

March 2021

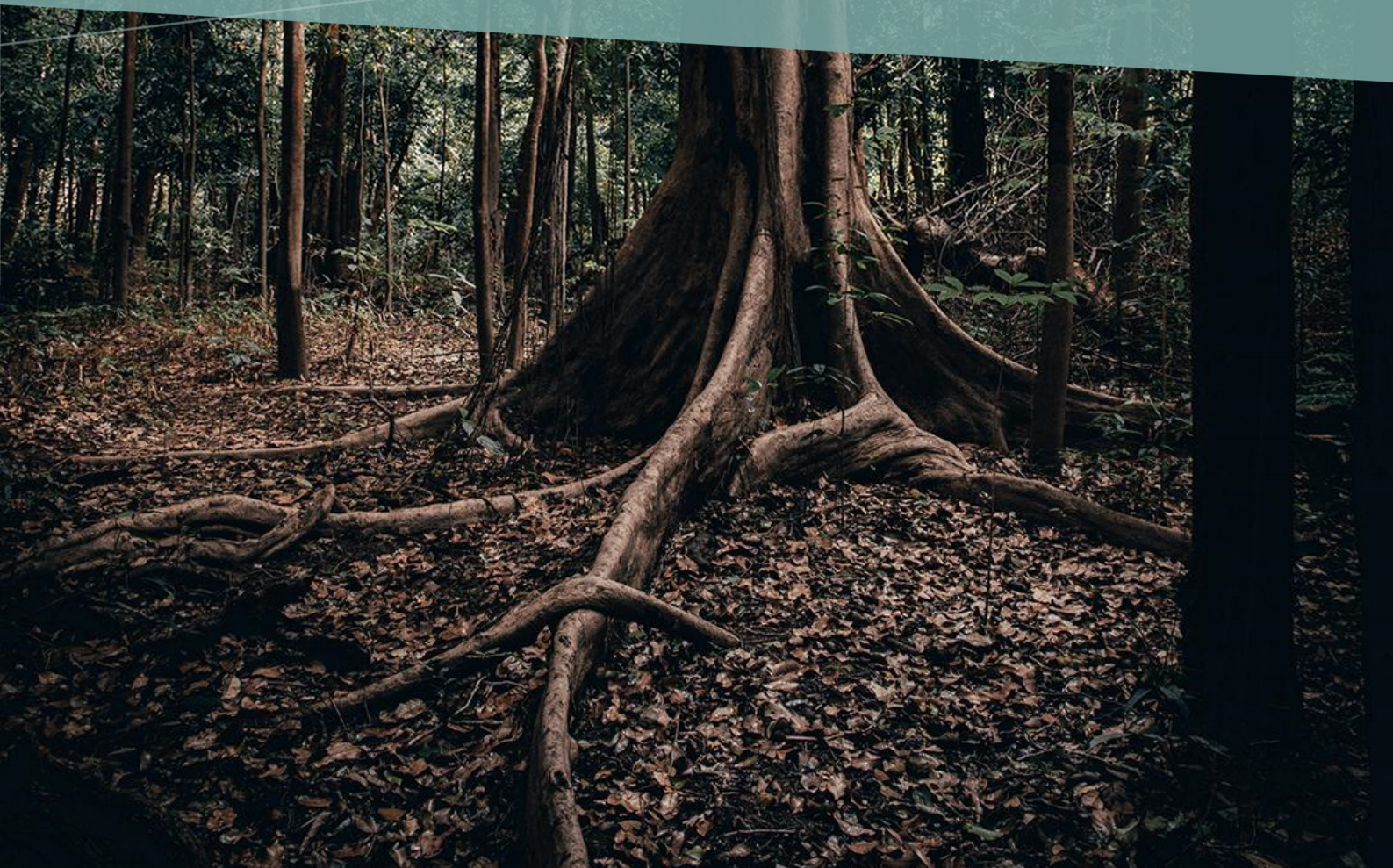
TERRANOMICS



Executive Summary

Feasibility study on market potential and drivers of nature-based businesses in Southeast Asia

