

Blue Carbon: Initiatives in Action

Sri Lanka's marine ecosystems are of immense ecological and economic significance. Ecological conservation sites rely on financial planning and effective management. As Sri Lanka begins to emerge from its economic crises with persisting fiscal pressure, conservation will require innovative financing solutions. However, accessing financing solutions can only be achieved if stakeholders agree on the issues, limitations, mechanisms, design of instruments, and outcomes of conservation. For this, there needs a collaborative approach among government officials, the private sector, and civil society stakeholders.

The Centre for a Smart Future (CSF), in partnership with Blue Resources Trust (BRT), launched a Roundtable series in 2023 aimed at enhancing knowledge on sustainable and innovative financing for marine conservation. As part of a project funded by the Oceans5 consortium, the Knowledge Roundtables bring together stakeholders from relevant diverse disciplines and organisations to bridge the gaps in understanding and application, and the gaps between theoretical design and practical considerations.

'Blue Carbon: Initiatives in Action' marked the second part of the fifth Knowledge Roundtable on Marine Conservation Finance. This session, followed Mark Huxham's webinar on the potential and pitfalls of Blue Carbon, and featured Mehak Sangani, Mangrove Officer at Lanka

Environment Fund (LEF), Susantha Udagedara, Director of the Seagrass and Climate Change Programme at Blue Resources Trust (BRT), and Shiranee Yasaratne, Advisor at Biodiversity Sri Lanka. The session explored the practical implications of implementing Blue Carbon Projects in Sri Lanka, included reflections from the field, and delved into some implications for the private sector. This Roundtable also included an engaging discussion between participants on the intricacies of these projects and the potential challenges and complexities that arise with stakeholder considerations.

This analytical note captures the key insights and discussion points from this session to provide a wider audience with access, and to serve as a free resource and reference point for other engagements in this space.

Disclaimer: Views captured in this note reflect the presentations and participant deliberations. They do not necessarily reflect the views of CSF, Blue Resources Trust, or any project partners and funders.

Introduction to Blue Carbon

Blue Carbon refers to carbon dioxide (CO₂) absorbed from the atmosphere and stored in the ocean, including surface water, sediment, vegetation, all life forms, and molecules in the ocean.

Coastal Blue Carbon specifically refers to carbon stored in the vegetation and soil of salt marshes, seagrass meadows, and mangrove forests.

Carbon sequestration occurs when carbon is trapped in biomass and sediment. Plants absorb CO₂ during photosynthesis, which builds their biomass and allows them to store carbon.

Mangroves have higher carbon storage capacity than terrestrial forests due to their deep, waterlogged soils with low oxygen levels, which trap carbon for long periods of time.

Mangroves, seagrasses, and salt marshes trap carbon as water passes through and deposits sediment, particularly in their roots, which get buried below the sea floor.

Since blue carbon ecosystems store significant amounts of carbon in the soil, clearing these ecosystems can transform them from carbon sinks into carbon sources.

Notes from the Field

Mehak Sangani, Mangrove Officer at the Lanka Environment Fund

- Despite leading in climate change action and attempting to introduce new climate change laws and an international Climate Change University, Sri Lanka continues to prioritise economic development over conservation.*
- The project was initiated due to the potential de-gazetting of the*

Vidaththalthivu Nature Reserve (VNR) in 2020. The proposed de-gazetted areas have likely been set aside for aquaculture and renewable energy development.

- Within this context, traditional conservation methods are insufficient to protect vital ecosystems. There is a need to demonstrate the economic value of these ecosystems beyond their inherent value. We need to establish that conservation can be profitable and bring financial benefits to communities.*
- Internationally, Blue Carbon Initiative have been promoted through UNFCCC articles 6.2 and 6.4, and the development of Blue Carbon markets has provided a new source of finance for conservation projects, supporting long-term, large-scale investments.*

Challenges

- Blue Carbon projects are often complex. Sri Lanka currently lacks the technological capacity, regulatory and legal frameworks, and supporting policies needed to outline carbon trading and climate change action.*
- There is a significant lack of understanding about Blue Carbon, and trading often has negative connotations, which could lead to potential misuse and greenwashing.*
- Projects are often interdisciplinary in nature. They require significant collaboration, cross-communication, and partnerships,*

which are difficult for the country to achieve at this stage, especially due to the absence of data and information.

Project Summary

- *LEF is currently funding an assessment of the stocks and flows of seagrass within the VNR to evaluate their viability for a potential Blue Carbon project.*
- *These projects require collaboration with carbon developers, civil society, grassroots organizations, and government institutions, which is crucial for most projects since ecosystems are based on state-owned land.*
- *LEF aims to aid in developing carbon trading policies, conservation and restoration plans, prioritize ecosystem protection, and include social aspects like livelihood development, poverty alleviation, and women's empowerment.*
- *It is important to note that certain organizations are willing to pay a premium for carbon projects that have incorporated the socio-economic development of communities within the region.*

A study must be carried out to assess whether an ecosystem can realistically generate carbon credits. We need to ensure that apart from its existing carbon stocks, the ecosystem has significant carbon flows actively trapping CO₂ from the atmosphere.

