SavePlanetEarth

Blockchain For A Better Planet

Transparent, immutable, accessible, and scalable carbon offsetting

OFFICIAL WHITE PAPER v5

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ACKNOWLEDGEMENTS

We are immensely grateful for the wealth of information available on the internet, which has contributed to the development of this work. The diverse range of resources provided by numerous online platforms and authors has been invaluable in broadening our understanding and enriching our research. Although we were unable to cite all sources by name, we deeply appreciate the knowledge and insights shared by the global online community.

Glossary

Adaptation Solutions	Strategies and measures designed to reduce the vulnerability of natural and human systems to the effects of climate change.
Afforestation	The process of planting trees in an area where there was no previous tree cover, with the aim of creating a new forest.
AI (Artificial Intelligence)	The simulation of human intelligence processes by machines, especially computer systems, used for monitoring and analysing data.
API Integration	Application Programming Interface (API) integration involves connecting different software systems to allow them to communicate and share data.
Bed-Raised Technique	A planting method where plants are grown in elevated soil beds, often used in agroforestry and reforestation to improve soil conditions and water retention.
Biodiversity	The variety of plant and animal life in a particular habitat, critical for ecosystem health and resilience.
Blockchain Technology	A decentralised digital ledger that records transactions across many computers so that the record cannot be altered retroactively.
Buffer Pool of Credits	A reserve of carbon credits set aside to account for any potential reversals in carbon sequestration, ensuring the permanence of emission reductions.
Canopy Layer	The uppermost layer of a forest, formed by mature tree crowns that intercept sunlight and provide habitat for various species.
Carbon Capture and Storage (CCS)	Technologies designed to capture carbon dioxide emissions from sources like power plants and industrial processes and store it underground to prevent it from entering the atmosphere.
Carbon Certified Logo	A mark that organisations can use in their marketing materials to indicate they have achieved certification for reducing greenhouse gas emissions according to recognised standards.
Carbon Credit	A permit that allows the holder to emit a certain amount of carbon dioxide or other greenhouse gases. One credit equals one ton of carbon dioxide or its equivalent.
Carbon Footprint	The total amount of greenhouse gases, including carbon dioxide and methane, that are emitted directly or indirectly by human activities, usually expressed in equivalent tons of CO2.
Carbon Neutrality	Achieving net-zero carbon emissions by balancing emitted carbon with an equivalent amount sequestered or offset or buying enough carbon credits to make up the difference.
Carbon Offset	A reduction in emissions of carbon dioxide or other greenhouse gases made to compensate for emissions produced elsewhere.
Carbon Pricing	A method of reducing global warming emissions by assigning a cost to emitting carbon dioxide and other greenhouse gases.
Carbon Project Design Document (CPD)	A detailed document outlining the activities, methodologies, and expected outcomes of a carbon sequestration project.

Carbon Sequestration	The process of capturing and storing atmospheric carbon dioxide. This can be done through biological processes like tree planting or technological processes like CCS.
Carbon Sink	A natural or artificial reservoir that absorbs and stores the atmosphere's carbon dioxide. Forests, oceans, and soil are examples of carbon sinks.
Carbon Sponge	A term referring to soil or other materials that absorb and retain carbon dioxide, helping to reduce atmospheric carbon levels.
CER/VER Carbon Credits	Credits that are either Certified Emissions Reductions (CER) from regulated markets or Voluntary Emissions Reductions (VER) from voluntary markets.
Climate Action	Efforts to reduce greenhouse gas emissions and enhance carbon sinks to mitigate the impacts of climate change.
Climate Change	Long-term changes in temperature, precipitation, and other atmospheric conditions on Earth, primarily due to human activities such as burning fossil fuels and deforestation.
Climate Regulation	Natural processes or human interventions that influence the climate system to stabilise or reduce the rate of climate change.
Comprehensive Information Disclosure	The practice of providing full and transparent details about a project's methodologies, impacts, and outcomes to stakeholders.
Deforestation	The large-scale removal of forests, leading to loss of trees and degradation of land.
Direct Emissions	Emissions from sources that are directly controlled by an organisation, such as emissions from company vehicles or on-site fossil fuel combustion.
Double Counting	A situation where a single carbon offset is claimed by multiple entities, leading to inaccurate reporting of actual emissions reductions.
Eco-Labelling	A certification process that identifies products or services meeting specified environmental standards.
Ecosystem-based Adaptation	The use of biodiversity and ecosystem services to help people adapt to the adverse effects of climate change.
Ecosystem Services	Benefits provided by ecosystems that contribute to making human life both possible and worth living, such as clean water, air, and pollination of plants.
Emission Reduction Targets	Specific goals set by an organisation or government to reduce the amount of greenhouse gases they emit.
Entropy vis-à-vis Blockchain Paradox	The concept exploring the contradiction between the energy-intensive nature of blockchain technology and its potential environmental benefits.
ESG (Environmental, Social, and Governance)	Criteria used to evaluate a company's operations and performance in terms of sustainability and ethical impact.
GHG (Greenhouse Gas)	Gases in Earth's atmosphere that trap heat, including carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O).

GHG Inventory	A comprehensive account of all greenhouse gases emitted by an organisation, typically including both direct and indirect emissions.
Global Warming	The ongoing rise in global average temperature near Earth's surface, primarily caused by human activities that increase greenhouse gas levels.
Greenwashing	The practice of making misleading claims about the environmental benefits of a product, service, or company practices.
Indirect Emissions:	Emissions that result from an organisation's activities but occur from sources owned or controlled by another entity, such as the emissions from purchased electricity.
ISO 14064-1:2018	An international standard providing specifications and guidance for quantification and reporting of greenhouse gas emissions and removals at the organisation level.
ISO EMS	The Environmental Management System standards set by the International Organization for Standardisation (ISO), particularly ISO 14001.
Lean Processing	A systematic method for waste minimisation within a manufacturing system without sacrificing productivity.
LECCNFT	Limited Edition Carbon Credit Non-Fungible Token
Mangroves	Coastal vegetation found in tropical and subtropical regions that provide critical ecosystem services, including carbon sequestration, coastal protection, and habitat for marine life.
Methane (CH4)	A potent greenhouse gas with global warming potential many times greater than carbon dioxide.
Multilayer Forests	Forests that have multiple layers of vegetation, including canopy, sub-canopy, shrub layer, and ground cover, to maximise biodiversity and carbon sequestration.
Nano Clay Particle Treatment	A technique used in desert plantations to improve water retention and soil quality by dispersing nano-sized clay particles.
Net-Zero Carbon	Achieving a balance between the amount of greenhouse gas emissions produced and the amount removed from the atmosphere.
NFT (Non-Fungible Token)	A digital asset representing ownership or proof of authenticity of a unique item or piece of content, often used in blockchain transactions.
Offset Wallets	Digital wallets used to manage and track carbon credits, ensuring transparency and preventing double counting.
Organic Agriculture:	Farming that uses environmentally friendly practices, avoiding synthetic inputs like pesticides and fertilisers, and often enhancing soil health and biodiversity.

PCS (Planetary Carbon Standard)	A framework developed by SPE to ensure the integrity and quality of carbon credits, promoting transparency and trust in the carbon credit market.
Photosynthesis	The process by which green plants and some other organisms use sunlight to synthesise foods with the aid of chlorophyll, typically producing oxygen as a byproduct.
Reforestation	The process of replanting trees in an area where forest cover has been depleted.
Regenerative Agriculture	Farming and grazing practices that rebuild soil organic matter and restore degraded soil biodiversity, improving the water cycle and enhancing ecosystem services.
Remote Sensing	The acquisition of information about an object or phenomenon without making physical contact, often used in environmental monitoring via satellites.
Renewable Energy	Energy from sources that are naturally replenished such as wind, solar, and hydroelectric power.
Seed Balls	Small balls made from a mixture of clay, compost, and seeds, used for planting trees and plants in a simple and effective way.
Socio-economic Impacts	The effects of an activity or policy on the social and economic aspects of a community or region.
Stakeholder Engagement	The process of involving individuals, groups, or organisations that may be affected by or have an interest in a project or decision.
Sustainable Development Goals (SDGs)	A set of 17 global goals established by the United Nations to address a range of global challenges, including poverty, inequality, climate change, and environmental degradation.
Swale	A shallow trench dug along the land's contour with a berm on the downhill side, used to capture water for passive irrigation and reduce erosion.
t/CO_2e (Tonnes of Carbon Dioxide Equivalent)	A measure used to compare the emissions of different greenhouse gases based on their global warming potential, expressed in terms of the amount of CO2 that would have the same warming effect.
Tokenomics	The study of the economics of a cryptocurrency or token, including its distribution, circulation, and supply.
Tree Planting	The act of planting trees to restore deforested areas, sequester carbon, and improve the environment.
UN Climate Change Conference of the Parties (COP)	An annual meeting of the parties to the United Nations Framework Convention on Climate Change (UNFCCC) to negotiate and assess progress in addressing climate change.
VER (Voluntary Emissions Reduction)	Carbon credits exchanged in voluntary markets where companies and individuals can buy carbon offsets to neutralise their carbon footprint.
Voluntary Carbon Market	A market where carbon credits are bought and sold on a voluntary basis, outside of regulatory frameworks.

1.0. Introduction

SavePlanetEarth (SPE) is an ambitious global initiative dedicated to combating the existential threat of global warming and climate change. We aim to develop and implement an array of programs targeting the most significant contributors to climate change, from carbon emissions to land use. In doing so, we seek to slow, and ultimately reverse, the catastrophic effects of global warming, preserving our planet for future generations. SavePlanetEarth (SPE) was founded in response to the devastating effects of global warming and climate change with the mission to address the urgent need for action to combat these challenges. By leveraging the emerging cryptocurrency market, we aim to support carbon sequestration projects worldwide and protect our planet.

Our planet is facing a critical juncture as the impacts of global warming and climate change threaten ecosystems, economies, and the lives of millions. To address this challenge, SavePlanetEarth (SPE) has developed a comprehensive strategy that harnesses the power of public interest, corporate engagement, innovative financing, strategic partnerships, academic backing, technical expertise and cutting-edge technology to drive meaningful and real climate action.

SPE envisions a world where simple, affordable, and effective mechanisms enhance carbon sequestration and establish robust emission control systems. By uniting stakeholders worldwide, we aim to combat global warming and maintain climate change at manageable levels. Utilising blockchain technology, SPE will create a transparent and verifiable system for carbon credits, promoting a unified and efficient global economy. As we innovate, we remain committed to neutralising the carbon emissions associated with blockchain technology.

Our mission is to develop and implement a diverse portfolio of programs to address the root causes of climate change, including afforestation, reforestation, renewable energy, soil regeneration, recycling, and enhanced marine climate management. To realise these goals, we are leveraging public interest, corporate support, and innovative financing mechanisms while also reducing emissions through greenhouse gas (GHG) accounting systems and strategies.

Our key objectives include:

1. Championing an ambitious global tree-planting initiative to accelerate regenerative natural forests.

2. Conducting a comprehensive review of the carbon credit market to identify and address issues such as inflated credits, double counting, and misaligned policies.
3. Driving systemic change towards a low-carbon economy by supporting the transition to renewable energy, promoting responsible land management, and advocating for sustainable consumption.

SavePlanetEarth is poised to usher in a new era of global climate action, guided by our unwavering commitment to addressing the most pressing environmental challenges of our time. By leveraging innovative technologies, engaging diverse stakeholders, and pursuing ambitious objectives, SPE offers a comprehensive and actionable path forward in the fight against global warming and climate change.

1.1. Vision

*"Driving the world towards a systemic change of **Low-Carbon economy**."*

SPE is set to provide accessible and effective strategies to increase carbon sequestration and establish efficient emission control systems. The intent behind these projects is to combat global warming and manage climate change to a tolerable extent. With a global reach, SPE will launch initiatives that will not only focus on mitigating global warming but also promote carbon sequestration and foster worldwide acceptance of our cryptocurrency, $SPE.

Asserting its independence, SavePlanetEarth plans to be wholly self-reliant by funding their environmental programs and rewarding their investors through profits generated from various activities. These include the sale of certified carbon credits, revenues from environmental initiatives, sales of produce and merchandise, and corporate usage of a tree tracking application.

SPE views blockchain technology as a promising future for the world, bringing together different regions to build a unified, efficient global economy. However, we acknowledge the current carbon footprint of blockchain technology, which largely depends on carbon-emitting energy sources. One of our significant goals is to neutralise the

carbon emissions from blockchain technology altogether, thus ensuring the technology's sustainability and environmental friendliness.

SavePlanetEarth's initiatives present an exciting confluence of environmental consciousness, advanced technology, and economic incentive. By harnessing blockchain's potential and mitigating its environmental impact, we aim to contribute significantly towards global environmental preservation and sustainable development.

1.2. Objectives

At SavePlanetEarth (SPE), we are driven by our commitment to bring about substantial climate action and tangible solutions to our planet's environmental crises. A key focus of our global ambition is to push for large-scale tree planting initiatives to expedite the regeneration of natural forests. We firmly believe in the power of trees as one of the most effective natural carbon sequestration tools and a crucial part of our strategy to mitigate the impacts of climate change.

While undertaking a comprehensive review of the carbon credit market, we have encountered several systemic issues. Inflated, non-genuine claims and double counting are significant problems that stem from projects struggling to align with the existing regulatory frameworks. Current guidelines, while established with good intentions and science, often present complex and cumbersome processes. This complexity can discourage potential participants and lead to a tendency towards rule-bending or the creation of poor-quality carbon credits. Such practices undermine the effectiveness and credibility of emission initiatives.

Imran Ali, Founder/CEO, at COP 26 with UN General Assembly President

Recognising these issues, SPE has taken a step forward to create the Planetary Carbon Standard. This standard aims to streamline the process of onboarding for small to medium project developers seeking to generate carbon credits. Our user-friendly approach simplifies compliance with the necessary regulations, reducing the barriers for potential participants and encouraging more inclusive participation in carbon credit creation.

The Planetary Carbon Standard not only facilitates an easier path to carbon credit generation but also ensures a high-quality, reliable outcome. This standard will reinforce the integrity of the carbon credit market, promoting transparency, trust, and value for all stakeholders. In doing so, we hope to enhance the overall effectiveness of carbon sequestration initiatives and promote a stronger, more resilient global response to climate change. We want to be a part of a systemic change toward a low-carbon economy.

COP28 Dubai - Blue Zone: President of Sri Lanka/Ex-President of Maldives

According to the 26th UN Climate Change Conference of the Parties held on 31st October – 13th November 2021 in Glasgow – UK, the global temperature must be brought down by 1.5°C. SPE is promoting organisations to become "**Carbon Negative**" instead of being carbon neutral to achieve this target.

1.3. Comprehensive Services

SavePlanetEarth (SPE) provides a comprehensive range of services aimed at promoting sustainability and mitigating the impacts of climate change. Our services are designed to empower individuals, households, corporations, and events to understand and reduce their carbon footprint, while supporting the development and implementation of eco-friendly projects and initiatives.

Here's an elaboration of the services offered:

- ESG Accounting, Strategy, Reporting and workshop training as per Global Reporting Initiative.
- Eco-labelling and Global Warming Potential.
- Carbon footprint calculations.
  - Individuals.
  - Households.
  - Corporates.
  - Events.
- ISO14001 – Environment Management Systems.
- Tree Planting Developments including design, implementations, monitoring using Artificial Intelligence and machine learning.
- Carbon Credit tokenization sales on blockchain for

transparency (Verifiable and certified).

- Reduction of carbon footprint through education.
- Reduction of emissions through lean processing.
- Generating Certified and Verified carbon credits through Planetary Carbon Standard (PCS) framework.
- Monitoring and reporting of nature-based projects and renewable energy projects.
- UNSDGs.
- Supply of plants and trees for green projects.
- Marketing and raising awareness of third-party nature-based projects.
- Consultancy for the design of nature-based/renewable energy projects.

To summarise, we:

- Develop and execute nature-based and ecological projects (such as planting trees, initiatives involving renewable resources, etc.) for third parties, adhering to carbon standards with Project Documentation and Monitoring until maturity and beyond.
- Work out the carbon footprint and GHG protocol emissions – as per the ISO 14001 – of individuals and organisations alike, utilising several sets of everyday

habits/patterns as a baseline to provide an estimate of carbon emissions provided by that party. These estimates would then be used as references to determine which habits/patterns can be curbed or altered to lower emissions.

- Carbon footprint of a product like Eco Labelling or GWP (Global Warming Potential). Basically, it's a cross-reference of products (e.g.: appliances), to narrow down which ones are more suitable for an eco-savvy preference.
- Help organisations reduce their carbon footprint through edification and guidance, as well as advise them on reducing emissions through lean processing and manufacturing.
- Generate and sell certified Voluntary Emission Reduction (VER) carbon credits in the open carbon market. These credits would be generated from the various carbons sequestration projects we engage in, and the proceeds that come from selling these credits – to those eager to offset their emissions – would be used to fund even more such projects. Provide an easier means of determining carbon sequestration practices via our very own "Planetary Carbon Standard" (PCS) – a version of a carbon standard that can be accessed and used by anyone
- Fortify an Environmental, Social, and Governance (ESG) framework that helps stakeholders understand how an organisation manages risks and opportunities related to the aforementioned criteria.
- Complete training on ISO 14064-1:2018 international standard
- Complete assessment of the supply chain to identify "Direct "and "Indirect" emission sources.
- Guidance for quantification of identified relevant emissions.
- Design and development of the GHG manuals, procedures, and carbon inventory report.
- Identify ways to reduce emissions and guidance to set emissions and reduction.