Prepared by Terranomics & Sustain Value for RS Group



Executive summary

Background

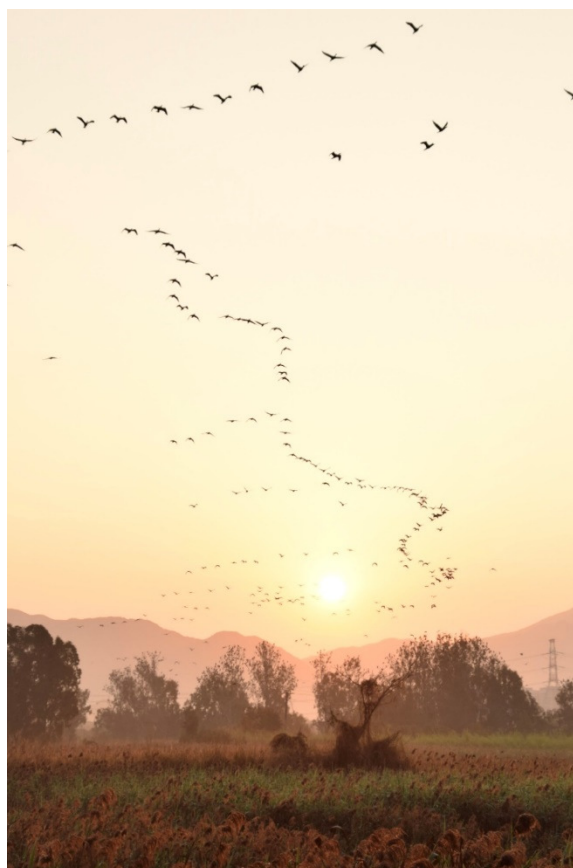
As the world prepares to cope with an enduring COVID-19 pandemic and resulting crisis, the human population faces an unprecedented opportunity to change the way we eat, live, grow, build and power our lives so we achieve a carbon-neutral, nature-positive economy and halt biodiversity loss by 2030. To get there, a fundamental transformation is needed across three major socioeconomic systems – food, land and ocean use; infrastructure and the built environment; and energy and extractives. These systems together endanger 80% of threatened and near-threatened species but also provide the largest economic opportunity to co-create nature positive pathways.

The food, land and ocean use system shares by a wide margin the biggest burden – at the same time, these systems represent around USD 10 trillion of GDP and up to 40% of employment globally. Within that broader system, we see a major investment need with five complementary socio-economic transitions that could together place food, land and ocean use on a pathway to sustainable development:

1. Ecosystem restoration and avoided land and ocean use expansion.
2. Productive and regenerative agriculture & commodities.
3. Sustainable management of the ocean and its resources.
4. Sustainable management of forests.
5. Transparent and sustainable supply chains.

Business opportunities associated with these five transitions are gaining traction with leading stakeholders and sustainability-conscious consumers – as well as with private investors globally. However, the vast majority of private investment funds that have raised capital for nature-based or nature-focused investment strategies are geographically orientated on or even restricted to countries outside of Asia. To unleash more private investment capital into nature-positive businesses in Asia, there is a need to grow the supply of cash flow-generating projects that can be structured to provide risk-return profiles commensurate with investors' expectations.

The objective of this feasibility study is to understand the market potential of nature-based or focused businesses in Southeast Asia across the five socio-economic transitions listed above, laying the ground for targeted interventions through a Nature Venture Builder (NVB) - to be established by RS Group and partners - that creates a supportive ecosystem for the most promising businesses in the region to thrive.



Methodology

Under the overall steer of RS Group and Posaidon Capital, Terranomics and Sustain Value undertook this feasibility study through three phases:

- 1. The state of nature based-businesses¹ in Southeast Asia** – here we analysed archetypes of nature-based business models with a focus on Southeast Asia, segmented between the five economic transition themes identified under ‘Background’ above. Our research incorporated desk review and interviews with experts across the transition themes.

A scoring approach was applied to this process to help prioritize the business models analysed. This was focused on four key considerations: the strength of their direct impact pathway on nature and society, prevalence in the region, growth potential and interviewee sentiment towards them. This phase also included assessing business models that are not yet common in the region but have potential to become so in the future.

