation, and maintain natural drainage.
- Renewable Energy:** Solar trees and rooftop panels generate clean energy, reducing reliance on grid electricity and supporting carbon neutrality.
- Low-Impact Circulation:** Elevated deck walkways prevent soil compaction, allow rainwater percolation, and protect root zones.

- Zero-Discharge Waste Management: Coffee pulp and organic waste are converted to compost or biogas, greywater is reused for irrigation, and organic sludge enriches the forest floor.

These systems are embedded within the planning framework, ensuring sustainability is achieved through design integration rather than post-construction interventions.

A total of 19.91 acres of land had already been purchased for the proposed park with KIIFB funding. Moreover, a total amount of Rs. 106.78 Crores has been sanctioned by KIIFB for the implementation of the park, including land acquisition.

Conclusion

The Carbon Neutral Coffee Park demonstrates a holistic, sustainable infrastructure model, integrating site-responsive planning, functional zoning, and dual-access circulation to ensure operational efficiency and safety. Climate-responsive design, sustainable materials, renewable energy, and low-impact construction reduce energy use and carbon footprint. Comprehensive water, waste, and biodiversity management enable near zero-discharge operations and ecosystem enhancement. Overall, Coffee Park serves as a replicable benchmark for carbon-neutral industrial, educational, and tourism infrastructure.



Ramanchira bridge across Muttoli River in Kasaragod District



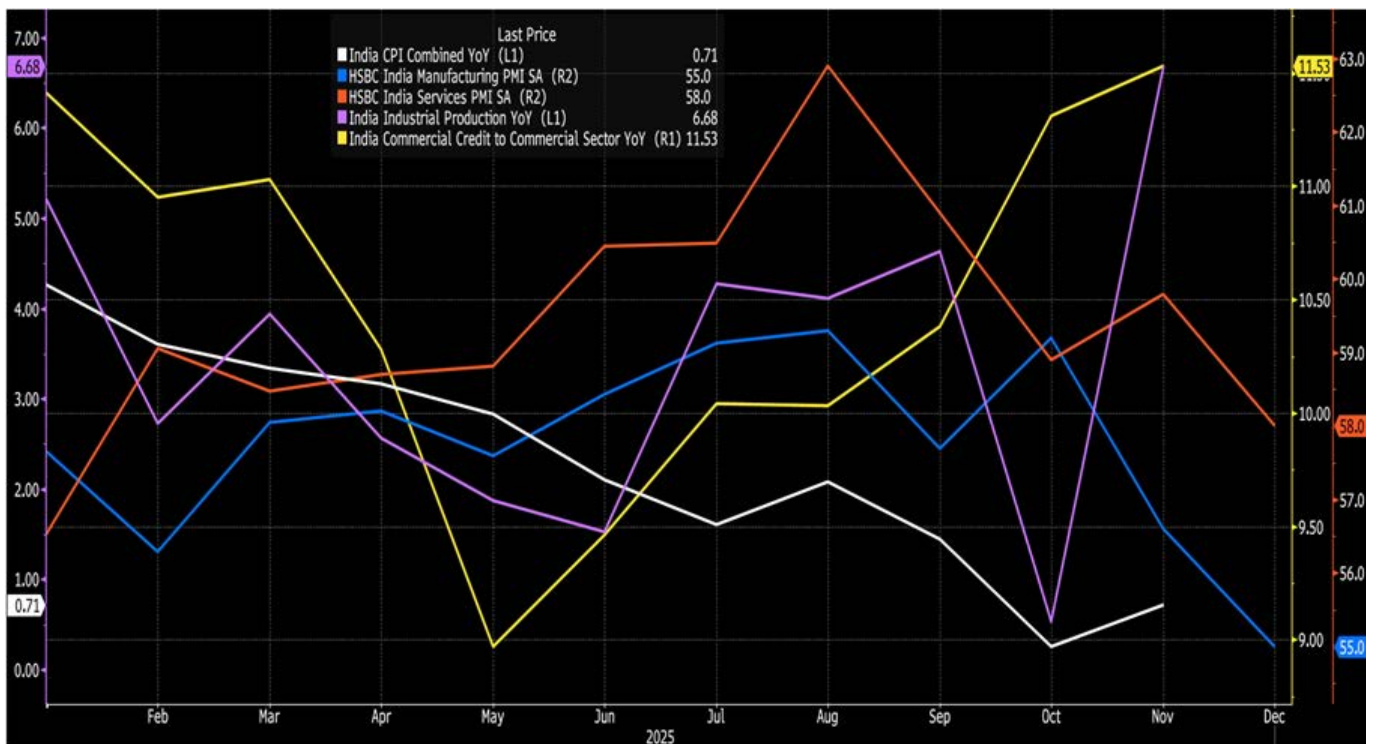
Economy & Market Watch

Ajosh Krishnakumar,
General Manager, Finance & Administration

In this edition of economy & market watch, we look at a few high frequency indicators of real economic activity in the country to analyse how the Indian economy has fared during calendar year 2025.

& Manufacturing Purchasing Managers Index (PMI), YoY growth in credit to commercial sector, YoY growth in Index of Industrial Production and retail inflation (Combined CPI YoY) fared during calendar year 2025.