SPE also employs its One Smart Management System, which includes all three international systems and certificates (ISO 9001:2015 QMS, ISO 14001:2015 EMS, ISO 45001:2018 OH&S).

Workshop sessions on PCS methodologies in Hong Kong

1.3.1. ISO 14064-1:2018

A way forward to reduce the impact on Climate Change

Global warming and its impact on Climate Change have become a real threat to the nations. Weather patterns are changing, sea levels are rising, and climate events are becoming more extreme. To pass on this message to Global Community, United Nations has introduced Seventeen (17) Sustainable Development Goals (SDGs) and requested to develop strategies and actions in meeting the Goals for decarbonisation of all aspects of the economy. Goal 13 is on Climate Action which indicates,

"Take urgent action to combat climate change and its impacts".

In this context throughout the world, countries are devising different comprehensive strategies to reduce the impact by arresting Greenhouse Gases (GHGs) released into the environment. In this context, more and more organisations are committing to carbon neutrality to reduce the total emissions released to the environment contributing to having a zero impact on Global Warming because of their operational activities.

Considering the gravity of this issue, International Organization for Standardization (ISO) has developed International Standards to facilitate public and private sector organisations to reduce the releasing of GHG gases to the environment. As a result of this process, the ISO 14064-1:2018 standard "Specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals" has been developed and published.

ISO 14064-1: 2018 exists as a guide for the private and public sectors in developing GHG inventories for their

organisation as well as a foundation for policymakers and program developers for initiatives to address the global environmental challenge of climate change. ISO 14064-1 has applications for both the private and the public sectors. For businesses, the standard provides the steps to develop an inventory that not only can be easily verified but can be compared to the inventories of other organisations. In other words, ISO 14064-1:2018 details the principles and requirements for designing, developing, managing, and reporting GHG emissions for an organisation or company leading to a reduction of GHG emissions.

1.3.2. Certification to ISO 14064-1:2018 and its benefits

An Internationally recognised certificate can be obtained against ISO 14064-1:2018 standard for any public or private sector organisation from a third party assuring that a sound mechanism is available within the certified organisation to reduce the GHG emissions of its operational activities. Once the certification is achieved the organisations can use the Carbon Certified logo (Carbon Footprint) in their advertising materials as part of the marketing campaign. Moreover, the carbon footprint quantification and reporting mark is another step towards the net zero carbon goal. This will allow the company to identify emission hotspots, set emission reduction targets, and implement offsetting strategies as part of its Climate Action program.

1.4. SPE Carbon Footprint Calculator

Another carbon abatement and instant carbon offset initiative will be located on the SPE website, a personal and corporate Carbon Footprint Calculator. The output displays the number of carbon credits to offset this t/CO_2e value.

To offset immediately, redirection and purchase of carbon credits to the SPE marketplace will take place considering transaction emissions and minting a Non-Fungible Token—a digital signature—as proof of purchase and auditing. This method simplifies the purchase of carbon credits for consumers, and we anticipate that retail investors and individuals will be the primary users of this feature. However, companies can use this feature too. The world is digitising; pollution and greenhouse gases are no exception. SPE will provide a

comprehensive and scalable platform for organisations to calculate, track and report their carbon reduction initiatives.

Seminar on generating Carbon Credits utilising the PCS framework.

Cyberport HK: Exploring ESG strategies for Chinese and Hong Kong Companies and Carbon neutrality.

1.5. Operations

SavePlanetEarth (SPE) is committed to transforming atmospheric carbon into soil carbon by promoting the plantation of natural forests. This essential process aids in the reconstitution of the **"Soil Carbon Sponge,"** a natural phenomenon that combats desertification and poverty. Simultaneously, it plays a pivotal role in reversing climate change, as a decrease in atmospheric carbon directly contributes to a reduction in carbon dioxide levels.

In pursuit of this goal, we have established nurseries in various regions across the globe. Each nursery is meticulously designed to contribute to

our mission while also adapting to local conditions. A key feature of our approach is the incorporation of innovative water conservation methods, such as the Rainwater Harvesting System. By utilising this system, we not only reduce our production costs but also significantly decrease our carbon footprint.

Our nurseries in Pakistan and Sri Lanka are pioneering examples of this practice, being the first of their kind to utilise rain-harvested water. This approach allows us to be both environmentally and economically efficient, while also setting a precedent for other nurseries in these regions.

Our nurseries serve as the breeding ground for a variety of saplings, plants, and seed balls, all of which are vital for our planting sites. We tailor our techniques to suit the unique circumstances of each location, taking into account factors such as climate, plant variety, rainfall, and soil type.

Furthermore, SPE's team of technical experts provide guidance to the nursery staff, advising on most suitable methods for different plant species and planting sites. Through this specialised knowledge and practical guidance, we ensure our planting efforts are effective, sustainable, and tailored to the local environment. This holistic approach ensures that we maximise our impact in the fight against climate change, poverty, and desertification.

1.6. Company Structure

SavePlanetEarth (SPE) is strategically registered in jurisdictions that are favourable to blockchain technology. Presently, SPE is registered as an International Business Company in the United Arab Emirates, joining the ranks of notable companies such as Binance and others that also operate within this forward-thinking environment.

The UK subsidiary of SPE is currently undergoing dissolution due to the absence of active planting operations in the region. Following advice from accountants and advisors, this decision was made to eliminate unnecessary administrative tasks and costs. The fiscal regulations in the UK, which are not particularly accommodating to crypto-related ventures, would potentially inhibit community benefits, staking, buy-backs, burns, and introduce banking complications typical for blockchain

enterprises. As a profit-driven business, we find it essential to avoid such obstacles.

However, it's important to note that if operations were to be initiated in the UK and the EU, the entity would be reinstated as per our financial advisors' recommendations. We are keen on maintaining our focus on the UN Sustainable Development Goals (SDGs) for food security and poverty alleviation in developing countries, which exert a profound positive impact at grassroots levels.

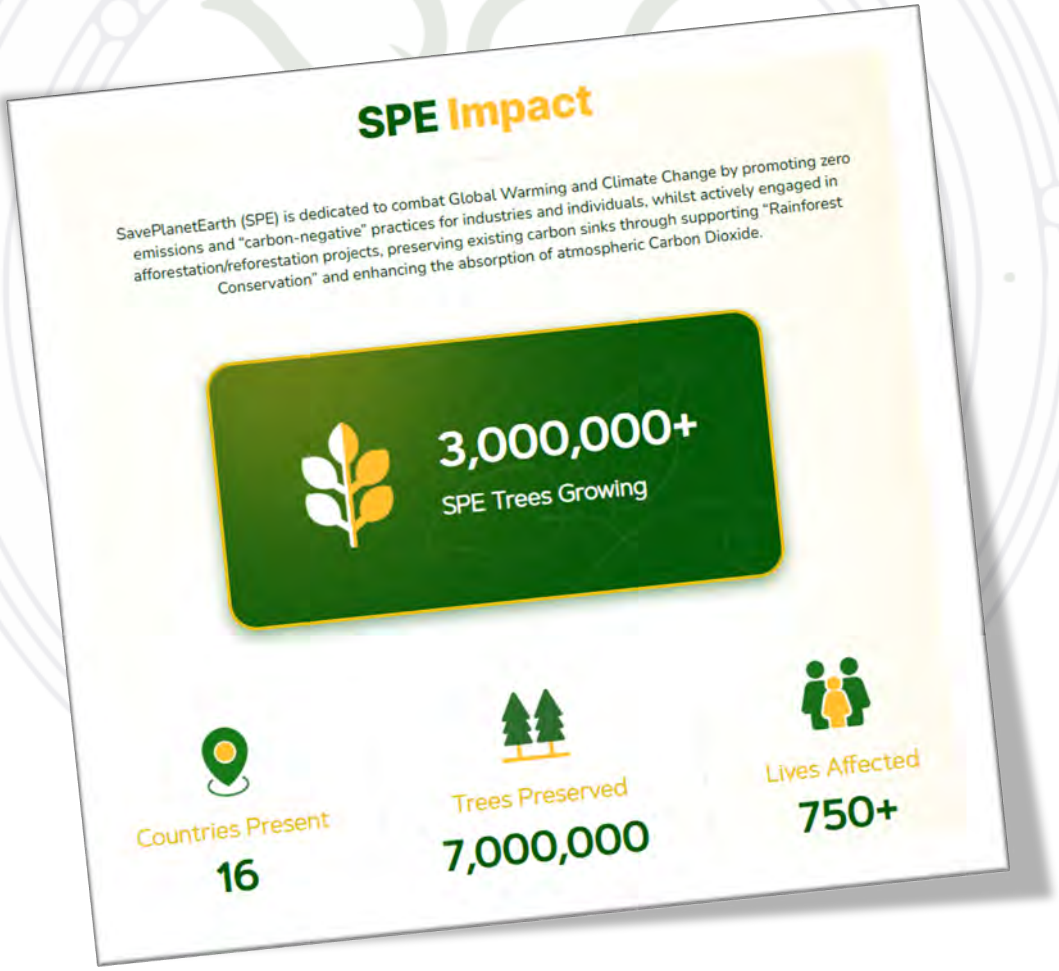
Being registered in these crypto-friendly jurisdictions allow us to seamlessly kickstart development and on-ground projects without any restrictions. Moreover, it ensures we secure revenue in a way that benefits our cause, our community, and our future initiatives the most.

Climate Leadership awarded in Turkey

For further geographical coverage, we have set up SPE Maldives Pvt Ltd and SPE Pakistan Pvt Ltd, which are intended for planting agreements with both private and public sectors to generate revenue and enter into agreements. Additionally, SPE Dubai and SPE Sri Lanka have been established for revenue generation, ESG Strategies, consultancy, and studies related to planting. SPE Sri Lanka is currently in the process of incorporation; meanwhile, a local intermediary assist with operations such as planting and managing nurseries.

The incorporated and registered company names for our current entities:
Save Planet Earth Environmental Consultants and Studies, United Arab Emirates, Dubai.
Save Planet Earth Ltd, Maldives.
Save Planet Earth Ltd, Pakistan.
Save Planet Earth Pvt Ltd, Sri Lanka.
Planetary Carbon Standard Pvt Ltd, Singapore.
Planetary Carbon Standard Pvt Ltd, United Kingdom.

Our strategic global positioning enables us to extend our positive impact, driving us closer to our goal of mitigating climate change and creating a sustainable future.



2.0. The SPE Team

Imran Ali,

Founder / CEO

Robert Greene,

Founder/ CTO/ CFO

"Our main motivation for starting this project? The answer is simply our love of the environment and being duty-bound to work towards carbon abatement; and same goes for all the SPE team."

Kumudini Bandara
Operation Manager (General)

Dr. Thorsten Wuest
Sustainability Manager (Green Supply Chain)

Dr. Priyantha Wijesooriya
Senior Technical Advisor

Prof. Rahula Attalage
Technical Advisor

Dr. Usman Bajwa
Forestry/Biodiversity

Fahim D.
Senior Full Stack Developer Smart Contract/ Blockchain Expert

Hazim Zubiar
Full Stack Developer
Graphic Design

Jeewanthi Gamage
Research – BEng Bio-Technology, SLIIT

Mubarak Ahmed
Carbon Associate

3.0. Global Warming

The effects of global warming have rapidly emerged during the last century with noticeable devastation, including disappearing glaciers, rising ocean levels, increasing ocean acidity, widespread extinction, and rapidly elevating carbon dioxide levels. This deterioration of the natural environment accelerates, with commercial interests almost always take precedence over ecological concerns. Implementing activities to support afforestation, reforestation, conservation, and overall environmental safeguarding is the only way to reverse this dire situation.

Carbon sequestration involves naturally capturing atmospheric carbon dioxide (CO_2) back into the Earth to slow or reverse CO_2 pollution and mitigate climate change. This process offers incredible hope in the war against global warming because trees, mangroves, corals, and other natural structures sequester carbon all the time. However, humanity has destroyed many of these valuable ecosystems, and the rate of destruction has increased dramatically during the last hundred years. We must initiate carbon sequestration projects now as they can no longer be a vague future-plan.

Adequate financing and support will play an essential role in reinforcing the carbon sequestration processes. People worldwide are searching for new ways to contribute to the war on global warming, slowing the ongoing climate change, and improving conservation efforts. However, traditionally the fight against global warming has been left up to large bureaucratic institutions and

governments, which have little to show for all the money spent at the taxpayers' expense.

The environment is not something to be left at the behest of donor communities, and it certainly cannot beg for its survival. We must seek to institute proactive methods to sustain the natural environment for our survival and the survival of our children. Current carbon-based revenue systems and taxes on polluters must be strengthened and adapted to the 21st century.

The need for innovative financing seems to have found its niche in the burgeoning cryptocurrency market that allows institutional and private investors to make wholesome investments to fight against global warming. This framework of innovative financing and our capacity to achieve grassroot-level actions inspired SavePlanetEarth to utilise blockchain technology in our fight against the devastating effects of climate change.

We plan to significantly change the Earth's landscape through carbon sequestration in coordination with international aid organisations and the public alike through strategic partnerships, academic backing, and an emerging cryptocurrency community. Our overall goals include enhancing worldwide tree cover, better marine management, and lobbying for more meaningful legal controls. The existing commercial market needs to wake up and face the real costs of climate change because it affects everyone, from polluting mega corporations to sustainable subsistence communities across the planet.

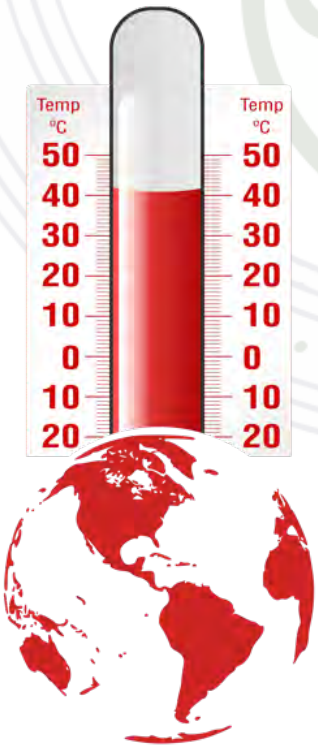
It is no surprise that more people are starting to take the troubles of climate change seriously and are already adapting to some measures in altering their lifestyle to reduce their carbon footprint. These decisions have a "hit or miss" sort of influence that may prompt people in their circle — such as family members, friends, neighbours, and co-workers — to do the same. It is always positive news when more people turn to experts, trusted sources, and fact-based studies and plan to do their part in minimising their carbon footprint, ultimately reducing greenhouse gas (GHG) emissions.

3.1. Formation of SPE

The effects of global warming appear everywhere, including rising

ocean levels, acid rain, sudden and unpredictable weather extremes, as well as the most powerful cyclones and hurricanes ever experienced. We cannot take these effects lightly; they deserve enhanced public attention, and most importantly, action. The impact of global warming affects current society and will only be compounded for future generations if nothing gets done.

Some efforts to combat global warming and climate change have been initiated, but the majority either think it is somebody else's problem to solve or simply claim they will do something later; meanwhile, the pollution is at record highs and is not slowing down. It has been far too little and, if humanity waits much longer, far too late. Lack of action on climate change is often attributed to a lack of necessary total funding and funds being entrapped in bureaucratic processes and not reaching projects promptly. We need new and innovative financing to support strategies that combat carbon emission build-up. This includes funding projects directly and developing innovative funding mechanisms. The emerging cryptocurrency market is an influential international currency system that can help to combat these funding issues and help aid in the sequestration processes to combat global warming. Addressing these climate challenges is why we founded SavePlanetEarth (SPE).



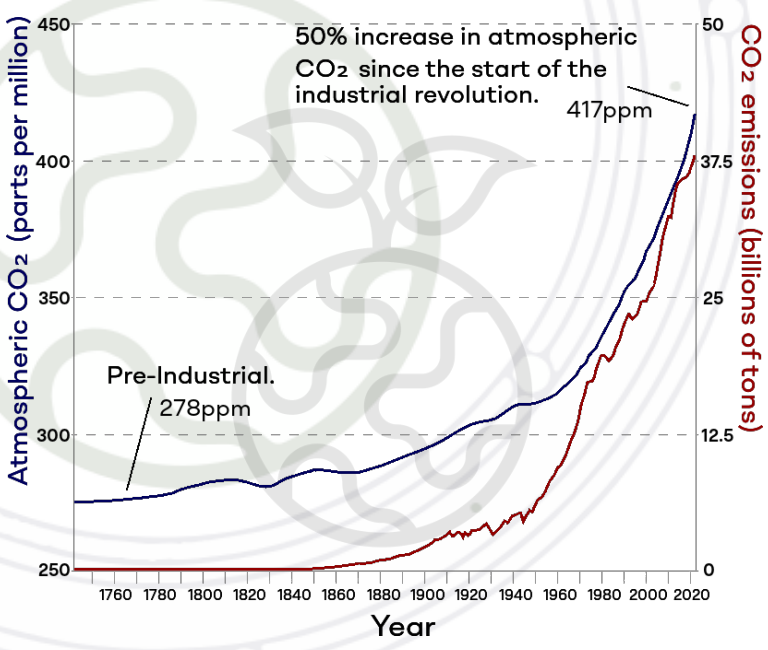
Our road map is straightforward, utilising strategic partnerships, academic backing, and technical knowledge, and focusing on solid science-based research. We can fight against global warming through carbon sequestration projects around the world. Our goals include all forms of afforestation and reforestation to reclaim devastated and ruined land patches. We also aim to impose more legislative controls to preserve the marine climate and ecosystems.