A comprehensive feasibility study for generating carbon credits from an ecosystem involves several key steps:

1. *Assess the ecosystem's ability to generate carbon credits by evaluating its carbon stocks and CO₂ trapping capabilities.*
2. *Ensure the project demonstrates additionality by reducing emissions beyond business as usual.*
3. *Prevent leakages by avoiding unintended emissions increases elsewhere.*
4. *Engage in the carbon market to ensure profitability from carbon sales.*
5. *Secure funding through grants, loans, donors, investments, and partnerships due to high upfront costs.*
6. *Implement the Restoration and Conservation Act, which may be time-consuming, especially for extensive restoration efforts.*
7. *Verify carbon credits through recognized organizations like Plan Vivo, VERA, and Gold Standard, based on project specifics.*
8. *Continuously monitor, report, and verify the project's impact on reducing carbon emissions and improving ecosystem and community conditions.*
9. *Submit regular reports to maintain compliance with the chosen carbon credit verification standard and verify ongoing benefits.*

Seagrass Stock Assessment Project

**Susantha Udagedara, Director-
Seagrass and Climate Change
Programme at Blue Resources Trust
(BRT)**

- *Alongside other factors, the VNR is considered pristine because of the restricted access granted to it during the civil war. With the assumption that it has a high carbon stock, we conducted research on the blue carbon content, specifically in seagrass.*
- *The research assesses the blue carbon content in seagrass within the area, alongside the distribution within different species of seagrass.*
- *Owing to the lack of data we selected three sites to conduct the study, based on international criteria.*
- *The reserve includes 29,000 hectares with more than 60% of the area covered in seagrass, but the lack of data has made it difficult to implement conservation strategies and climate instruments needed to protect these coastal areas.*
- *LEF and BRT are collaborating on papers to explore Blue Carbon stock analysis, identify hot spots in the VNR, study species diversity and distribution, and assess seagrass composition and the presence of rare species. They aim to develop a sustainable financing mechanism for blue carbon projects in government-owned lands, in partnership with CSIR Australia.*
- *Seagrass, known for its exceptional carbon storage capacity, faces threats from various sources including fishing activities, sea cucumber farms, waste dumping, and nutrient runoff. While larger seagrass species exhibit resilience, smaller ones are vulnerable to environmental changes, however, they regenerate quickly due to seed banks. Licensing is required for sea cucumber fisheries in the VNR, but sustainable carrying capacity, which falls under the fisheries department's jurisdiction, hasn't been determined yet.*
- *Unlike mangroves, Sri Lanka lacks a national policy specifically prioritizing seagrass conservation, partly due to the absence of a dedicated institutional custodian. Efforts to estimate blue carbon in seagrass across Sri Lanka are underway, emphasising the need for accurate, representative data for effective climate change reporting and integration into international agreements like the Paris Agreement.*
- *Developing a blue carbon project does not require full knowledge of seagrass extent across the entire country but rather an estimate for the specific project area. Seagrass habitats are dynamic and challenging to map accurately due to their rapid seasonal changes and movement. Blue carbon projects are typically regional, and calculations are made based on the area covered by seagrasses and other elements within the project scope.*
- *The Ministry of Environment is*

developing a blue carbon development policy framework. Previously, under the Kyoto Protocol and now the Paris Agreement, carbon trading mechanisms have been approved globally. The Ministry is developing a Blue Carbon policy development framework to support carbon trading and blue carbon development, especially during economic challenges. A low carbon policy framework and action plan have been developed and submitted to the Ministry of Environment for further processing.

Public-private Partnerships **Shiranee Yasaratne, Advisor at** **Biodiversity Sri Lanka on Public-** **private Partnerships in Blue Carbon** **Initiatives**

- Biodiversity Sri Lanka (BSL), a network of over 100 private sector members, focuses on biodiversity conservation. They have previously engaged in public-private partnerships for forest and mangrove restoration.*
- Since 2022, they have partnered with eight private sector companies to facilitate a mangrove restoration project at the Anawilundawa Ramsar Wetland. By restoring 50 acres of land, the project focuses on both blue carbon initiatives and the overall health of the ecosystem.*
- Many companies partner with BSL to potentially earn credits. Following preliminary studies and guidance from the Sri Lanka climate Fund, they were asked to apply for credits under the Sri Lanka Carbon Fund. However, the Department of Wildlife*

protested, arguing that credits from state-owned land belong to the state and cannot be given to private investors.