The following chart shows how the India Services



The HSBC India Manufacturing Purchasing Managers' Index (PMI), Seasonally Adjusted (SA), came in at 55.0 (lowest in calendar year 2025) in December 2025 compared to 56.6 in November 2025 and

59.2 in October 2025. During the period of study, the index recorded a high of 59.3 in August 2025. Moreover, Manufacturing PMI has been above 50 for all months during the period of study, indicating



growth/ expansion. Additionally, it is worthwhile to note that Manufacturing PMI has consistently been above 50 for 54 consecutive months in total.

The HSBC India Services PMI (SA) came in at 58.0 in December 2025 compared to 59.8 in November 2025 and 58.9 in October 2025. During the period of study, Services PMI hit a low of 56.5 in January 2025 and a high of 62.9 in August 2025. It may be noted that Services PMI has also been consistently above 50 for the last 53 months, indicating growth/ expansion.

Bank commercial sector credit growth on a year-on-year basis came in at 11.53% (highest during the period of study) in November 2025 compared to 11.45% in October 2025. During the period of study, the index recorded a low of 8.97% YoY in May 2025. The commercial sector credit growth (YoY) has been below 12 % since November 2024.

India's Industrial Production(IIP) measured on a YoY basis, recorded a growth of 6.68% (highest during the period of study) in November 2025 basis provisional estimates of IIP for November 2025. The YoY growth in IIP for November 2025 is primarily attributable to the growth in Manufacturing sector (8.0% YoY), Electricity sector (-1.5% YoY) and Mining sector (5.4% YoY). During the period of study, IIP growth on a YoY basis hit a low of 0.53% in October 2025.

India's headline inflation rate based on the Consumer Price Index (CPI) YoY came in at 0.71% in November 2025 compared to 0.25% (lowest during the period of study) in October 2025 and 1.54% in September 2025. Consumer price index (CPI) inflation has persisted below the Monetary Policy Committee's target of **4 per cent within a band of +/- 2 per cent during since September 2025.**



Ramanchira bridge across Muttoli River in Kasaragod District



Tender Update - December 2025

Sl. No.	SPV	Sector	Work Description	Tender Value
1	KRFB	PWD	KIIFB-Four Laning of Vazhayila - Pazhakutty - Kacherinada - 11th Stone Road in Thiruvananthapuram District-RETENDER - Reach 2 - Keltron Jn to Valicode Jn CH 3/940 to 8/100 Part TS 4 -General Civil Work	₹ 1,009,617,673.00
2	KWA	RWRD	KIIFB Replacing old and damaged 400mm prempipe with 400mm DIK9 pipe from Lourdmatha church jn in Pandit Karuppan road to Panampilly nagar for improving watersupply in Dvn No27 old of Kochi Corporation Old and damaged pipe replacement PipelineWork”	₹ 17,553,167.00
3	KRFB	PWD	KIIFB Project -Improvements to Vakkethara -Kapikkad road-in Kottayam District -General Civil Work	₹ 203,577,358.00
4	KRFB	PWD	Improvements to Changanassery Kaviyoor road Km 0/000 to 13/272 in Pathanamthitta District- Balance work (working Ch 0/000 to 2/400) Part TS	₹ 37,284,270.00
5	KRFB	PWD	KIIFB-Urgent Rectification Works to Changanassery - Kaviyoor Road -Rectification of carriage way by Providing 40 mm MSS in Changanassery - Kaviyoor Road Ch 2/500-13/300 kms -General Civil Work	₹ 38,811,513.00
6	KRFB	PWD	KIIFB-Construction of Kottarakkara ring road in Kollam District. (Phase 1)-Balance work- General Civil Work	₹ 57,641,324.00
7	KITCO	HFWD	Development of Women and Child Hospital at Thalassery Kannur Medical Gas Pipeline System	₹ 17,965,808.00
8	SKF	SYA	KIIFB-Construction of Municipal Stadium at Adoor, Pathanamthitta - Retender	₹ 102,906,308.00

Fund Mobilization Status

Particulars	Amount (₹ Cr.)
Contribution from Government of Kerala	25,738
Fund mobilized from financial market	37,921
Total	63,659

* Provisional figure as on 31-12-2025



PRAVASI Chitty
Statistics as of
31ST DECEMBER 2025

Total number of customers	235 152
Total number of subscribers	68321
Total amount collected	INR 5905.32 Cr
KIIFB Deposit bond subscribed	INR 835.50 Cr
KIIFB Security bond subscribed	INR 271.936 Cr



PRAVASI
Dividend Scheme

Total number of registrations	52472
Total no. of depositors	4233
Total amount deposited	INR 331.05 Cr



Our Key Service Areas

1. Consulting & Advisory Services
2. Environment Services
3. Design & Engineering
4. Project & Contract Management
5. Geographic Information System
6. Quality Management



KIIFCON Pvt. Ltd,
7th Floor, Felicity Square, Statue,
M.G. Road, Thiruvananthapuram,
Kerala- 695001

☎ 0471-2780900 ✉ kiifcon@kiifb.org
bd@kiifcon.com

🌐 www.kiifcon.com