- 2. Potential for scaling and replication of nature-based businesses across Southeast Asia** - we then identified potential operational challenges faced by a shortlist of business models along with the enabling conditions needed for them to scale and be replicated significantly in the region. This was accompanied with an analysis of the existing landscape of incubators, accelerators and initiatives in the region which could support these business models; and
- 3. Prioritizing business models** – we then provided a proposed ranking of the shortlisted business models, and recommendations for how the NVB could engage with the business models going forward.



¹ This methodology considered nature-based businesses to include either a) models with a measurable positive impact on biodiversity (e.g. establishment of biodiverse forestry plantations on degraded lands); b) models which help to avoid biodiversity loss by reducing forecast net loss or degradation of habitat (e.g. REDD+); and c) models which support the protection of natural habitats through providing locals with income incentives to protect it (e.g. community ecotourism ventures adjacent to coral ecosystems etc).

Summary of key findings

Over 50 different business models were identified and assessed during this study. Below we highlight the business models that scored in the highest bracket based on the factors described above.

1. The state of nature-based businesses in Southeast Asia

Top scoring business models included:

Business Model	Description
1. Ecosystem restoration and avoided land and ocean use expansion	
i) Indoor recirculating aquaculture systems	<ul style="list-style-type: none"> Farming fish or shellfish in integrated indoor facilities with re-circulating water systems. Helps avoid mangrove deforestation for ponds, reduces water pollution and can make supply chains more efficient.
ii) Hotels/tourism based coastal habitat restoration	<ul style="list-style-type: none"> Eco-resorts and hotels restoring their own or adjacent land/seascape as part of their operations. Contributes to enhancing local degraded ecosystems.
iii) Mangrove based PES	<ul style="list-style-type: none"> Utilising multiple revenue streams from mangrove ecosystems to finance its management and conservation. Revenues include blue carbon, commodities (e.g. Nypa palm sap), fisheries, tourism etc.
2. Productive and regenerative agriculture & commodities	
i) Sustainable independent palm growers	<ul style="list-style-type: none"> Supporting independent small growers to replant and improve productivity. Helps avoid expansion into natural forest and can improve farmer livelihoods.
ii) Promoting agroforestry in tree cash crops	<ul style="list-style-type: none"> Supporting farmers to adopt agroforestry e.g., jungle rubber systems, shade grown coffee etc. Can mimic canopy structure of secondary forest with additional benefits when native tree species used, reductions in agrochemical inputs and improved soil health.

3. Sustainable management of the ocean and its resources	
i) Integrated marine payment for ecosystem services (PES)	<ul style="list-style-type: none"> Utilising multiple revenue streams in marine ecosystems to finance its management and conservation. Often involves supporting Marine Protected Areas, with revenues from tourism, fisheries, coastal protection, blue carbon etc.
ii) Sustainable aquaculture certification	<ul style="list-style-type: none"> Aquaculture operations that enhance and market their sustainability (e.g. through Aquaculture Stewardship Council certification and Aquaculture Improvement Projects). Reduce impacts to coastal habitats and water quality.
iii) Seaweed production	<ul style="list-style-type: none"> Seaweed farming production, collection and processing to scale up operations and make it more efficient. Requires no feed or chemicals, can help protect shoreline and has multiple product uses.
4. Sustainable management of forests	
i) Forest carbon projects	<ul style="list-style-type: none"> Developing new REDD+ projects or investing in ones already in development/being piloted. Direct forest conservation, restoration and SFM with strong biodiversity and ecosystem service benefits along with potential for social benefits.
ii) Forest payments for ecosystem services (beyond carbon)	<ul style="list-style-type: none"> Restoring degraded forest ecosystems so that they provide ecosystem services and habitat function at similar scale to undisturbed forest areas. Sale of the ecosystem services to downstream payors and/or habitat credits as part of market-based compensation mechanisms.
5. Transparent and sustainable supply chains	
i) Software as a service (SaaS) traceability – agriculture & forestry	<ul style="list-style-type: none"> Digital solutions to allow agriculture and forestry products to be tracked from growth to consumer, ensuring sustainability. Helps combat illegal/unregulated logging.