We are working with discerning private investors, non-governmental organisations, and governments worldwide to support our war against global warming.

3.2. Insights on Global Warming

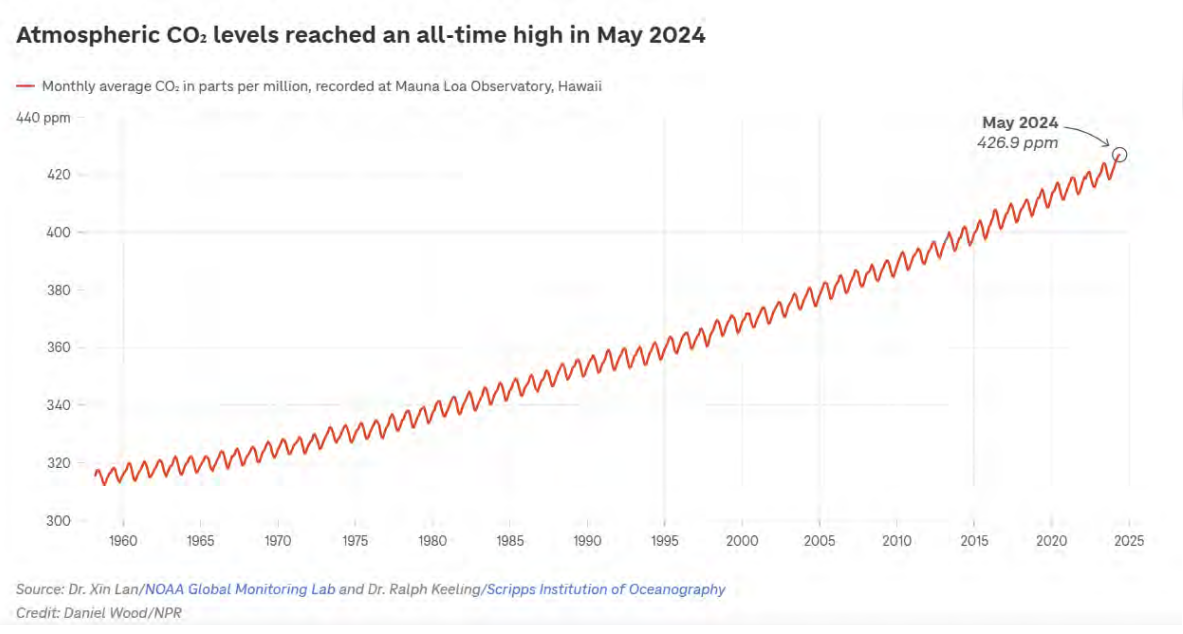
Climate Change & Carbon Sequestration

It is unanimous amongst the scientific community that human activities are contributing to damaging Earth's climate. Globally, experts are conducting studies that continuously find more evidence connecting extreme climate change to humanity's increasing usage of fossil fuels and industrial development. While helping humankind in various ways, these industrial practices have done so at the expense of drastically increasing carbon dioxide and other greenhouse gases in the environment. This has resulted in progressively higher air and sea temperatures. If left unresolved for much longer, the negative impact on Earth's ecosystems will become irreversible.



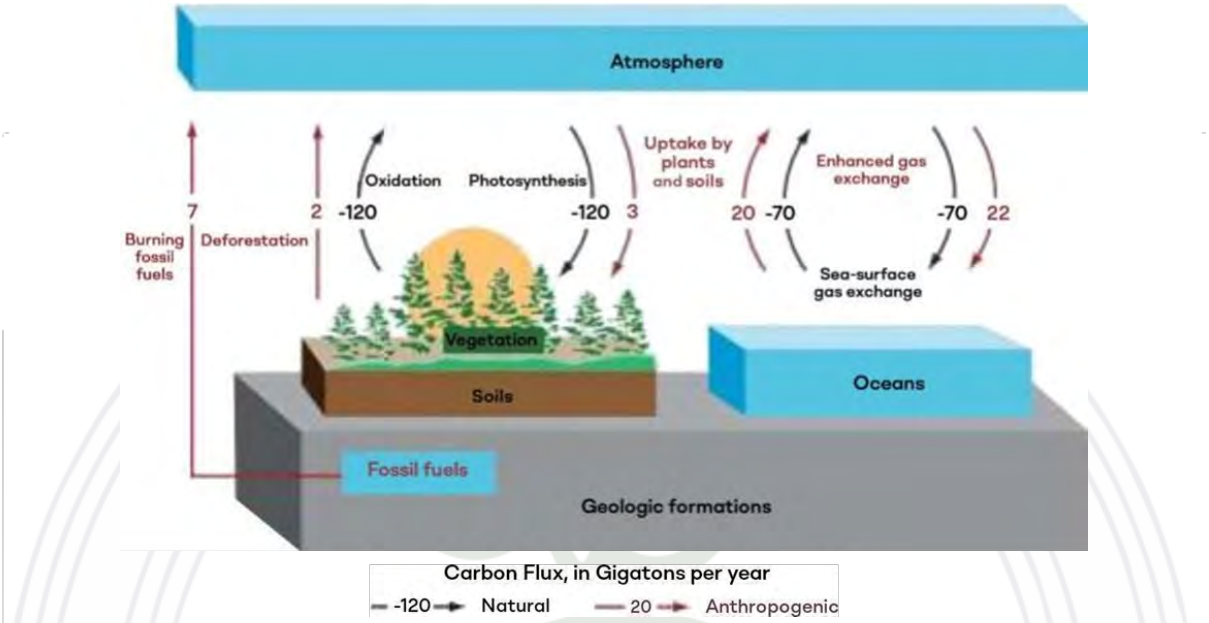
Almost two hundred nations have signed the Paris Climate Agreement, a commitment to limit Earth's temperature from rising by 2℃ this century. Experts believe that even surpassing 1.5℃ could be a point of no return for our environment. Unfortunately, Earth has already warmed by 1.2℃ and is not showing any signs of slowing down. Less than 20% of the emissions created during the last year were offset. Reducing our emissions as a species is of paramount importance before it is too late.

Since the beginning of the Industrial Revolution, humans have been rapidly changing the balance of gases in the atmosphere. The burning of fossil fuels, like coal and oil, releases carbon dioxide (CO_2) and other greenhouse gasses. CO_2 is the most common greenhouse gas. Atmospheric CO_2 amounted to about 280 parts per million (ppm) before the Industrial Revolution. As of 2017, carbon dioxide levels in the atmosphere were at 406.5 ppm (406.5 molecules of CO_2 in the air per every million air molecules), their highest levels in 650,000 years (Source: United States National Aeronautical and Space Administration). In 2021, it exceeded 417 ppm and is in a continuous upward trend. CO_2 levels have not been this high since the Pliocene epoch, which occurred between 3-5 million years ago and as **of 2024 May, this has increased to 426.9 ppm**



The overall increasing global temperature can impose devastating and often irreversible environmental damage on ecosystems, both on land and oceans. There are diverse ways to observe this, including melting ice caps, sea level increase, loss of marine life, depletion of aquatic food chains, acid rain, weather extremes, devastating

cyclones, and other devastating climatic changes. Furthermore, our planet is experiencing rapid desertification, severe impacts observed on photosynthesis and food yield forms, and rapid annihilation of natural ecosystems.



Salient features of information are listed below:

- The average global temperature has been rising since 1880.
- The minimum expanse of Arctic summer sea ice has declined 13.3% per decade since the 1980s.
- Land ice has declined at the poles by 286 giga-tons a year since 2002.
- Global sea levels have risen 7 inches (176 millimetres) in the past century, directly threatening low-lying countries such as Maldives and Netherlands.
- Solving climate change will require significant shifts in energy production, from fossil fuels to less carbon-intensive renewable sources.

CO_2 makes its way into the atmosphere through a variety of routes. Burning fossil fuels releases CO_2 and is by far the largest source of these emissions. According to the EPA's 2015 report, fossil fuel combustion (including electricity generation) in the United States alone released over 5.5 billion tons of CO_2 into the atmosphere. Other processes, such as non-energy use of fuels, iron and steel production, cement production, and waste incineration, boost the total annual CO_2 release in the USA to almost 6 billion tons. The world, as a whole is releasing ever-steadily increasing amounts of CO_2 every

year, where shockingly, USA is just one nation. Deforestation is also a significant contributor to excessive CO_2 in atmosphere known to be the second-largest anthropogenic (human-made) source of CO_2. When trees are logged or burnt, they release carbon they have stored due to photosynthesis. According to the 2010 Global Forest Resources Assessment, deforestation releases nearly a billion tons of carbon into the atmosphere per year.

Protecting forests is a solution to stop rising greenhouse gas emissions since forests remove CO_2 from the atmosphere. Tropical forests are significantly impacted by these commercial logging operations, as they account for more than 60% of the forest loss in Latin America and Southeast Asia. This is usually a permanent loss since these forests rarely get replanted. Animal agriculture is also a significant source of climate change, generating more greenhouse gas emissions (CO_2, methane, and nitrous oxide) than all combined vehicle (land, water, and air) emissions. The Food and Agricultural

Organization (FAO) estimates that animal agriculture is responsible for 14% of all greenhouse gas emissions. However, this estimate includes assumptions such as a long half-life for methane. It does not account for the negative opportunity cost of removing forests, which act as carbon sinks, grazing land, and producing animal feed.

According to the WorldWatch Institute, animal agriculture generates 51% of greenhouse gas emissions. Methane comes from cows and is 70 times more impactful than CO_2 emissions on global warming. Nitrous oxide emissions arise from the vast amounts of fertiliser used to grow genetically engineered corn and soy, fed to animals raised in concentrated animal feeding operations (CAFOs). Nitrous oxide pollution is even worse than methane and is 200 times more damaging per ton than CO_2.

Animal agriculture is a leading cause of deforestation and species extinction. Nearly 80% of agricultural land is used for grazing and growing animal feed. The Earth is in the midst of the sixth mass extinction of life. Scientists estimate that between 150-200 species of plants, insects, birds, and mammals become extinct every 24 hours. This is 1,000 times the natural or background rate of extinction and is more significant than anything the world has experienced since the demise of the dinosaurs nearly 65 million years ago. Animal agriculture is also the number one source of ocean dead zones as fertilisers eventually get into our waterways, further damaging the environment.

Some of the most immediate impacts of global warming lie beneath the waves. Oceans also act as carbon sinks since they absorb dissolved CO_2. While this carbon sink is not bad for the atmosphere, increased amounts of CO_2 can have disastrous effects on the marine ecosystem. When CO_2 reacts with seawater, it leads to a decline in pH, known as ocean acidification.

Increased acidity eats away the calcium carbonate shells and skeletons that many ocean organisms depend on for survival. These include shellfish, pteropods, and corals. Coral reefs are home to at least a quarter of the entire biological diversity of the oceans. Coral reefs serve as essential habitats to as many as 3 million species, including more than 25% of all marine fish species. Species feed, reproduce, shelter, and survive in the vast 3-dimensional framework offered by coral reefs. The combined pressures of increasing acidity and global warming lead to coral reefs becoming nothing more than eroded rock structures.

Additionally, millions of tonnes of plastic are dumped in our seas every year and a large quantity of it breaks down into microplastics. When we eat seafood contaminated with microplastic particles, we ingest many chemicals they carry, such as

neurotoxins, endocrine disruptors, and carcinogens. Exposure to these chemicals increases the risk of cancer, hormone interference, and congenital disabilities.

3.3. Future Outlook on Global Warming & Climate Change Issues

A growing number of business leaders, government officials, and private citizens are concerned about the worldwide implications of global warming and are proposing steps to reverse the trend. While some argue that "the Earth will heal itself", natural processes for removing this human-caused CO_2 from the atmosphere work on a timescale of hundreds of thousands to millions of years. Earth's self-recovery will not occur quickly enough to preserve our cultural institutions and societal systems as they are.

There is no question that global warming needs to be restrained or reversed. Despite the vast amounts of public funds and effort expended since the Earth Summit in Rio de Janeiro during the last 30 years led by the United Nations Organization (UN), the World Bank (WB), the Asian Development Bank (ADB), the African Development Bank (AfDB) along with others, yet the war on global warming is yet to be won or even slowed down. Nothing scheduled within the near future seems to offer much to tip the balance in favour of slowing down carbon emissions.

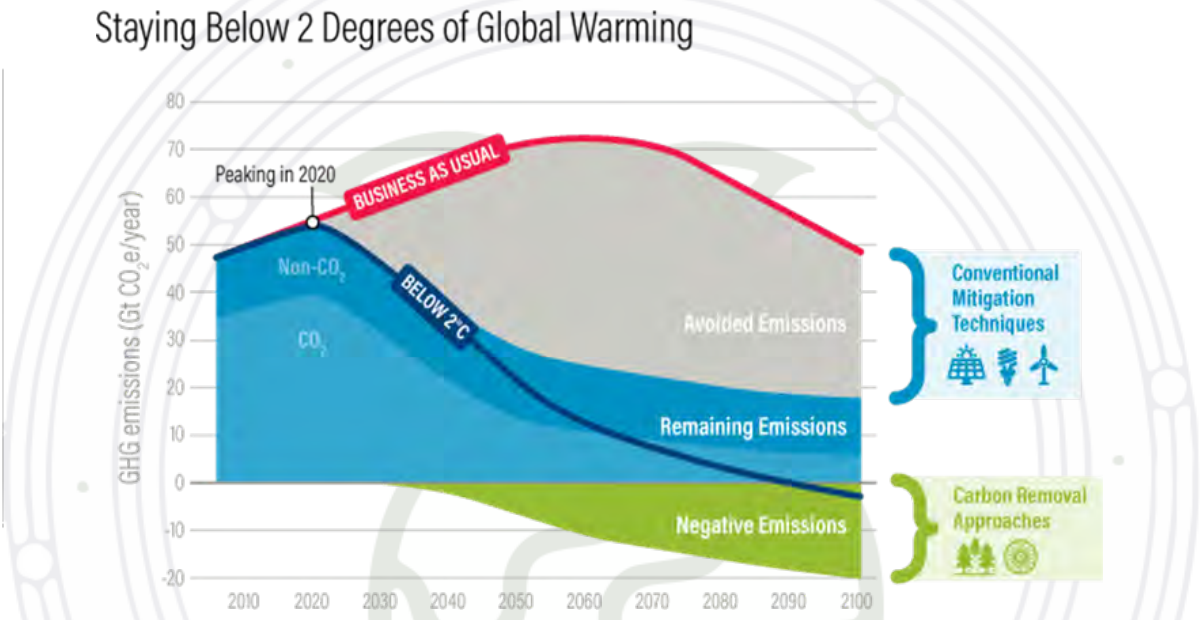
Looking at all the available evidence, we can make two deductions:

- The rate at which global warming occurs due to anthropogenic and other factors is far greater than human efforts to combat the problem.
- The funds and resources spent to avert emissions build-up and promote carbon sequestration do not reach grassroots levels sufficiently or promptly.

A close examination of these two factors reveal that the current status quo may have influenced both aspects to some extent, where the current rate of global warming is mainly unaffected today due to the inefficiencies inherent in various institutional complexities.

Many researchers and engineering industries have developed outstanding technological designs to capture CO_2 build-up through mechanical means. These 'Carbon Capture and Storage (CCS)' methods

are engineering marvels due to their inherently bold efforts to sequester significant volumes of CO_2 from the air. However, a closer examination reveals that these proposed CCS models are generally prototype technologies with no broad prospects to aid humankind in the sequestration processes. The level of CO_2 being released is so overwhelming that no mechanical system can be employed to sequester enough. Therefore, CCS mechanical methods may simply not work, given modern industry and society's colossal volume of emissions.



As explained in the graph above, reaching net negative emissions consists of having a green part (removing emissions) more important than the blue part (remaining emissions). However, organisations first need to avoid emissions (the grey part) to achieve

In this context, it is clear that a systematically grown tree canopy is critical for sequestering carbon adequately. Marine management processes are also a crucial part of the tree-growing initiative. Oceans naturally absorb CO_2 through acid rain and dissolved CO_2. However, ocean management towards marine carbon sequestration might be out of reach for most people and institutions, so it is best to start working on the land first. Nevertheless, ocean and marine management are essential to any proper carbon sequestration proposal.

3.4. The Status of Our Planet Today

The current state of Planet Earth, as reported in 2023, paints a

picture of a world grappling with the escalating impacts of climate change.