- They have since been in conversation with the Presidential Secretariat and the team led by Dr. Ananda Mallawatantri, to discuss a system where the state takes a percentage of the credits accrued while allocating some to the investors and the community at large.*
- There is uncertainty in Sri Lanka about the extent of mangroves available for restoration. To address this, BSL is assisting the Conservation General of Forests to overlay aerial photographs from 1985 with current images to determine the degree of degradation and the potential for mangrove restoration.*
- In an ecologically diverse country such as Sri Lanka, restoration methods may vary; the techniques used in the VNR may not be suitable for Anawilundawa.*
- Rather than planting and cultivating seeds directly, BSL currently relies on accelerated natural regeneration of mangroves, which involves creating an environment conducive for seeds to disperse and grow naturally.*

The Anawilundawa Project

- The project has seen some success but faces significant challenges due to the high acidity of the soil, following shrimp farming operations in the area.*

- *While it was originally envisioned to be a 5-year project, restoration efforts may extend to 10 or 20 years to achieve full ecosystem recovery.*
- *Restoration, however, is expensive, with around Rs. 40 million invested by various companies for the initial five years.*
- *Success will be determined once natural seeds begin to root and grow, indicating that soil conditions have improved.*

Incentives for the Private Sector

- *The substantial effort required for natural restoration underscores a broader issue - the lack of incentives for companies to invest in these initiatives. Without government intervention to create beneficial formulas or mechanisms, investors won't sustain their efforts.*
- *BSL is currently collaborating with various government bodies to create a formula that benefits companies and communities. While there are many entities interested in mangrove restoration, the lack of a proper policy for credit sharing means that Sri Lanka will face challenges and fall behind.*
- *The private sector is advancing climate action independently of the government, focusing on adaptation and mobilizing communities for nature-based solutions. One example is the coral restoration project at Kayankani, launching in June with the support of a public-private partnership.*
- *Efforts also include calculating*

biocredits for accreditation with a group of Sri Lankan scientists. Starting with small, practical pilot projects, the goal is to develop scientifically sound examples for broader application.

Data Collection

- *In the absence of comprehensive information, BSL seeks to actively gather data till the government decides on a course of action. The aim is to compile data and consolidate it into a common database, whether through state or private efforts.*
- *BSL believes its reasonable to calculate and look into establishing a bio register or carbon register to record the carbon credits this area can accrue. Despite limited funds, BSL is starting this initiative and will collaborate with interested companies for funding, using accrued data for pilot projects.*
- *BSL has data to support bio credits and can use these projects to generate valuable information.*
- *We needs to take steps to develop a framework for Sri Lanka that is acceptable to all parties. The ministry is currently preparing documents and we should contribute our systems and data from small project that align with NDC goals.*
- *At this point, data collection is the most important thing because you need baseline data and then determine how the ecosystem services and carbon gets accrued.*

Discussion

Is there interest in these approaches, and when we say public-private, do we mean government and developers or government and private companies?

Shiranee Yasaratne

- As of now, the conversation has begun and the private sector is backing the initiative. As for the model, we've been speaking to a Singaporean company about their sharing structure. Overall, we need to take small steps to prepare a framework for Sri Lanka that is acceptable to all stakeholders.

What is the timeline or trajectory for Sri Lanka to be able to produce and trade carbon credits?

Mehak Sangani

- With mangrove restoration, it takes about 10 years for ecosystems to absorb emissions and generate carbon credits. Priority should be given to protection and conservation efforts, with planting and restoration activities serving as supplements. Despite legal protection, mangrove loss still occurs due to various factors. To show additionality, we need to identify areas experiencing consistent loss and propose blue carbon projects there, investing in restoration, conservation, and community development to ensure long-term protection and generate carbon credits.
- With threats like de-gazetting for aquaculture and renewable energy development, conservation efforts

can be positioned as additional.

- Initiating blue carbon projects instead of de-gazetting can demonstrate additionality and ensure forest protection.
- Blue carbon projects are expensive and require large scale to be profitable. Issuing bonds involves high costs for carbon standard and verification fees, monitoring, reporting, and subscriptions to standards. Projects need to be extensive (tens of thousands of hectares) to generate significant revenue.
- Carbon credits sell for an average of \$25 per tonne. Some companies may pay higher prices (e.g., Microsoft pays \$400 per tonne due to additional benefits like women empowerment). Depending on activities and marketing, credits could potentially sell for up to \$100 or \$150 per tonne.
- Significant upfront investment in time, effort, and money is required. Large-scale projects are necessary to generate sufficient funds for government, community, and administrative costs.
- In essence, Sri Lanka needs to focus on large-scale conservation projects with significant upfront investment and strategic marketing to successfully produce and trade carbon credits.