Innovative business models not yet implemented in Southeast Asia

Beyond this, other innovative business models not yet common in the region but with high potential were identified including soil carbon project development, 3D coral printing, multi-species commercial plantations and DNA/Isotope traceability amongst many others.

2. Potential for scaling and replication of nature-based businesses across Southeast Asia

Operational and enabling environment challenges

For each of the shortlisted business models we provided further analysis into the key issues affecting their scalability and replication potential across Southeast Asia, informed to a degree by further stakeholder interviewing. Common issues identified include (but were not limited to):

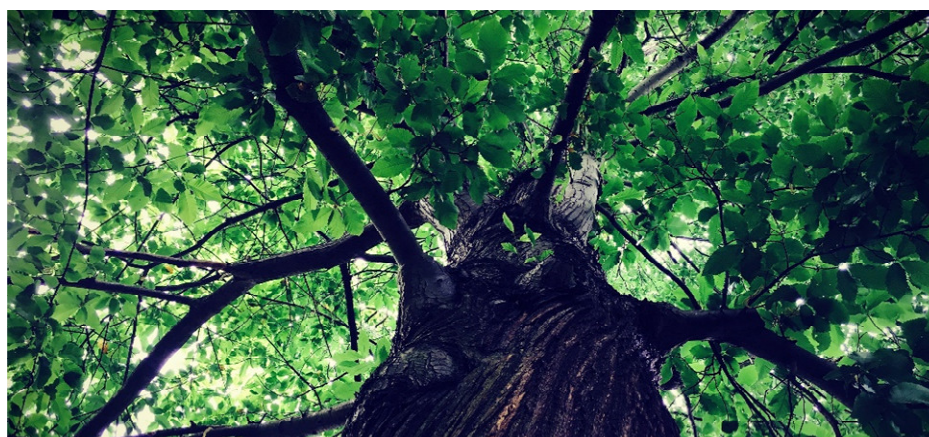
- Limited availability and suitability of established projects;
- Market pricing volatility;
- Lack of agreed international standards;
- Need for improved measurement and monitoring protocols and techniques;
- Presence of sufficiently skilled workforces for implementation;
- High up-front costs and large investments needed in local stakeholder and community engagement;
- Potential for social conflict and lack of established benefit sharing mechanisms;
- Uncertainty over land tenure/access rights and poor land/marine governance;
- The need to manage complex multi-stakeholder partnerships;
- Public subsidies and policies that disincentivise adoption of new production methods;
- Lack of supportive government regulations and standards;
- Need for sufficiently strong rule of law and political stability in key countries; and
- Climate change threats.

The significance of these issues for each business model was analysed and informed the subsequent prioritization of business models in Phase 3.

Potential for partnerships in the region

We identified over 20 incubators and accelerators which have relevant activities in the region for the NVB. In theory this means there could be a steady pipeline of businesses who have completed a piloting phase and are established, ready for the 'post-acceleration' support which has been proposed as a value-adding function of the NVB.







The topic of 'Natural Climate Solutions' (NCS) and 'Nature Based Solutions' (NBS) has attracted a great deal of attention over the past two to three years both globally and within Southeast Asia. There are multiple initiatives that seek to promote their importance, share knowledge, convene actors and facilitate collaboration in this area. These initiatives could be useful to help NVB build connections with potential investee project developers and companies.



3. Prioritizing business models

Based on the findings from Phases 1 and 2, RS Group decided to pursue Business Models along two 'vertical' categories - Terrestrial and Marine, focusing on those that integrate multiple revenue streams (with a focus on carbon) to enhance their resilience and likelihood of long-lasting impact. Under each vertical category are three prioritized business models that may be the focus of an integrated project, combining one or more elements of the other business models. These are summarized in Figure 1 below.