3.4.1. Adaptation Solutions and Ecosystem-based Adaptation

The IPCC 2023 report emphasises the availability of proven and readily available adaptation solutions that can build resilience to climate risks. These solutions, including ecosystem-based adaptation measures like integrating trees into farmlands, not only help communities adapt to climate impacts but also offer broader sustainable development benefits such as biodiversity safeguarding, improved food security, and enhanced carbon sequestration.

3.4.2. Severe Climate Impacts and Losses

Some climate impacts are now so severe that they cannot be fully adapted to, leading to significant losses and damages. This includes irreversible damage to ecosystems, such as widespread mortality of coral reefs, and the displacement of communities due to rising sea levels. Urgent action is required to avert, minimise, and address these losses and damages, with a focus on supporting the most vulnerable communities.

3.4.3. Global Greenhouse Gas Emissions

To align with the 1.5°C warming limit, global GHG emissions need to peak before 2025 and then rapidly decline. Despite some progress in slowing the annual growth rate of GHG emissions, they remain on an upward trajectory, with emissions in 2019 being approximately 12% higher than in 2010. Achieving climate pledges (Nationally Determined Contributions) could reduce GHG emissions by only 7% from current levels.

3.4.4. Ocean Warming and Sea Level Rise

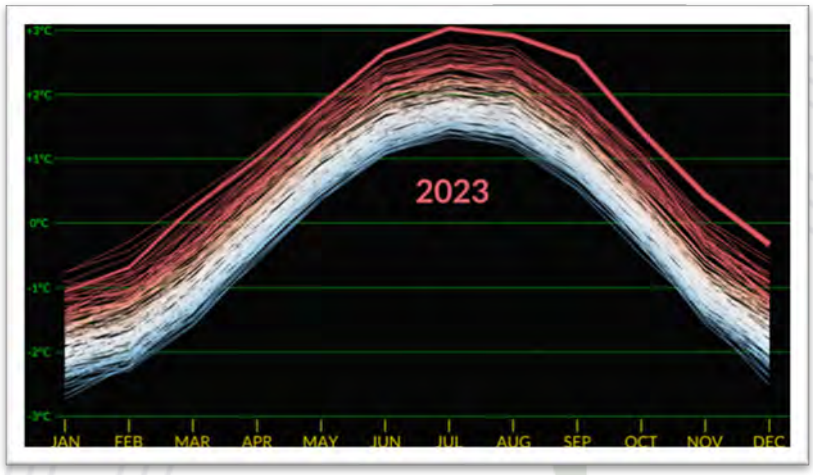
The last eight years have been the warmest on record, with sea level rise and ocean warming hitting new highs. The continuous melting of glaciers and sea ice, particularly in Antarctica, has led to record-low extents of Antarctic Sea ice. These changes will have long-lasting impacts on coastal communities and ecosystems.

3.4.5. Socio-economic Impacts of Climate Change

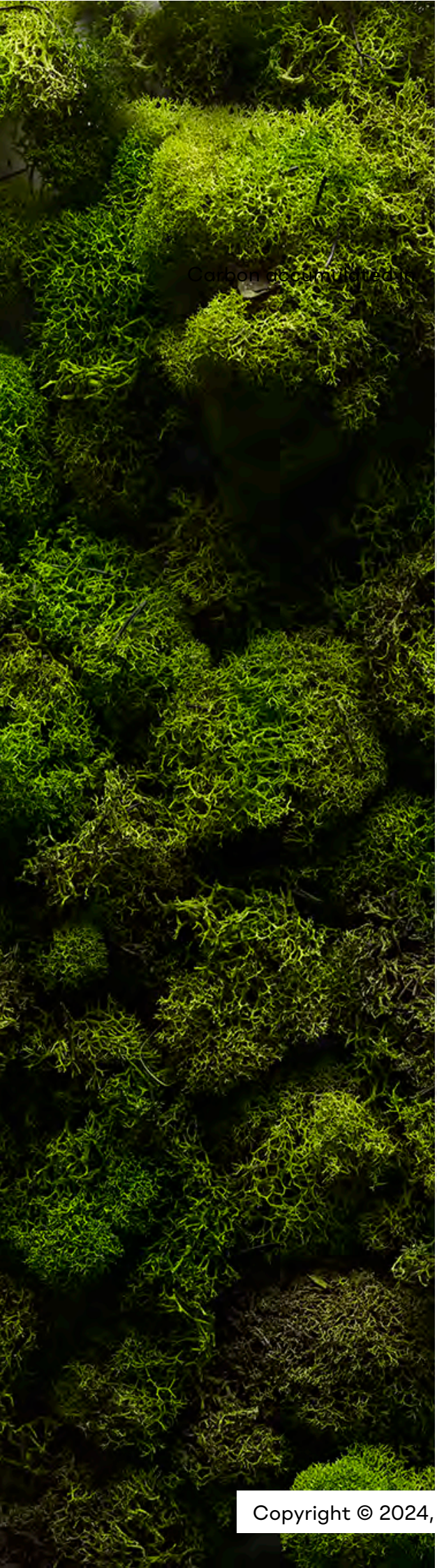
The relentless advance of climate change has exacerbated droughts, floods, and heatwaves,

affecting tens of millions worldwide. These events have driven food insecurity, mass migration, and significant economic losses. Investing in climate monitoring and early warning systems is crucial to mitigate these impacts.

3.4.6. Warmest Year on Record



According to NASA, 2023 was the warmest year on record, with global temperatures approximately 2.1 degrees Fahrenheit (1.2 degrees Celsius) above the average for the baseline period (1951-1980). This warming trend underscores the urgent need to address the climate crisis, which manifests in extreme heat, wildfires, and rising sea levels.



4.0. Growing Tree Canopies

We have begun to create a movement through SavePlanetEarth, which involves sequestering carbon through conservation, afforestation and reforestation, prioritising nature-based solutions over mechanical. The methodology used is commonly thought of as:

- Inexpensive (cost-efficient)
- Clean (also provides other ecosystem services)
- Proven (many countries have a legacy of tree growing)
- Effective (can see immediate results in a short amount of time)
- Efficient (less resource and energy consumption)
- Sustainable (can be incorporated into a multi-functional forest providing timber production and other benefits for local communities)
- Economical (can provide economic incentives for sustainable forest management)

Trees absorb CO_2 from the atmosphere through photosynthesis and use light energy to run enzyme-catalysed reactions. Cellulose production consumes most of the carbon absorbed by trees, but some CO_2 gets released into the air through respiration. The absorbed carbon forms above-ground biomass stem wood, branches, leaves, and roots.

Carbon accumulated in leaves is released back into the atmosphere after a relatively short period when the fallen leaves decompose. However, carbon in wood is stored for many years, depending on time-dependent factors such as tree species, growing conditions, forest management, and various uncertain occurrences such as forest fires or diseases. 50% of dry wood is formed from carbon. A widely held assumption is that forests approach carbon saturation at maturity and that when trees reach this pinnacle level, they stop sequestering carbon. With a continuous cover, forests could act as long-term storage of carbon. When trees die, carbon remains stored in the soil, acting as a long-term carbon sink carbon sink.

We cooperate with various NGOs, Ministries of Environment and Climate Change, and other similar partner organisations worldwide. We are releasing our financial accounting periodically onto the website SavePlanetEarth.io for full transparency. The revenue deployment will be visible, and we will regularly update our blog with all the projects undertaken. We tackle climate change on a global scale with like-minded action groups around the world.

4.1. Tree Planting & Research

We are working with relevant scientists and planting trees native to Sri Lanka, the Maldives, and other areas across the globe. We ensure that no invasive species affect the native flora and will also be adhering to the existing biodiversity.

A database compiling CO_2 absorption rate of each tree will be made freely available on SavePlanetEarth.io.

4.2. Why Do We Plant These Trees?

- Revenue generation provides more funds for our projects and helps the local community meet their household expenses.
- Continued monitoring in person due to the symbiotic relationship between the community and tree life cycle.
- Local growing expertise and cultural usage for non-consumable products from the biomass of the species, such as boatbuilding, woven mats, wood ornaments, and more.
- We have developed an application that utilises satellite technology, AI, geospatial algorithms, and drones to monitor the green canopy cover (an indicator of tree health and carbon sequestered) where these projects occur.

Procurement for the technology and equipment has been completed. Once SPE's '*Invest in Climate Action projects*' open in Sri Lanka and the Maldives, we will plant a lot more and faster as each nursery will hold over 100,000 saplings in stock at any given time. Plans are in place to replicate this model in many other countries. We have finalised deals with more nation-states and NGOs that will be economically feasible and sustainable for SPE for years to come. *The future is green.*

4.3. Tree Catalogue

SPE will be providing a comprehensive catalogue of the native trees that would be used in the nurseries of their respective countries with digital representations– for now: Sri Lanka, Pakistan, and the Maldives. As the catalogue is too lengthy to be included in this Whitepaper, we have a brief

amount listed. However, it will be available via SPE's official website as a separate document.

4.4. Species Selection and Quantification

SPE is promoting regenerative forestry techniques all over the world such as Miyawaki, Urban Forestry, Paradoxical (bed-raised), Agroforestry, Holistic Land Management, Justdigit, and Swale. More or less the principle of all the techniques is the same but SPE land and forestry expert determine the best solution (forestry technique/plantation species) for the specific site through a physical inspection or survey of the prospective site by keeping in mind different parameters such as landscape, community type, soil texture, precipitation percentage, water availability, weather conditions.

SPE's goal is to achieve multilayer dense plantation of native tree species to maximise Carbon Sequestration. The technique we use for Multilayer Forestry can save up to 70% on purchased inputs, and 80% water, 100 times denser, 10 times faster growth and 30 times greener, and 18% more bio-diverse when compared with traditional methods of the plantation. Bed-raised multilayer forestry is a natural algorithm of soil fertility and infinitely self-renewing that saves water, eliminates agrochemicals, saves cost, and restores biota.

Our team of experts have used nano clay particle treatment for desert plantation is under consideration. Mostly, the desert has vital issues such as difficulty in water movement, water shortage, nutrition deficiency, provision of water to each plant, availability of biota, and water retention for consistent supply to the plant. We address all these issues with SPE's simple techniques. We would make clay/gypsum water solution and use a wheelbarrow or tractor-mounted bucket to the dispenser to evenly disperse the furrows in the Bed-Raised technique. These clay particles chock spaces between sand particles and stop underground seepage and make the water available for plants. The first time, scattering of the long-rooted and nitrogen-fixing native ground cover vegetation. Once they are fully grown, they would maximise water retention for consistent supply to the plant through their roots and upper parts of plants, we

would then press them on the land and the desert is ready for plantation. The plant residue is placed on raised beds as organic mulch to feed soil biota, that will keep soil temperature moderate, and stop water evaporation.

We would be using the same regenerative soil methods principles for plantation in mountains as mentioned above but in addition, swales in mountain areas too. We seek to solve problems in the landscape by working with nature and using techniques that are appropriate for the site.

A swale is a shallow trench dug along the land's contour, with a berm on the downhill side created with soil from the trench. swale is a technique that captures water in the landscape for passive irrigation and slowing runoff as well as to provide nutrient uptake. This action reduces erosion and retains water where it is needed. Without swales, the water on this hillside would rush down and form gullies, taking precious topsoil and nutrients with it.

Swales could be helpful in,

- Mitigating and managing stormwater runoff both at the source and at the surface.
- Catching rain is easier than using a tank or barrel.

- Increase efficiency of water storage as compared to tanks or barrels.
- Building self-sustaining ecosystems.

Swales catch water and direct it to where it's needed, which is in the soil. Instead of water running off or pooling above ground, swales direct it downward into an underground reservoir. Nature has its own built-in, self-watering system. When water is needed, it is naturally released. No work on our part will be done after the swale is built. This underground reservoir attracts micro-organisms. Suddenly the soil is alive, and nature starts generating organic matter and fertiliser right in the place where we need it. This means fewer inputs, which saves money and time. The more organic matter builds, the more moisture it holds. With more organic matter, the system can better withstand both floods and droughts. This is a widely accepted stormwater strategy, simple to construct and has relatively low implementation cost.

Keynotes:

- The tree species are picked with the utmost consideration of the environmental and situational factors played into each location. The SPE 'Ground Truth Data' team conducts thorough soil and rainwater tests to determine the optimal conditions of the vicinities. SPE is dedicated to converting atmospheric carbon into soil carbon through the plantation of natural forests by regenerative forestry techniques.
- The plant and tree species selection for afforestation is made using several criteria such as:
  - Carbon sequestration capacity
  - The cost of plants
  - Reproducibility
  - Growth rate
  - Environmental compatibility (soil compatibility, temperature, rainfall requirement, moisture level, free hazard, diseases)
  - Environmental effects (transpiration rate, evergreen status, soil erosion control, beauty, wildlife attraction, soil stabiliser).
  - Practical uses (medical, constructional, edibles, or fodder).

4.5. How to Select Tree Species for Plantation

STEP 1: Make a database of all native species in your area

Below is a list of items that should be in the database (left) and a brief description of the aforementioned items (right), followed by a sample database with examples (further down).	
Botanical Name	The scientific name of the tree. In some instances, you may find more than one scientific name for a particular tree. Use the latest and most commonly used scientific name in this case.
Common Name in Local Language	The name that the locals identify in their native language. It is preferable to write the name in local script, along with an English phonetic text to avoid language barriers. This will be most useful during procurement.
Common English Name	The commonly used English name of the plant.
Type	Classifying whether the tree is evergreen or deciduous. An evergreen plant is one whose foliage remains green and functional over several growing seasons; a deciduous plant's foliage would shed throughout the seasons.
Advantage	A tree can have various advantages, such as bearing fruits and herbs, attracting birds, flowering and wood, as well as for medicinal purposes. It is necessary to note down all the advantages of species residing in that specific area.
Height	The highest recorded height for each species in the region.
Layer	A multilayer forest can have many layers; however, we will categorise every listed tree into 4 layers. Shrub Layer: The layer above grasses and small herb/flowering plants. The minimum height is usually 1-2 meters. Sub Tree Layer: Trees that are taller than humans but are still small in comparison to more dominant trees found in the forest.

	Tree Layer: More common trees based on the average height of trees in your geography. Canopy Layer: Trees that grow into giants. These are the tallest trees in the local forest. Also known as the "emergent layer". Fix the layers based on the height range of trees. For example, in more humid/tropical parts of Pakistan, the tallest tree grows up to 50 meters. Therefore: - Shrub Layer = 2-6 meters - Sub Tree = 6-15 meters - Tree = 15-35 meters - Canopy = more than 35 meters Mark each row with different colour based on the tree's layer.

STEP 2: Check the native species saplings' availability in the nursery, based on the following criteria

Criteria to be followed as per the species	
Bag Size	Check quality specifications.
Age of Sapling	
Height of Sapling	

STEP 3: Assigning percentages to available species.

Criteria to be followed depending on area	
Major Species	Choose 4-5 different species to be the "major" forest species. These should be the species that you commonly find in your local forest/region. Assign 8-10% to each of them. This will constitute 40-50% of the total number of trees in the forest.
Supporting Species	Assign 2-4% to other common species of the area; total will be 25-40%
Minor Species	Assign 0.2- 1% to other native species of the area. *

	** We should try to plant as many species as possible for biodiversity. However, in smaller areas, species that have a percentage below 0.5 % may not be included in the final order.*

STEP 4: Percentage Correction

Tweaking the percentage distribution based on categorical subtotals.	
Based on Type	For example, if we are creating an evergreen forest, which will sequester more carbon than any other type of forest, then the total percentage of evergreen species should exceed 70%.
Layer-wise Distribution	The subtotal of each layer should vary between the following range (subject to change depending on local forest conditions): Shrub Layer: 8-12 % Sub Tree Layer: 25-30% Tree Layer: 40-50% Canopy Layer: 15-20 %
Advantage	Assign higher percentages to trees based on the advantage or quality of your choice. For example, if you are planting a fruit forest, 50% of the species should be fruit-bearing.

Here is a sample database, utilising the aforementioned items:

#	Botanical Name	Common Name (Local)	Common Name (English)	Type	Advantage	Height (m)	Layer	Sample Plant Order List		
								Availability	%	Quantity
1	*Azadirachta indica*	Turakabevu	Neem	Evergreen	Medicinal	25	Tree	Yes	8	24
2	*Tectona grandis*	Sagavani	Teak	Deciduous	Timber	40	Canopy	Yes	3	9
3	*Punica granatum*	Daalimbe	Pomegranate	Perennial	Fruit, Birds	8	Sub Tree	Yes	2	6

4.6. Multilayer Forests

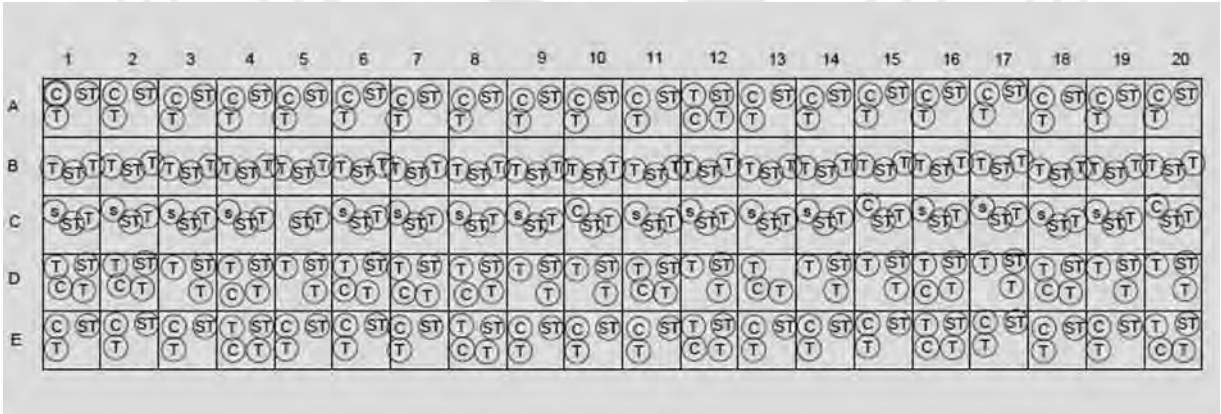
In creating a multilayer forest, SPE aims for the random and dense plantation of native tree species to maximise carbon sequestration. Following are steps to achieve the desired results:

- Selection of the right native species.
- Fixing the correct ratio for each species, carefully balancing the different forest layers, and ensuring that our forest has all the desired qualities of a natural forest.
- Mix up the species and plant them "randomly" to create a dense multi-layered forest.