As a newcomer, what can Sri Lanka learn from credit certification and credibility fiascos such as Vera, where carbon credits were found to be null and void?

Anushka Wijesinha, Centre for a Smart Future

- *We aren't trying to be ambitious, as a newcomer, most of our work is made up of one or two site-specific projects. We have the privilege of learning from others, and the privilege of knowing that you need to build a community role in how conservation takes place and how funds are spent.*

Shiranee Yasaratne

- *Adaptation is crucial for Sri Lanka, given the challenges faced by coastal communities, fisheries, and agriculture. We need to collaborate with communities to create action plans and gradually allocate funds accordingly. The state aims to utilize this funding to achieve net-zero emissions, recognizing the importance of adaptation, particularly highlighted at the climate summit.*
- *Despite the emphasis on mitigation, adaptation remains underfunded. Even if we can gather some funds for mitigation and collaborate with private companies, we should establish clear formulas and agreements with the government.*

Since we're a biodiversity hotspot, should we be looking at bio credits as opposed to carbon credits?

Susantha Udagedera

- *While biodiversity credits are being explored, there is no significant global demand for it since countries are rushing to meet their NDC*

targets. There is a lot of interest in carbon credits and carbon project development to meet that need. While we can explore biodiversity credits, there aren't enough buyers willing to invest and you need biodiversity assessments and hard quantification processes that is a little bit harder to quantify than carbon credits.

- *Additionally, however, carbon credits don't have to be done in isolation. They could be done in tandem with biodiversity credits. There are many different credit variations which could be done in conjunction with one another.*
- *When considering blue carbon projects, even if there is not a lot of mangrove extent, you can combine mangrove blue carbon, seagrass blue carbon, and normal sediments and you can conduct agroforestry alongside these different plantations.*
- *A huge part of blue carbon is livelihood and poverty alleviation and women's empowerment. These are components that you can tag along to your project, so you demonstrate impact that is additional to ecosystem impact. For instance, even if the VNR is 1800 or 1700 hectares, you can include an expanded area along the VNR to include some settlement, some of the seagrasses, to include 3000 to 3000 more hectares, for a more holistic project and channel all of these to get a higher return on investment.*

We have committed to several obligations under our NDCs, but if we're looking at a blue carbon project with a foreign body, what's our model, considering the complications that arise from things such as double accounting? Is there something Sri Lanka can consider to push its NDC targets forward?

Susantha Udagedera

- *Double accounting refers to the country purchasing a carbon credit includes it in their greenhouse gas inventory, while the country issuing the credit also includes it within their inventory.*
- *To answer that, we need to consult the climate change secretariat.*
- *For the NDCs, we have conditionally and unconditionally agreed to some targets, so when we look at the carbon crediting system, we have to exclude the conditionally agreed carbon emissions targets. However, for NDCs we need to be progressively ambitious with or targets.*

In the Sri Lankan context, is there significant potential to get credits from salt marshes and has anything been done with this or is the focus purely on mangroves?

Susantha Udagedera

- *Sri Lanka has a lot of focus on mangroves and secondarily sea grasses, and we don't have much data on salt marshes*
- *While the VNR is a varied ecosystem that contains all three, salt marshes*

- *are barely represented in discussions.*
- *One reason could be the fact that salt marshes are not as productive as mangroves and sea-grass, which might also indicate as to why they are more central to our conservation.*
- *But there hasn't been a lot of work that has been put forward for salt marshes*
- *In Sri Lanka, we didn't characterise what a salt marsh. What we have on the eastern coast is considered a salt marsh in temperate countries but here it's called a reef. Currently Sri Lankan scientists are working on characterising salt marshes first, and then we need to move forward on the mapping and research.*

RESOURCES TO GET STARTED

Wetlands International

[Landscape GHG Accounting Guidance](#)
Developing Landscape-scale Carbon Projects

A High-level Panel for a Sustainable Ocean Economy

[The Blue Carbon Handbook](#)
Draws on the comprehensive literature on blue carbon ecosystems developed over the last decade, aiming to distil key concepts and information. Intended for non-specialists who are starting to consider blue carbon opportunities, and to act as a reference guide to gain a broad understanding of the subject to support decision-making

The Blue Carbon Initiative
*Blue Carbon and Nationally
Determined Contributions*

A guide on how countries may include blue carbon in their Nationally Determined Contributions

Gallifrey Foundation
Blue Carbon: Mind the Gap

Summarises the key challenges to the development and replication of blue carbon projects and proposes specific comprehensive action.

**The Open University of Sri Lanka and
the University of Kelaniya, Sri Lanka**
*Assessment of Blue Carbon Stock of
Mangroves at Malwathu Oya estuary,
Sri Lanka*

Research on the Blue Carbon Stock of Mangroves at the Malwathu Oya Estuary