Figure 1 Prioritized business models for further exploration

Terrestrial Business Models	Marine Business Models
Forest Carbon/PES+* 	Integrated MPA management with Blue Carbon 
Agroforestry commodities with Carbon 	Mangrove Blue Carbon+ 
Soil Carbon 	Seaweed production & processing with Blue Carbon 

* + refers to additional revenue streams such as sustainable commodities that provide further resilience to the business model.

Terrestrial Business Models

Forest Carbon/PES+ - These business models are combined under one heading to provide flexibility and recognise the close operational linkages between them. They are selected for their potential to directly impact on high biodiversity ecosystems at scale, with well-proven transactions in the region, despite some of the broader policy and regulatory challenges.

Agroforestry commodities with Carbon - this builds from the tree crop agroforestry model, with the prioritisation of transactions that also have the potential to generate carbon credits, in order to diversify revenue streams.

Soil Carbon - this was selected as a business model with future potential for growth in Southeast Asia, where the NVB could potentially play an additional role in its early stages in the region. It also has good potential for integration with the other two Terrestrial business models through the potential impacts of agroforestry on soil health/organic carbon and restoration of peatlands within PES projects.

Marine Business Models

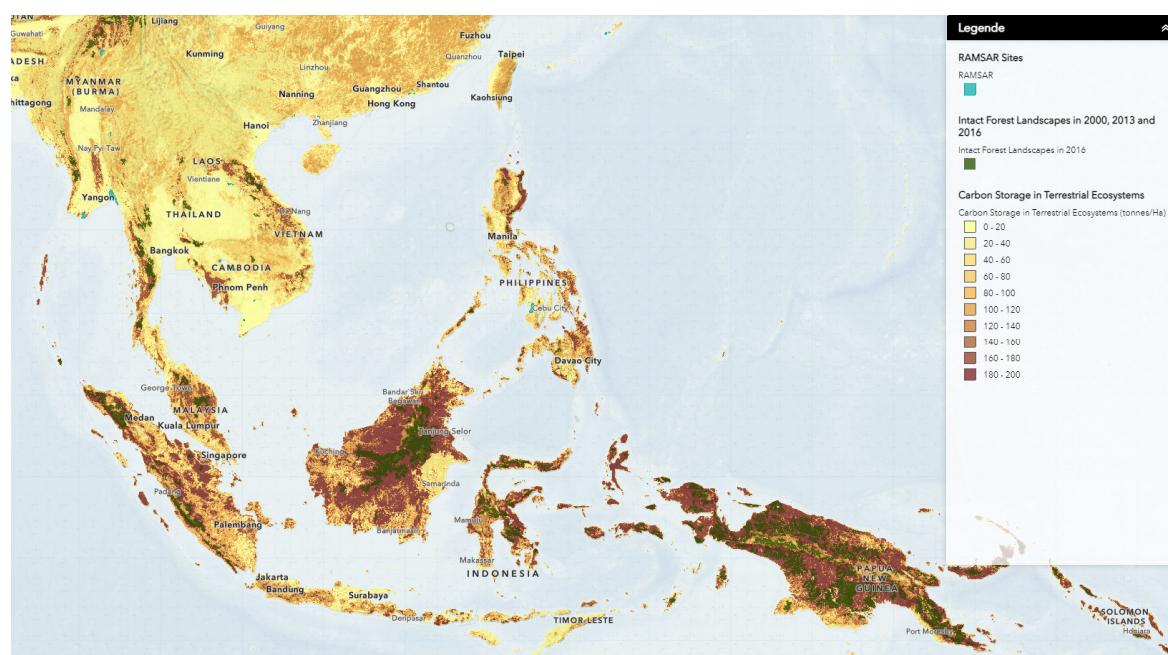
Integrated MPA management with Blue Carbon – This model involves a holistic approach to marine protected areas, utilising multiple revenue streams associated with MPA management. These can include multiple different sectors, such as tourism (e.g. user fees, diving fees), carbon markets (e.g. blue carbon stored in habitats within the MPA such as mangroves, and potentially seagrasses and seaweed), sustainable fisheries, aquaculture, and coastal protection (e.g. PES of green infrastructure). The model was selected because of its high positive impact potential and high growth potential given the large areas of poorly managed MPAs in the region and increasing political and financial sector interest in sustainable financing of MPAs and developing the blue economy.