The *random* sapling arrangement is important to ensure that a "forest" gets created in the truest sense. This ensures natural competition, cooperation, and selection.

The forest is created in units of 100 square meters. Each 100 square meter patch is referred to as a *mound*. Every new mound has all the species selected, according to the ratios fixed. However, the arrangement needs to keep changing. Thus, if Mango (*Mangifera indica*) is one of the species, and 6 individual mango saplings are to be planted per mound, then the position of the mango on every new mound should be different.

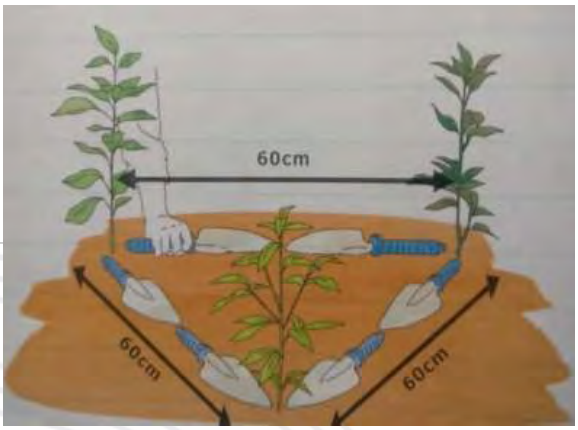
Once the soil is prepared, the saplings are mixed and randomly arranged to ensure that all the forest layers get distributed throughout the mound. A good distribution of layers will look something like the one provided below:



In the image above, T refers to Tree, ST refers to Sub Tree, C refers to Canopy, and S refers to Shrub

As thumb rules:

- We maintain a minimum distance of 60cm between saplings, it can be extended as required according to the perspective site for as long as possible. As the mound starts getting filled up, at many places the distance will be less.
- The sapling arrangement should look more zigzag than linear.
- We should try not to place two saplings of the same type next to each other; for example, Neem (Azadirachta indica) next to a Neem. However, sometimes such situations are not avoidable since the density is high. In such situations, one of the Neems will naturally dominate the other.
- Fix the layers based on the



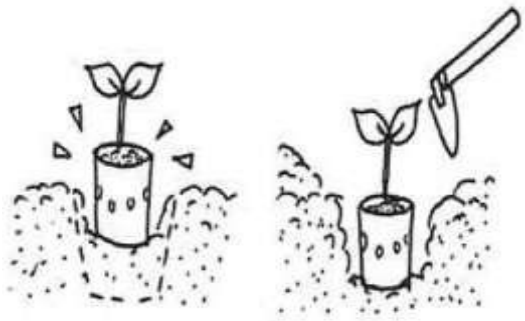
height range of trees.
- At many places on the mound, two saplings of the same layer might fall next to each other. Such clashes are natural since we are only working with 4 layers. Let's not forget that the layers are not equal in proportion, for example, percentage wise in most places:
  - Tree > Sub Tree > Canopy > Shrubs

Thus, when the forest grows, it looks as wild and dense as any natural forest.

Typical multilayered forest

Photographs of some forests grown through certain planting techniques

4.7. Tree Planting Instructions

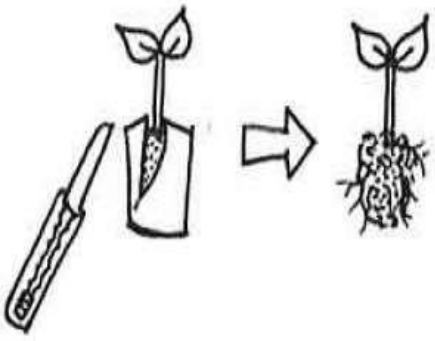


1

Check that the root ball or root bag of your plant sits comfortably in the pit. Use the small garden hole to deepen or widen the pit if necessary.

2

Dip the root ball or root bag in the bucket of water. Allow air bubbles to come out of the bag and wait until the air is completely drained out.

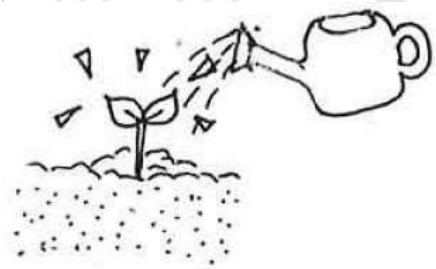


3

If the root ball is still wrapped, cut the cover and remove the wrapper but take care to not cut into the soil.

4

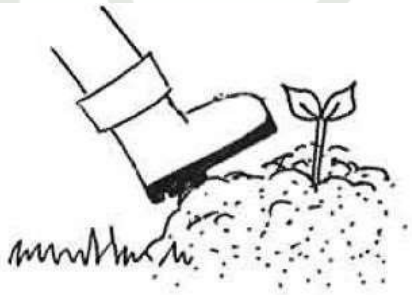
Carefully place one hand under the root ball, while gently holding the stem with the other. Place the plant into the pit without removing your hand from the bottom. Fill the pit with the soil around it. The soil should be levelled gently around the stem of the plant. Steady the plant by holding on to the stem and slowly removing your hand from the bottom of the plant. Once levelled, do not press or compact the soil.



5

Water your plant and take a photo!

6



To ensure minimal compaction of the soil, please refrain from stepping on the planting area unless necessary.

5.0. Research work

Jeewanthi Gamage, Research Assistant,

SavePlanetEarth (SPE),

Research work title, **Production of Seed Balls to Enhance the Germination of Seeds with Dense Seed Coats**

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5.1. Abstract

Seed balls or seed bombs are one of the prominent solutions to overcome deforestation. Contrary to large-scale plant cultivation in deforested areas, the seed ball technique is significantly more feasible and less expensive. Since the seeds are shielded, they are protected from both abiotic and biotic stresses until the seedling emergence. Even after the emergence of the seedlings, the required nutrients and sufficient amount of moisture will be provided by the seed ball. Even though it is a convenient method for germinating seeds with thin seed coats, propagating seeds with dense seed coats is rather challenging. However, this can be overcome by performing a slight modification to the dense seed coats, which will accelerate seed germination. This report outlines how it was achieved through a technique called scarification plus finding the best media composition for seed balls. The whole procedure, starting from the seed ball preparation to the seedling

Figure 1: The seedling emergences of tamarind seeds

emergence, was maintained under controlled environmental conditions. At the end of the experiment, it was found that scarification made a significant impact on the germination rate of seeds with dense seed coats. Other than that, the most suitable medium for such seed balls was also found.

Keywords: Seed balls, Tamarind *(Tamarindus indica)*, Seed coat, Scarification, Seed germination, Seedling emergence

5.2. Introduction

Even though the forest coverage is less than 40% of the Earth's surface, they serve as the lungs of the planet Earth while maintaining the balance of the atmospheric CO_2 and O_2 levels. Basically, they breathe just like humans with few exceptions. However, day by day, the forest extent is getting reduced especially due to human activities. One of the devastating consequences of human activities is deforestation, which is a gigantic contributor to global warming and the subsequent ecological imbalance. However, the saviour of this crisis is also none other than the humans. Fortunately, humans tend to open their eyes to find solutions for deforestation and mitigate global warming. Increasing the green coverage of reforestation and afforestation can be performed simply by foresting plants in deforested areas. Though it seems like an easy task, practically it is hard to achieve since it is a laborious and costly process as well as quite hard to execute. Therefore, some people tend to sow seeds directly onto the ground. Though this technique seems pretty easier, except few, most of the seeds are going to lose their viability. This is because of the seeds being eaten by predators and damages occurred due to abiotic stresses. Even though few of the seeds are lucky enough to survive and germinate, due to the depletion of nutrients they will die shortly. But what if there is a way to protect the seeds while they are being nourished? Thanks to seed ball technology, plant foresting can be easily accomplished in an eco-friendly manner without much burden.

Seed balls or seed bombs are simply dried soil balls with seeds. Masanobu Fukuoka is known for inventing seed balls (Picker S., 2020). Seed balls make planting easier almost everywhere. Clay and compost are the usual components of a seed ball. However, the composition is not literal,

and it is varied depending on the seed type as well as the soil type of the region where it is manufactured. Compared to large-scale plant foresting, the seed ball technique is significantly more feasible and less expensive. And, seed balls facilitate way too many benefits, unlike direct sowing. Without the need to dig separate holes for each seed, seed balls offer burying conditions as well. Since the seeds are encapsulated with a soil mixture, they are protected from both biotic and abiotic stresses. And the seed germination rate can be enhanced due to the nutrient availability of the soil mixture. Thereby the seedling emergence will be accelerated while morality is minimised to a certain extent. Even after the emergence of the seedlings, the required nutrients and sufficient amount of moisture will be provided by the seed ball.

Theoretically, it is possible to grow most of the seed varieties ranging from seeds with the thinnest seed coats to seeds with dense/thick seed coats via the seed ball technique. The seed coat or the protective outer coat of the seed facilitates embryo protection. In other words, the thickness of the seed coat is proportional to the embryo protection by the seed coat. However, germination of seeds with thick seed coats is rather challenging since it takes quite a long period for the seedling's emergence. However, this can be overcome by performing a slight modification to the dense seed coats, which will speed up the seedling emergence. This modification is known as *scarification*. In botany, scarification refers to the process of thinning seed coats to promote germination. Scarification involves mechanical, thermal, and chemical processes.

In this experiment, the scarification of the seeds was done by mechanical means since it is the most cost-effective method of all. Tamarind (Tamarindus indica) seeds were subjected to the experiment since they possess dense seed coats. The monotypic genus Tamarindus, also known as the tamarind, is a member of the subfamily Caesalpinioideae of the Leguminosae (Fabaceae) family (Jain et al., 2011). It is one of the most significant and useful tropical fruit tree species in the Indian subcontinent. 2/3 of Sri Lanka belongs to the dry zone and tamarind trees are highly abundant in the dry zone of the country as they fulfil

the ideal climatic conditions. Normally the germination of tamarind seeds occurs within 1–2 weeks after sowing. However, this can be shortened to 2–3 days when performing scarification.

When it comes to the soil composition of the seed ball, clay, vermicompost, clay soil, as well as coco peat, were used. All of these ingredients contributed to the successful establishment and survival of seedlings. To find which ratio fits for the tamarind seeds to grow better, a series of media compositions were prepared.

Therefore, this report outlines how these tamarind seeds were successfully grown via scarification. The entire process, from the production of the seed ball through the emergence of the seedlings, was maintained under monitored environmental conditions. After the study, it was discovered that scarification had a significant influence on the rate of germination of seeds with dense seed coats. In addition, the best media composition for these seed balls was also discovered.

5.3. Materials & Method

The whole procedure can be divided into three main steps. They are selection of viable tamarind seeds, scarification of the seeds, and seed ball preparation.

- **Selection of viable seeds**

Approximately 60 tamarind seeds were obtained, and they were added to a bowl of water to figure out their viability. Except for two seeds, all the other seeds were sunken into the bottom of the bowl. Therefore, only the viable seeds were taken out from the water right away and wiped.

Figure 2: Viable tamarind seeds

Figure 3. Ingredients of the media. Clay (A) Vermicompost (B) Cocopeat (C) Clay soil (D)

- **Scarification of the seeds**

Only 54 seeds were subjected to the experiment. Among them, 26 seeds were scarified by the slight scraping of the seed coat.

- **Seed ball preparation**

Clay, clay soil, vermicompost, and cocopeat were used to prepare the media. To obtain the fine powder, both clay soil and vermicompost were sieved before the media preparation. Other than these ingredients, water was also used for the seed ball preparation.

Firstly, clay and clay soil were mixed in a 1:1 ratio. Then by adding water it was thoroughly mixed. To prepare the series of media, the following combinationswith different ingredients were added at different ratios (Table 1). Not only for the scarified seeds but also media were prepared for non-scarified seeds. One of the seeds from both groups was maintained as the control as well. Therefore altogether 50 seed balls were prepared.

Table 1: Media compositions (S – Scarified seeds,NS – Non-scarified seeds, C – Clay + Clay soil, VC – Vermicompost, CP – Cocopeat)

Scarified Seeds						**Non-Scarified Seeds**					
1	Sc – Control [C: VC: CP]		**14**	S13	03:03:01	**27**	NSc – Control [C: VC: CP]		**40**	NS13	03:03:01
2	S1	01:01:01	**15**	S14	03:04:01	**28**	NS1	01:01:01	**41**	NS14	03:04:01
3	S2	01:02:01	**16**	S15	03:05:01	**29**	NS2	01:02:01	**42**	NS15	03:05:01
4	S3	01:03:01	**17**	S16	04:01:01	**30**	NS3	01:03:01	**43**	NS16	04:01:01
5	S4	01:04:01	**18**	S17	04:02:01	**31**	NS4	01:04:01	**44**	NS17	04:02:01
6	S5	01:05:01	**19**	S18	04:03:01	**32**	NS5	01:05:01	**45**	NS18	04:03:01
7	S6	02:01:01	**20**	S19	04:04:01	**33**	NS6	02:01:01	**46**	NS19	04:04:01
8	S7	02:02:01	**21**	S20	04:05:01	**34**	NS7	02:02:01	**47**	NS20	04:05:01
9	S8	02:03:01	**22**	S21	05:01:01	**35**	NS8	02:03:01	**48**	NS21	05:01:01
10	S9	02:04:01	**23**	S22	05:02:01	**36**	NS9	02:04:01	**49**	NS22	05:02:01
11	S10	02:05:01	**24**	S23	05:03:01	**37**	NS10	02:05:01	**50**	NS23	05:03:01
12	S11	03:01:01	**25**	S24	05:04:01	**38**	NS11	03:01:01	**51**	NS24	05:04:01
13	S12	03:02:01	**26**	S25	05:05:01	**39**	NS12	03:02:01	**52**	NS25	05:05:01

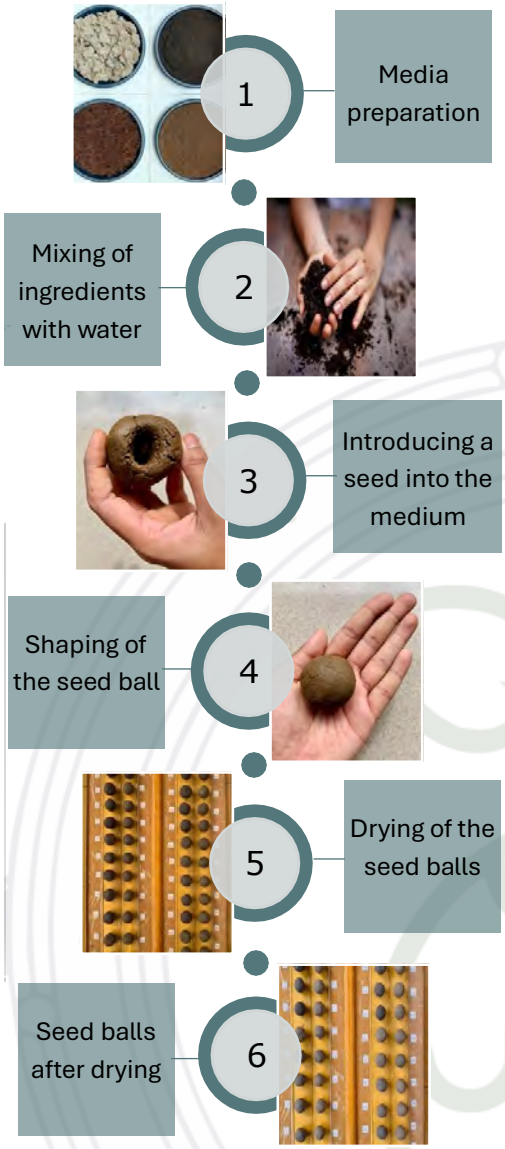


Figure 4: Preparation of seed balls

After preparing the media, sphere-shaped soil balls were created. Once a seed ball was created, a seed was established. Likewise, both scarified and non-scarified seeds were established in their corresponding media. 50 seed balls weighing between 35g - 38g were then produced. After that, all the seed balls were kept in a tray separately. The seed balls were then air dried for 2 days (RH: 65%, Temperature: 29 °C). However, direct sunlight was avoided to minimise the breakages.

After the drying process, the seed balls were kept on the soil to provide equal conditions for all of them. Starting from that day, water was sprayed on each and every seed ball to prevent desiccation.

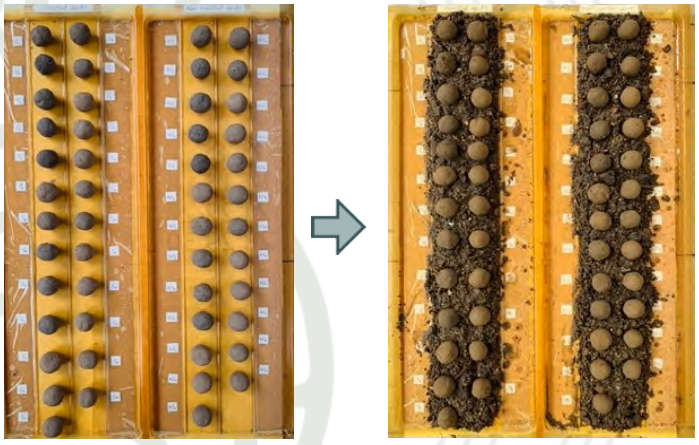


Figure 5: Keeping seed balls on the soil

5.4. Results and Discussion

Since the main objective of this study is to find out the effect of scarification and the effect of media on seed germination, all the findings can be discussed below.

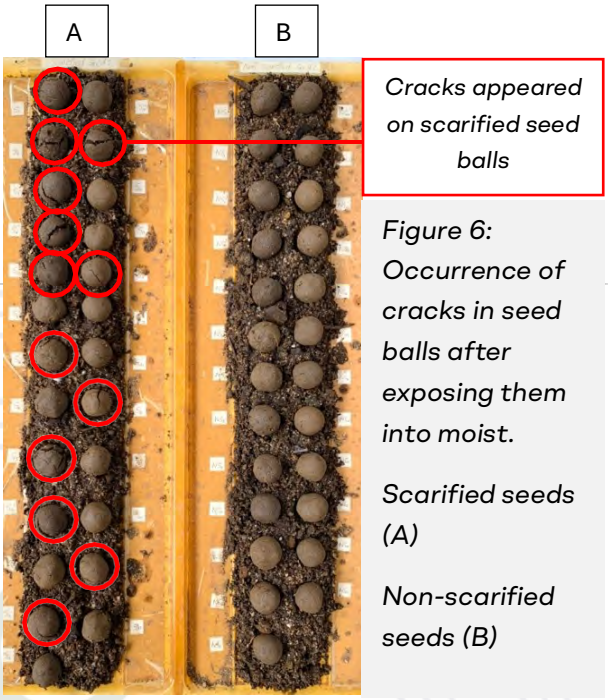


Figure 6: Occurrence of cracks in seed balls after exposing them into moist.

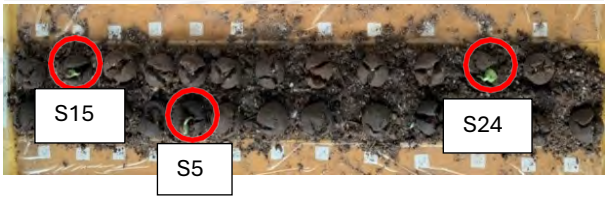
Scarified seeds (A)

Non-scarified seeds (B)

- Effect of scarification on seed germination

After the seed balls were placed on the soil, only the scarified seed balls started to show signs of cracking within 24 hours (Day 1). A considerable number of seed balls with scarified seeds had these cracks, whereas seed balls with non-scarified seeds showed zero cracks (Figure 7). As time went on, it became noticeable that there were cracks in each and every scarified seed ball. Looking at these cracks, it was assumed that germination had already begun in scarified seed balls. And the initial roots became apparent as white colour strips in between the cracks. Among all the seed balls, S5, S10, S15, S22, and S24 showed their initial root first. On the 6th day, it was noticed that cracks on non-scarified seed balls as well. However, only NS5 showed quite a huge crack, while NS16, NS22, and NS23 showed minor cracks on their surfaces. That means a smaller number of non-scarified seeds had started their germination. Nevertheless, at this moment more than 90% of the scarified seeds had already started their germination.

Figure 7: Seedling emergence of scarified seeds



On the 10th day, the first seedling emergence was noticed from the S5, S15, and S24 seed balls (Figure 8). The following day also seedling emergences were taken place. However, at this point, none of the non-scarified seeds stepped into the seedling stage.

B

A

Figure 8: Seedling emergence of scarified and non-scarified seeds.

Scarified seeds (A)
Non-scarified seeds (B)

Therefore, it clearly reveals that scarified seeds germinate more efficiently than non-scarified seeds.

When it comes to seed germination, water is absorbed by the embryo as the initial step. This led the cells to rehydrate and enlarge. The rate of respiration increases shortly after water absorption. This is because many enzymes related to metabolic activities are getting activated. However, the water absorption of the seed is highly dependent on the thickness of the seed coat. With a thicker seed coat, seeds are less likely to get germinated within a short period. In other words, it takes much more time to move water into the embryo. However, when the seeds are scarified, they will boost water absorption, and the germination rate will rise. That is why scarified seed balls exhibited cracks as germination indicators before non-scarified seed balls. And the first seedling emergence took place in one of the scarified seed balls.

- <u>Effect of media on seed germination</u>

The quality of a seed ball is highly dependent on its media composition. In this experiment, clay, clay-soil, vermicompost and cocopeat were used to prepare different media combinations. Water was also added along with those ingredients to mix them well.

One of the key components of a seed ball is clay. It safeguards the seed and aids in making other ingredients adhere effectively to one another. Clay soils are nutrient-rich, and they effectively retain water. Additionally, they contain a lot of microorganisms. Particularly the beneficial ones. Vermicompost has several advantages, but its key ones include acting as a biofertiliser, restoring soil nutrients, stabilising soil, and boosting soil fertility over the long term. Other than these

ingredients, cocopeat was added because of its high-water holding capacity and it promotes strong root growth.

To find out which media suited well, 25 media with various combinations were prepared. The water holding capacity and level of fragmentation were considered as the quality parameters of the seed balls. And these parameters are directly affected by the porosity of the ingredients.

The seed balls with maximum weights were measured when the clay soil mixture was added in higher quantities. But the seed balls with higher amounts of vermicompost, resulted in less weight. This is because adding more vermicompost caused the weight to decrease due to high pore space and less fine soil particles, whereas clay mixtures with low pore spaces had more compact fine soil particles. The physical characteristics were greatly influenced by this trait (water-holding capacity and level of fragmentation). Nevertheless, weights between 35g-38g were maintained.

After the drying process, it was noticed that the surfaces of some of the seed balls exhibited small surface cracks and they seemed to be more fragile. S5 and S10 (high amount of vermicompost) were observed as the most fragile ones with more cracks. A minute number of cracks were observed in S16 and S21 (high amounts of clay mixture). This is because vermicompost has a higher pore space and high disintegration rate while clay has less pore space and a low disintegration rate.

When it comes to the ability to retain water, seed balls with a high vermicompost content had the best results (S5). Followed by that, S10 and S15 had the best results. Seed balls with a high clay content had lower levels of water retention capacities (S11, S16, and S21). However, the fine soil particles are more compact and less porous, which helps to stop media deterioration during watering. The minimum and maximum times needed for seed balls to dissolve negatively affect seedling emergence and the ideal dissolving rate necessary for successful seedling emergence. Through the provision of favourable fundamental conditions, optimal media disintegration aids in seed germination. According to that, S22 and S23 showed

optimum levels of water-holding capacities. Other than that, the highest germination rate was observed in S5, S15, and S24 whereas the lowest was noticed in NSc (control). The highest seedling vigour was observed in S5 and the lowest in controls (Sc and NSc).

By looking at the results, the S5 seed ball seemed to be the best seed ball medium. However, due to the high amount of vermicompost, it seemed more fragile. And, due to its higher water retention capacity, there is a possibility of a negative impact on seed germination. In fact, S16 and S21 had the least breakages, which is a plus point. On the other hand, it also gives a negative impact on seedling emergence since that media acts as a barrier to said emergence. Therefore, by looking at the overall results, S22 and S23 seed ball media can be recommended as the best media compositions. And it was noticed that S22 and S23 produced seedlings with higher vigour. When considering the quality parameters, they were found to be given optimum conditions for seed germination and seedling emergence. In other words, they helped to enhance the physical and physiological parameters.

5.5. Study Conclusion

This study showed that seed ball technology can be utilised to restore the green coverage in deforested areas at a minimal cost. By using this method, biotic and abiotic stresses that impair seed viability and germination can be overcome. Even in situations with limited resources, it can be utilised efficiently for greater seedling establishment, vigour, and survival. And the thickness of the seed coat affects germination. Thicker the seed coat, the longer it takes for a seed to germinate. However, scarification has a significant influence on seed germination in seeds with thicker seed coats. It was also found that S22 and S23 seed ball media were the best among all.

5.6. Reference

- Jain, A., Bhadoriya, S., Ganeshpurkar, A., Narwaria, J., & Rai, G. (2011). Tamarindus indica: Extent of explored potential. **Pharmacognosy Reviews**, 5(9), 73. https://doi.org/10.4103/0973-7847.79102.
- Nwankwo, C. I., Oumarou, H. M., Nouri, M., Aminou, A. M., & Herrmann, L. (2022). Seed ball technology enhances pearl millet yield in a Sahelian subsistence

production system. **Crop & Pasture Science**, 73(4), 390-400. https://doi.org/10.1071/cp21158.

- Picker, S. (2020, June 20). **The Seed ball**. https://seedtheglobe.co m/en/blog-en/The%20Seed ball.html.
- Tamilarasan, C., Jerlin, R., & Raja, K. (2021). Seed ball technique for enhancing the establishment of subabul (Leucaena leucocephala) under varied habitats. **JOURNAL OF TROPICAL FOREST SCIENCE**, 33(3), 349-355. https://doi.org/10.26525/jtfs2 021.33.3.349.
- Tamilarasan, C., Raja, K., & Regis, J. (2020). Standardisation of seed ball technique in subabul (Leucaena leucocephala) for improving the green coverage in forest areas.

6.0. Nursery Overview

SPE tree nurseries are developed to produce quality saplings and earth balls for the environment to achieve its afforestation targets in a self-sustainable and financially feasible manner. This also comes with benefits of job creation and ability to select best genes for the native species in region.

All nurseries contribute to increasing yields of plantations and dry land rejuvenation as there is an essential need for increasing carbon sinks and stores – thus, increasing the green canopy as well as providing an important role to the nation's economy.

We provide favourable conditions to ensure successful germination and early-stage growth, eliminating soil diseases and increasing weed control. SPE nursery sites strive for low energy emissions for watering and carbon-neutral logistics, therefore reducing the carbon footprint.

The establishment of a nursery is planned under several criteria, such as location, size, water type with the right TDS, semi-skilled labour force, and proximity of seedlings to the planting locations – all of which are important in the efficiency of its development. All locations are easily accessible and have

a good permanent water supply either gravity-fed water pipelines from streams or rainwater harvested systems.

6.1. Nursery Progress

Nation-wise, the locations are initially prioritised based on their vulnerability against the effects of climate change as well as on the necessities and outreach of a "helping hand" in their endeavours to address and tackle environmental issues. SPE intends to operate, based on these criteria, while ever-expanding its reach to all nations across the globe.

- **Total nurseries established:** 3
- **Total sapling accommodation:** 3 million
- **Total tree species included:** 87
- **Total jobs created:** 35

** The figures listed above are subject to change as SPE continues increasing and expanding its nurseries.*

*** More nurseries will be added to future iterations of the whitepaper.*

6.2. Parameters

6.2.1. Nursery Considerations

Some key points to evaluate in the design plan are sourcing of plants native and indigenous, seasonal seeds, preparing the site, weed and invasive species control, compost mixture, protection of external factors with the installation of natural fencing, pest control, low energy, and intensive irrigating for saplings. We always introduce long-term maintenance and upkeep plans.

6.2.2. Tree Species Considerations

At SPE, species of trees are chosen for seed germination and sapling propagation based on the following areas: site characteristics of the planting area, size, and shape, location and exposure to external factors to reduce risks of human/nature conflict, soils and water drainage, rainfall, easy access and serviceability for the community and resistance to diseases. Therefore, native species are raised above all for sequestration rates and to increase the green canopy.

6.2.3. Biodiversity Considerations

The introduction of bees is key to better pollination on farmlands and planting sites as well as SPE nurseries. Bees require a reliable source of nutrition throughout the year just like other animals so that they do not suffer nutritional stress which can result in dying bee colonies. SPE aims to meet other UNSDGs requirements by planting multi-purpose trees and plants that feed bees on all sites along with training in apiaries.

"SPE hopes to engage the community in starting small-scale nurseries. This practice would considerably improve livelihoods by creating jobs and other opportunities. This operation would also include testing plants cultivated in the locations at random and publishing the findings to help local businesses and citizens active in agriculture."

7.0. Nursery Network

SPE Nursery network has been set up in Sri Lanka, Pakistan and Maldives. Saplings are raised throughout the year and readily available for 'Invest in Climate Action' projects available on the SPE Marketplace. Focusing on native species ranging from flowering, fruit and hardwood for high carbon densities.

7.1. Nursery Locations - Pakistan

Pakistan is famous for its sky-high mountains, lush green valleys, mighty rivers, beautiful lakes, rich culture, ancient heritage, and diverse cuisine. Pakistan contains Asia's most spectacular landscapes as it extends over an area of 882,000 km^2 with a great diversity of ecological regions and an enormous number of natural resources from the Arabian Sea in the south to the Himalaya-Karakoram-Hindukush (HKH) in the north.

Pakistan is the world's fifth-most populous country (having a population of almost 227 million), and is also an ecosystem of geographic diversity, thus offering homes to countless animal and plant species. The latter alone consists of nearly 5,700 species of vascular plants, including an estimated 2,000 medicinal plants and 430 tree species recorded in Pakistan. Aside from its dry winter season and the spring season that follows afterward, the country has its own share of hot and rainy monsoons, which – depending on the severity – can cause droughts and floods respectively. The country, unfortunately, also has a high rate of deforestation, along with hunting and pollution

which counteracts its intention to lead in the drive toward natural restoration. Fortunately, though, the government has established protected areas and wildlife sanctuaries to remedy the issue.

7.1.1. SPE Mirpur Nursery # 1

One of these nurseries is in Mirpur (New Mirpur City) – capital of the Mirpur district in Pakistan's Azad Kashmir, where it is also working on water conservation methods such as a rainwater harvesting system; it will reduce our production costs as well as produce less carbon footprint. This is the first-of-its-kind nursery in Pakistan that is using rain-harvested water. We are working with Mangla Dam Housing Authority (MDHA) – a state-owned enterprise, managing 11,000 acres of land. MDHA granted 2/5 acres of land to SPE to build their first Nursery in Pakistan and offered 1000 acres for plantation. We have chosen this area due to its geographical and demographic location, loamy soil texture (best for planting trees), fertility, rich in nutrients, and rolling terrain (gravity rain-fed). Loam soil has the best properties among the different types of soil for tree planting. This area will be a great Carbon Sink Park tree planting demo site because it's only a 1.5-hour drive from the capital, where all the climate activists and think tanks reside.

Geographic location and details of nursery			
Latitude	33° 7' 45.27" N	**Altitude**	350.36 m
Longitude	73° 46' 35.80" E	**Sapling Capacity**	3,000,000
Accuracy	+/- 4.97 m	**Nursery Size**	5 acres
Status	Planning approved, in development	**Jobs Created**	5
Operations Director	Dr. Usman Bajwa		

Below are photos of a nursery site in its early stages. Additional progress can be seen on the website and social media.

Please note: This nursery has now been handed over to the Local Governing Authority for daily management and identification of urban and rural planting sites. A second nursery is underway in Sialkot, Punjab and a large network of 3000* nurseries is in partnership with SPE. This is to accelerate the Invest in Climate Action projects on the SPE Marketplace.

** Pattoki, a town in Punjab, Pakistan, is well-known for its extensive network of nurseries, which makes it one of the largest hubs for plant nurseries in the region. The nurseries in Pattoki, varying from small to large-scale operations and are owned by either private-sector, government, or organisations. These nurseries stretch over a 5-kilometer belt along Multan Road and cover various villages within the area. SPE has joined hands with this network of nurseries for our 'Invest in Climate Action' projects initiatives.*

Below is a small selection of the tree species planted on site.