Mangrove Blue Carbon+ – This model involves developing and marketing carbon credits gained from mangrove restoration and conservation projects in combination with generating alternative revenue streams from one or more other mangrove ecosystem services. Similarly to the previous model, revenue streams could come from integration of tourism, fisheries and coastal protection insurance. This was selected due to the high importance, abundance and restoration potential of mangroves in the region. It can also be integrated with the previous model.

Seaweed production and processing with Blue Carbon – Perhaps one of the most promising models in the coming years, this was selected because of the high impact potential of seaweed in that it requires no feed or chemical input for growth, improves water quality, and sequesters significant amounts of carbon which could generate a solid, new supply of carbon credits in the future. It is also possible to integrate with other business operations, providing a further revenue stream, for example integrating it within the MPA and Blue Carbon+ models.

Across both terrestrial and marine business models, the monetization of nature-based carbon solutions promises to be a key cash flow driver: the confluence of maturing carbon markets and associated price dynamics, new carbon conservation methodologies (e.g. for blue carbon) and corporate net zero commitments has driven substantial forward demand for nature-based carbon credits at least up to 2030.

Figure 2 Spatial analysis of terrestrial and marine carbon potential across Southeast Asia (source: WWF-SIGHT)



Next steps

RS Group and Posaidon Capital will be further developing the NVB concept during 2021. This will involve engaging with stakeholders active in the themes identified above to identify where the NVB could have greatest catalytic impact and play an additional role in the market. If you are interested to engage in this process, please contact yunichoi@rsgroup.asia.

Appendix - Acknowledgements

28 individuals were consulted during the research for this report. We would like to extend our thanks to the following individuals who participated in this process. Please note views expressed in this report do not necessarily reflect those of these individuals.

Name	Organisation
Abbie Trinidad	UNDP Asia Pacific
Aditya Rakhman	South Pole Indonesia
Ben Vickers	FAO Asia-Pacific
Dale Galvin	Deliberate Capital
David Ganz	RECOFTC
Gabriel Eickhoff	Lestari Capital
Iain Henderson	ADM Capital
James Dauman	RJ Fleming
Katherine Stodulka	SYSTEMIQ
Lorenzo Jr. Cordova	BIOFIN Philippines
Maricor Ebarvia	PEMSEA (Partnerships in Environmental Management for the Seas of East Asia)
Martin Forsen	Burapha Agro-Forestry
Matt Leggett	WCS Indonesia
Nichapat Na Thalang	Green Invest Asia
Nicolas Pascal	Blue Finance
Peter Kennedy	The Meloy Fund
Reginald Lee	Grow Asia
Rob de Jong	WWF Singapore
Simon Dent	Mirova Natural Capital
Simon Funge-Smith	FAO Asia Pacific
Simon Schillebeeckx	The Global Mangrove Trust
Tanja Havemann	Clarmondial
Tom Armstrong	Experience Travel Group

Tony Eng	Arise SEA
Veerle Haagh	SYSTEMIQ
Wei Dong Zhou	WBCSD China
Ying Li	TNC China
Zhongao Jin	WWF China

Report authors

The Terranomics consultancy team included Chris Knight, Jim Stephenson and Tom Chellew. Terranomics is a consultancy with 20 years of experience working on public and private sector approaches to environmental challenges. They are focused on using local and global financial systems to support sustainable land use, conservation and climate change solutions. Find out more at www.terrnomics.org.

The Sustain Value team was led by James Spurgeon with support from Andy Hurst. Sustain Value is a consultancy with over 25 years' experience advising businesses, financial institutions and governments on the valuation of environmental and social impacts and assets. They are leaders in undertaking natural capital and integrated capital assessments for decision-making and reporting. Find out more at www.sustainvalue.co.uk.

The lead consultants and RS Group were strategically advised by Fabian Huwyler at Posaidon Capital. Posaidon is a green finance advisory and investment boutique with over 30 years of investment experience across public and private markets. They are focused on structuring and managing scalable investment solutions for nature. Find out more at www.posaidon.earth.