1. **Indian Laburnum**

   Local Names: Amaltas

   Botanical Name: *Cassia fistula*

   Terrain requirement: Dry, well-drained soil

   Type: Small tree

Advantages: Medicinal, fast-growing

Maximum Height (mtr): 20

2. **Indian Gooseberry**

Local Names: Amla

Botanical Name: *Phyllanthus emblica*

Terrain Requirement: Dry, well-drained soil

Type: Small tree

Advantages: Medicinal, fruiting

Maximum Height (mtr): 18

3. **Arjun Tree**

Local Names: Arjuna

Botanical Name: *Terminalia arjuna*

Terrain Requirement: Dry, well-drained soil

Type: Medium tree

Advantage: Fruiting

Maximum Height (mtr): 30

4. **Bastard Myrobalan**

Local Names: Baheda, Beach Almond, Bahera

Botanical Name: *Terminalia ballirica*

Terrain Requirement: Plains, lower hills

Type: Medium tree

Advantages: Medicinal (triphala), fruit

Maximum Height (mtr): 30

5. **Sacred Garlic Pear**

Local Names: Barna / Barma, Spider Tree

Botanical Name: *Crateva religiosa*

Terrain Requirement: Dry, well-drained soil

Type: Medium tree

Advantages: Insect magnet / aromatic, medicinal

Maximum Height (mtr): 15

6. **Stone Apple**

Local Names: Bill / Local Bel Giri / Beri

Botanical Name: *Agele marmelos*

Terrain Requirement: Dry, well-drained soil

Type: Small tree

Advantages: edible fruit, aromatic / insect magnet

Maximum Height (mtr): 13

7. **Wild Jujube**

Local Names: Jharberi / Jhaepala / Mallha / Beri

Botanical Name: *Ziziphus nummularia*

Terrain Requirement: Dry, well-drained soil

Type: Shrub

Advantage: Edible fruit

Maximum Height (mtr): 3

8. **Desert Poplar**

Local Names: Bhani

Botanical Name: *Populus euphratica*

Terrain Requirement: Dry, well-drained soil

Type: Small tree

Advantages: Saline soil / fodder

Maximum Height (mtr): 15

9. **Pomelo**

Local Names: Chakotra

Botanical Name: *Citrus decumana*

Terrain Requirement: Dry, well-drained soil

Type: Shrub

Advantage: Edible fruit

Maximum Height (mtr): 5

10. **Chamror Tree**

Local Names: Local Small Leaves Bor

Botanical Name*: Ehretia laevis*

Terrain Requirement: Semi-arid region

Type: Small tree / shrub

Advantage: Aromatic flowers

Maximum Height (mtr): 15

11. **Pongame Oiltree**

Local Names: Karanj / Charr

Botanical Name*: Pongamia pinnata*

Terrain Requirement: Variety of soil

Type: Small tree

Advantages: Legume / flowers / halophyte

Maximum Height (mtr): 25

12. **Flame of the Forest**

Local Names: Chichera / Palash / Dhak

Botanical Name: *Butea monosperma*

Terrain Requirement: Well-drained

Type: Small tree

Advantages: Bird, Pollinator attractors/mosquito traps / Punjabi folklore

Maximum Height (mtr): 15

13. **Commiphora Mukul**

Local Names: Guggal

Botanical Name: *Commiphora wightii*

Terrain Requirement: Prefers drylands

Type: Small tree / shrub

Advantages: Critically endangered, aromatic resin

Maximum Height (mtr): 4

14. **Cluster Fig**

Local Names: Gular

Botanical Name*: Ficus racemosa*

Terrain Requirement: Riverbanks / streams / slopes

Type: Medium tree

Advantages: Birds, butterflies, edible fruits

Maximum Height (mtr): 30

15. **Myrobalan**

Local Names: Local Hareer / Harad / Harar

Botanical Name: *Terminalia chebula*

Terrain Requirement: Dry slopes

Type: Medium tree

Advantages: Edible fruit, birds, medicinal

Maximum Height (mtr): 30

16. **Jhand**

Local Names: Jand, Khejri, shammi

Botanical Name*: Prosopis cineraria*

Terrain Requirement: Arid, dry soils, saline

Type: Small tree

Advantages: Legume, edible fruit, fodder, religious, indicative of deep-water table

Maximum Height (mtr): 10

17. **Mountain ebony**

Local Names: Kachnar

Botanical Name*: Bauhinia malabarica*

Terrain Requirement: Dry scrublands

Type: Small tree

Advantages: Legume / flowers

Maximum Height (mtr): 12

18. **Kamala tree**

Local Names: Raini / Kumkum Tree / Kamela

Botanical Name: *Mallotus phillipinesis*

Terrain Requirement: Evergreen, deciduous forests

Type: Small tree

Advantages: Red dye (Kumkum), fruits

Maximum Height (mtr): 25

19. **Citron**

Local Names: Khatta

Botanical Name: *Citrus medica*

Terrain Requirement: Tropical forests

Type: Large shrubs

Advantage: Fruit (one of the 4 original citruses)

Maximum Height (mtr): 5

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20 **Babul**

Local Names: Kikar

Botanical Name: *Acacia arabica*

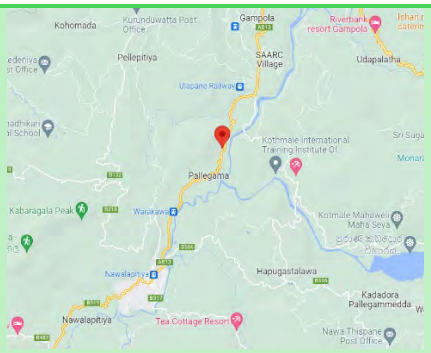
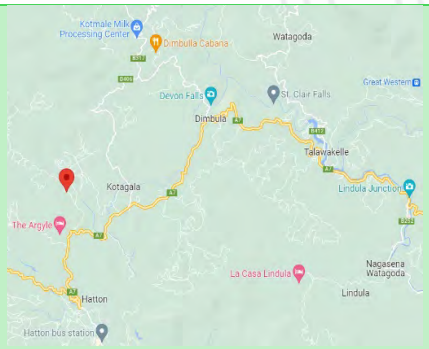
Terrain Requirement: Dry deciduous to arid, mountains

Type: Small tree

Advantages: Legume, fodder, medicinal

Maximum Height (mtr): 15

7.2. Nursery Locations - Sri Lanka

Nurseries allocated in Sri Lanka		
Location on Map	 -1-	 -2-
Status	Operational	Approved
GPS	7°05'30.6"N 80°33'17.0"E	7°31'17.5"N 80°43'29.7"E
Vicinity	Roshland Estate (Ulapane), Gampola	Knuckles Mountain Range, Matale
Size	52-acre planting site / 3-acre nursery	-
Manager	Ms Roshni	Mr. Nandana
Location on Map	 -3-	 -4-
Status	Approved	Approved
GPS	7°03'55.6"N 80°50'09.2"E	6°55'42.0"N 80°35'19.3"E
Vicinity	Maturata	Kotagala
Size	-	-
Manager	Mr. Nandana	Mr. Nandana

Sri Lanka is a tropical island nation situated in the Indian Ocean. Due to its close proximity to the equator, Sri Lanka is prone to hot climates – with temperatures averaging (monthly) between 22°C (72°F) and 33°C (92°F) in the lowlands, as well as wet climates via the occasional monsoon rainfall – averaging more than 50 inches (1,270 mm) per year in most parts of the country. The country is also a bustling haven of flora

and fauna – with a sizable portion of its land area occupied by forests, grasslands, and a dozen major rivers.

Like many countries, Sri Lanka is also experiencing the adverse effects of climate - caught between harmful droughts from hot seasons and destructive floods brought on by wet season's heavier rainfalls. Roughly 50 percent of its citizens living in low-lying, coastal areas are also in danger of potentially-imminent sea level rise – a similar dilemma faced by many other island nations with such vulnerabilities.

7.2.1. Roshland Estate Nursery

Viewed from the main highway and the "Fool's Bridge" – a frequently visited tourism spot, this location is a virgin field enriched with red lateral soil, which is ideal for scrub forests and pastures. As it has remained untouched by human activities, along with an initial zero-carbon footprint, it can be catered to SPE's specific planting techniques.

The consistent rainfall in the vicinity is an enabler for SPE's rainwater harvesting system, while irrigation is gravity-fed, hence accumulating zero energy and electricity in SPE's operations.

As it already holds a high reputation for its adventure and nature park hiking trails, its prominent elevation location also makes it a suitable spot to garner attention towards SPE's activities, and even more so once a carbon sink park is established there.

7.2.2. Trees in the Roshland Estate Nursery

Below is a short description of some of the tree species used in the operations. More information will be listed in future updates.

- Mahogany: Mahogany blooms between April and June, attracting insects to pollinate its blossoms. Its major commercial application is in crafting, but it is also utilised for boat construction and outdoor decking due to its colouring and robust nature, as well as its resistance to wood rot.
- Tamarind: Tamarind is well-known for its culinary and medicinal uses; it produces brown, pod-like fruits with sweet, tangy pulp, and is rich in vitamin B and vitamin C, as well as potassium, magnesium, and other minerals. Its medical uses include

the treatment of sore throats, constipation, and sunstroke. Tamarind trees are used as ornamental, garden, and cash crop plantings throughout South Asia and the tropical world, and they can also be grown as indoor bonsais in temperate climates. It also helps with nitrogen fixing.

- Teak: Like Mahogany, Teak also possesses similar characteristics that make it suitable for crafting and manufacturing. However, it also contains natural oils that make its timbers resistant to termites and other pests. Its leaves are used in a few delicacies in South India as well as Indonesia. The largest teak tree – named Homemalynn 1 – measures 27.5 feet (8.4 meters) in circumference and stands 110 feet (34 meters) tall.
- Belly Bamboo: Scientifically known as the *Bambusa ventricosa*, the Belly Bamboo is a non-invasive evergreen plant. Considered a type of bonsai, it is mostly used for decorative and ornamental purposes. Its long, dark green leaves make it an ideal choice for a privacy screen in warm and/or temperate conditions. It has a high resistance to diseases.

A total of 40 species are currently designated for the operations. They consist of:

Naminam cynometra cauliflora, Canistel pouteria campechiana, Soursop, Loquats, Madhuca longifolia, Mesua nagassarium, Pomelo citrus grandis, Large guava (Psidium guajava), Jackfruit, Rambutan, Local small mango variety, Wood apple, Mango, Passion fruit, Local guava, Red rose apples, Pepper, Indian beech tree (Pongamia pinnata), Terminalia arjuna, Teak, Tamarind, Golden shower tree (Casia fistula), Mahogany, Sapu (Ginisapu michelia champaca), Koboleela/Orchid tree (Bauhinia varigata), Lagerstroemia speciose, Sal Shorea robusta, Breadfruit, Mara Albezia saman, Bridelia retusa, Cloves, Garcinia (Goraka), Madan black plum (Zysigium cumini), Robarosia, Cocoa, Vaaya, Fishtail palm (Kithul), Albezia lebbek, Pomegranate, Belly bamboo, Grapefruit, Pepper, Cinnamon, Durian.





7.3. Nursery Locations - Maldives

The Maldives is a nation of 1,190 islands clustered in Indian Ocean, touted for its sun and sand, crystal-clear waters, and its branding to the world as a tropical wonderland. It mostly relies on both its bountiful fishing industry and appealing tourism

industry to sustain its economy, while its population thrives within the country's island and/or urban lifestyle.

Being a low-lying nation, the Maldives is at high risk of sinking under rising sea levels, brought on by climate change. While it shifts between a south-west monsoon and a north-east monsoon, bringing around a dry season and a wet season respectively, climate change has exacerbated the conditions of these weathers, leading to days of either intense heat or heavy downpours. As the sea level rises, islands are prone to erosions and flooding, which can cause structural and financial damage.

The pristine marine ecosystems of the Maldives are being threatened by natural factors such as climate change and related factors such as coral bleaching. They are also threatened by anthropogenic activity such as tourism and over-exploitation without consideration given to biodiversity. Pollution from uncontrolled waste disposal, untreated sewage and land reclamation, and channel building are significant threats to biodiversity. However, turtle and shark fishing has been banned, as has coral mining. Threats or pressures on terrestrial biodiversity include damage due to unsustainable agricultural practices, such as overuse of chemical fertilisers and pesticides, removal of vegetation for infrastructure and human settlement, and developmental practices.

The terrestrial biodiversity of the Maldives is limited due to small size of the islands. Fauna and flora are primarily associated with the tropical climate, coral soil, and coastal regions found on the islands. Native plants of the islands can be ecologically grouped into five categories of vegetation: beach pioneers, littoral hedge, sublittoral thicket, climax forest, mangrove and swamp forest. Many islets provide several natural sanctuaries for birds. Due to the absence of large freshwater bodies to support the system, there are only a few mangroves and swamps on some islands, but these are not well-developed. Nearly three-quarters of available land area is less than 1 meter above mean high tide.

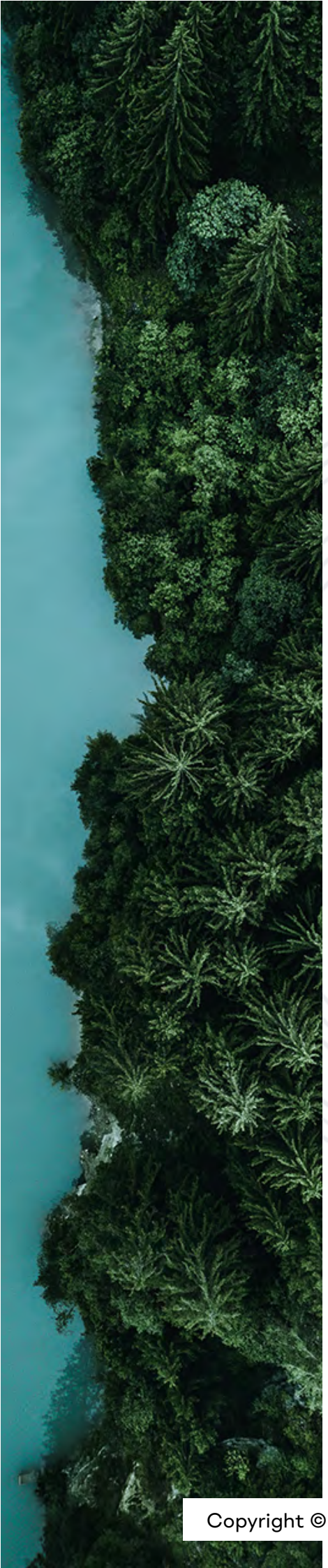
The Maldives is highly dependent on its natural resources for its national income, food, and other basic needs. A study on the economic values of biodiversity indicates that 98% of national exports, 89% of the GDP, 62% of foreign exchange, and 71% of national employment are derived from biodiversity.

Nurseries allocated in Maldives		
Location on Map	 -1-	 -2-
Status	Operational on a partnership basis	Operational
Vicinity	Laamu Atoll	Medhukuburudhoo
Species	Fruits and shoreline defence	Fruits and shoreline defence
Manager	Mr. Ramiz	Mr Idris

7.3.1. About the trees

583 plant species have been recorded in the Maldives, of which 323 are cultivated, and 260 are native or naturalised species. This is a relatively large number considering the island's geographical isolation, harsh climatic conditions, absence of large landmasses, and poor and infertile nature of island soil. We have gone through plants and trees that grow in the Maldives, and we selected 40 plants and trees – all of which will be listed in the separate Tree Catalogue document available on our website.

Use of old plastic cans in efforts to recycle and reuse



8.0. Proposal for Green Development Projects

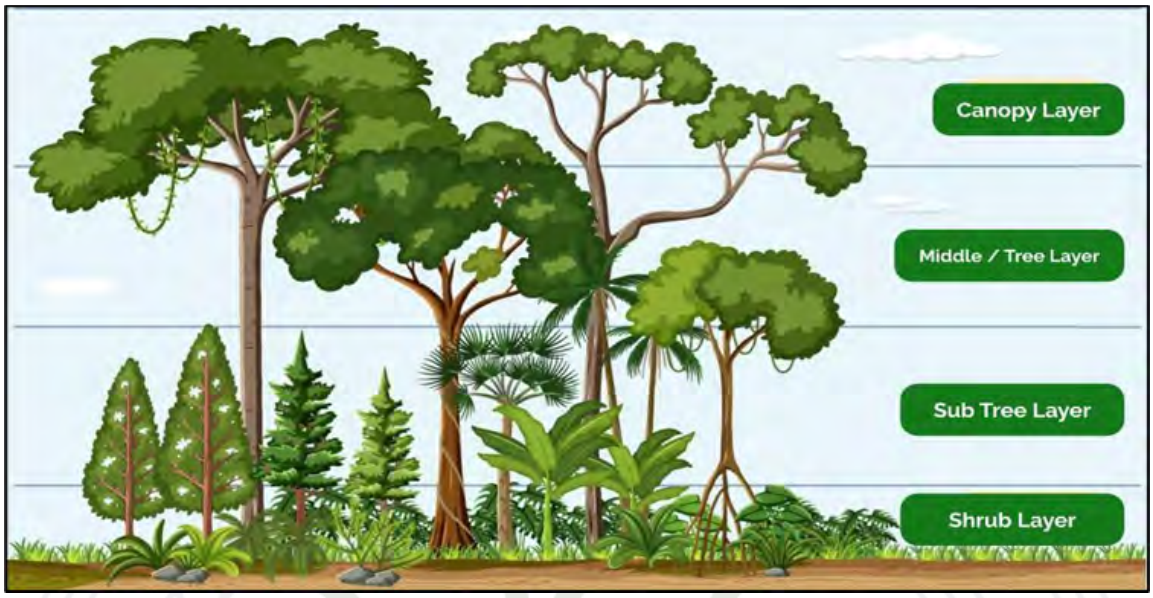
SPE has experts in the following techniques to maximise the carbon store and increased yield levels for the enhancement of the community outreach programs.

- Multilayer – Canopy, Tree, Sub-tree, Shrub
- Paradoxical (Conservation)
- Urban Forestry
- Intercropping (SPE has devised a revolutionary cluster technique with Small FarmHolder)
- Japanese Miyawaki
- Dry Lands Restoration/Arid Land Regeneration
- Reversing Desertification
- Soil Carbon Sequestrations
- Mangrove Conservation and propagation
- Swale techniques in Mountainous regions
- Agroforestry and Sustainable Agrotech
- Permaculture with rainwater harvesting
- Holistic land and livestock management – Sequestering carbon through holistic planned grazing.

SPE also provides workshops on yield increase, working with Small Farm Holders. To add value addition to the Carbon Credits by focusing on the UNSDGs.

8.1. Types of Trees to be Used in the Afforestation Project

SPE is promoting multilayer forestry techniques maximising land usage. Different types of plants will be used in different layers with tree selection according to the climate zone and soil type of the location.



- Canopy layer – Large and medium size native trees, valuable trees with high timber value
  - Kumbuk (*Terminalia arjuna)*
  - Mee / Mahua (*Madhuca longifolia*
  - *Albezia lebbeck*
  - Jack fruit (Artocarpus *heterophyllus)*
  - Teak (*Tectona grandis*)
  - Mahogany (*Swietenia mahagoni)*
  - Tamarind (*Tamarindus Indica)*
  - Rubber
  - Sapu/Champaca
- Middle Layer/Tree layer – Small to medium-sized trees. Fruit-bearing trees, commercial crops
  - Mango (*Mangifera indica)*
  - Rambutan
  - Cocoa
  - Garcinia (*Garcinia zeylanica)*
  - *Gliricidia*
  - Margosa (*Azadirachta indica)*
  - Pepper (*Piper nigrum)* as climbers
  - Passion fruits as climbers
- Sub tree layer – taller than a human
  - Coffee
  - Orchid tree (*Bauhinia sp)*
  - Grapes as climbers.
- Shrub layer
  - Peanuts
  - Taro root
  - Any other vegetables that can be used as intra-crop

Saplings will be arranged in a zigzag pattern rather than a linear and a mix of plants that can be grown together will be used in our planting sites. In this manner, over 800 plants can be planted per acre.

A large canopy layer and medium-sized tree layer will provide shade-required for the area and help to reduce atmospheric temperature. Sub tree layer and shrubs will mainly consist of commercial crops which will be generating an income. SPE's Paradoxical, multilayer afforestation approach creates a dense forest maximising land usage.

Increased forest cover reduces groundwater evaporation while trees such as "Kumbuk" enrich and purify the groundwater hence planting them at the banks of the rivers and tanks can purify water.

8.2. Planting Mangroves Along the Coastline

SPE will promote planting mangroves along the shores, which improves the ecosystems of life underwater. Current advisory roles are ongoing with the Government of Saudi Arabia and Sri Lanka.

Mangrove forests are vital for mitigating climate change, supporting biodiversity, and protecting coastal communities. Their strategic importance in the fight against climate change and environmental degradation is recognised globally, making their conservation and restoration a priority. Here are some reasons why mangroves are so critical:

8.2.1. Carbon Sequestration

Mangroves are exceptional carbon sinks. They sequester carbon at a rate two to four times greater than mature tropical forests and store three to five times more carbon per equivalent area. A significant portion of this carbon is stored in soil beneath

mangroves, which can remain stored for centuries, thus reducing amount of CO2 in the atmosphere.

8.2.2. Climate Regulation

Mangroves also contribute to climate regulation by stabilising coastlines and reducing erosion from storm surges, currents, waves, and tides. Their complex root systems trap sediments flowing down rivers and off the land, thereby preventing them from settling in coastal waters and disrupting coral reefs and seagrass ecosystems.

8.2.3. Biodiversity

Mangroves are biodiversity hotspots. They provide a unique habitat for a wide range of species, including fish, birds, and mammals, many of which are rare and endangered. They also serve as nurseries for numerous fish species, including many that are commercially important. Moreover, Mangrove forests support the livelihoods of many coastal and indigenous communities, offering food, timber, fodder, traditional medicines, and opportunities for tourism.

At SPE, we're proud to have some of the top experts in our team who have done extensive research on mangrove ecosystems. Their expertise enables us to design and implement effective strategies for mangrove planting and conservation. We're committed to enhancing these valuable ecosystems' health and resilience while generating verified carbon credits from these projects. Our efforts ensure that the benefits of mangroves – from carbon sequestration to biodiversity support and community livelihoods – are protected and enhanced for future generations.

9.0. Entropy vis-À-vis Blockchain Paradox

The thermodynamic term 'Entropy' defines the amount of disorder made in, for example, when burning fuels produce ash. Here, entropy (disorder) products would be mainly ash and carbon dioxide (CO_2) coupled to other emissions. Established scientific principles state that disorder, hence the ash and emissions formed, can never be reversed to its original elements. This is indeed bad news for the world associated with unprecedented degrees of Global Warming and Climate Change, triggered by heavy doses of CO_2 and emissions in the air. These emissions are released from processes that rely on burning fossil fuels to support the ostentatious living styles of humankind. The emissions made can never be reversed or re-generated as the starting fuels from a thermodynamic standpoint. At the same time, global temperatures are rising which is frightening.

The good news is that there is a novel way to convert the enormous amounts of CO_2 in the atmosphere by a simple method, known as Carbon Sequestration, very effective in storing carbon in trees. However, sequestration can also include storing carbon in mangroves, corals, and so on. These natural systems sequester carbon all the time if given a chance to do so without being meddled with by humankind.

The problem is that there is not enough tree cover to go around or bubbling mangroves or marine life observed anymore, and we have to increase the relative volume of each type. Lands have been de-logged excessively, mangroves are almost all gone, and coral reefs are now a dying breed. Present CO_2 levels in the air exceed 400 ppm (parts per million), whereas over 150 years ago, it was below 250 ppm during the early days of the industrial revolution.

It is clear that global warming has broadened its span, and that the climate is now warming up faster. Ocean levels have risen, small island states are not safe anymore, global temperatures have shot up, and climate change disasters have changed lives forever.

One would ask why human-induced carbon sequestration activities in the few decades gone by have not worked. Why have CO_2 levels in the

atmosphere remained more or less the same? Why do we observe more frequent climate hazards of untold force and destroying power? Why have governments not delivered to the mandated levels expected by the People? Has it been a case of far too little, far too late?

SavePlanetEarth (SPE) has come up with a worldwide plan for Rapid Deployment of Carbon Sequestration to build a Global Tree Canopy. SPE does so by developing its revenue stream based on the blockchain, a name for a massive infrastructural labyrinth well understood by financiers, hospitals, and other services. The heart of the action is the emergence of a crypto token, in this instance benchmarked to be SPE's new eco-token.

Cryptocurrencies have a reputation for being more energy-intensive in the making than the desired end product, that is, the tons of carbon saved or sequestered. The answer lies in how the marketplace interprets energy costs on the two main fuel types: fossil fuels and renewable energy, namely solar, wind, hydropower, and so forth.

A careful analysis reveals that energy costs per se, typically expressed in LCoE (Levelised Costs of Energy), conveniently treat expenses and benefits from these two energy systems using the same yardstick that disfavours costing for renewable energy and makes it appear as of higher cost, often always.

To illustrate, in the case of fossil energy, its LCoE costing is based on a one-time fuel-per-generator event that produces instant energy, emissions, and water vapor. Undesirable side effects from fossil fuel use, called externalities, namely the environmental, health, and social costs, are not captured in LCoE costs. Hence, LCoE costs for fossil fuels look so impressively lower in today's markets that they increase the propensity towards increased (fuel) consumption (thus more Global Warming).

Another factor is removed from fossil fuel costs, perhaps due to natural resource economics being left out. These are related to the 'opportunity costs' of removing fossil fuels from the Earth's crust. Entropy states that fossil fuels, once removed, will not be reformed, not in this millennium at least; the damage done to the interests of future generations in terms of their resource share is not captured in today's

fossil fuel costing, unfortunately. Hence on a generation cost per se, the cost of fossil-fuel energy in the marketplace is suppressed or looks lower than its actual reading.

Hence comparing fossil fuel-energy costs with their underlying negative externalities and against renewable energy costs is like comparing apples and oranges or ballets to jazz dances. In the writer's opinion, the existing energy costing system declared to the world by the marketplace is lopsided.

Unfortunately, it is also the basis on which energy-use statements are frequently made. If trees are being sequestered in more extensive measures, as targeted in the SPE's Global Program, then there is the likelihood that renewable energy costs would shrink even lower. In the case of a tree- canopy developed to be a carbon sink, this will be a boon towards setting up more biomass power and other renewable energy-based energy generation scenarios.

Also, given that renewable energy features in the broad energy mix within grids in most countries to about 24% compared to about 85% of fossil fuels, the cost of energy production processes should be adjusted to reflect the actual costs of fossil fuels. In this background, it is proposed that actual fossil fuel and hence energy costs be revised and expanded by a factor of at least two-fold whenever a more significant proportion of fossil fuels are inherent in an electrical grid.

As an illustration, if the generalised energy costing for a production process says, USC 10/kWh in a fossil-fuel-dominated grid in any location, the actual costs of energy should read close to at least double, at USC 20/kWh given the environmental externalities to be cast into the fossil fuel-based costing equation. These require carefully formulated cost calculations.

The SPE team is fully aware of this costing paradox that disfavours renewable energy. The associated costs would be admirably lower if a cryptocurrency is made purely from a renewable energy process. Nevertheless, current infrastructural systems do not offer a way of doing this.

The above sums up the cost of SPE's climate coins and the value systems it is leveraged on. SPE is

tapping country partners across the world for a broad-scale carbon sequestration initiative. SPE crypto is only one of the many in its arsenal for carbon sequestration. Carbon sequestration programs initiated by SPE are diverse that could use crypto investments or grants, or donations. Well-wishers and donors are welcome to join SPE's Fight against Global Warming and Climate Change.

10.0. LCoE Approach

In the general industry or marketplace, energy pricing is often benchmarked to what is known as the LCoE (Levelised Cost of Energy) method.

LCoE is considered the unit energy cost of a particular fuel type concerning all lifetime costs when used to generate energy. In a fossil fuel generator, the LCoE is arrived at by consideration to the following:

- Fossil fuel and energy costs
- Fuel costs per volume or weight or energy unit
- Generator operating costs
- Erection and decommissioning costs
- O & M (Operations and Maintenance) costs

The following costs, called externality costs, are generally not considered or added to the energy costs from a fossil fuel generator:

- Social displacement costs from having to move people or communes due to the generator sitting.
- Health costs from emissions from generator.
- Environmental costs from Emissions inclusive of Impacts from global warming and climate change.

While the externality costs (shown above) are accurate for almost all fossil fuel generators (nuclear fuel included), these are hardly factored into LCoE costs in day-to-day energy pricing. This makes modern-day energy pricing much lower than its actual costs, relative to costs toward humanity.

When it comes to costing environmentally friendly renewable fuels or energy, the following cost elements are generally applicable:

- Equipment Erection and Decommissioning Costs
- O & M Cost
- Fuel Costs: Considered almost zero as renewable energy is involved.

However, the externality costs shown above cannot be so factored into renewable energy systems due to their environmentally benign nature compared to those in fossil fuel-driven energy systems. This yields a different LCoE value system when it comes to renewable energy costing.

For this reason, LCoE are not a good measure to view fossil fuel and renewable energy on a side-by-side (or comparative) basis.

This is inherent in the manufacturing costs of many production systems, including cryptocurrencies, where the manufacture of cryptocurrencies using fossil fuels is more expensive than even what is shown. If renewable energy can be used for this process, the costs would be definitively lower, provided the capital costs of the RE equipment are also sufficiently low. This is one of the highlights of SPE's research.

Future Generational Value Systems: This is a crucial area of SPE's ongoing research, and more highlights of this area will be provided shortly. SavePlanetEarth is for the future generations that do not yet have a say on the damage being done to the environment.

11.0. Understanding Carbon Credits and Offsets

Carbon credits are permits that allow the holder to emit a certain amount of carbon dioxide or other greenhouse gases. One credit permits the emission of one ton of CO_2 or its equivalent. They are a part of international attempts to reduce greenhouse gas emissions, and the goal is to incentivise companies to reduce their emissions and invest in environment-friendly initiatives.

Carbon offsets are reductions in emissions of carbon dioxide or other greenhouse gases made to compensate for emissions made elsewhere. They are typically measured in metric tons of CO_2-equivalents (CO_2e) and can represent different types of activities like tree planting, renewable energy projects, or carbon capture and storage.

11.1. Voluntary Emissions Reduction (VER)

VERs are exchanged in voluntary markets where companies and individuals can buy carbon offsets to neutralise their carbon footprint.

11.2. Certified Emissions Reduction (CER)

These are created through a regulatory framework and involve certification by a credible third-party body.

11.3. SPE's Carbon Credit Model

The carbon arrangement will provide value for investors by leveraging green projects like tree growth and emission reduction technologies. With companies' continuous demand for carbon

offsets, SPE aims to ensure a steady revenue stream, leading to more carbon being sequestered from the atmosphere.

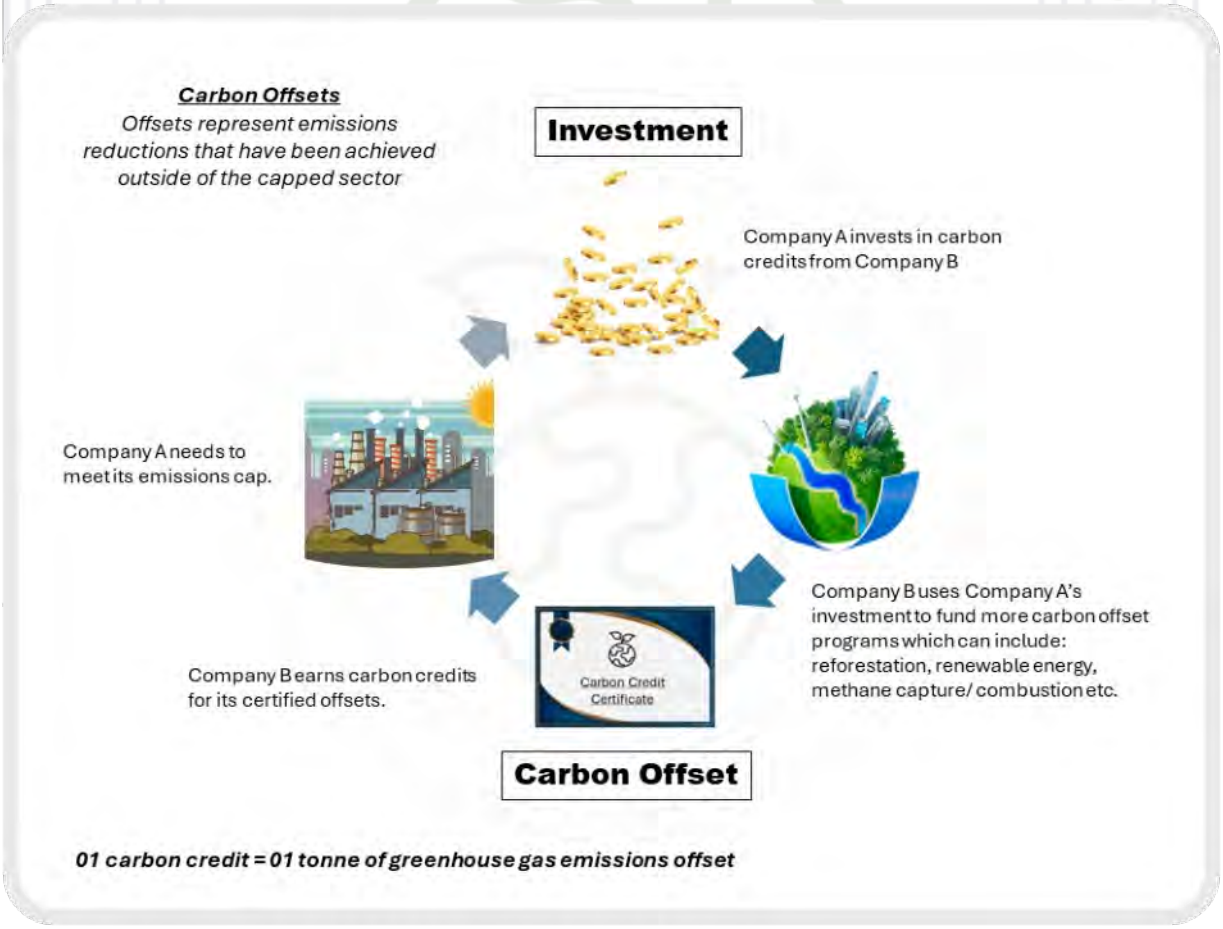
11.4. Carbon Pricing

Carbon Prices: Carbon pricing is a tool used to reduce greenhouse gas emissions by assigning a cost to emitting carbon dioxide (CO2) or other greenhouse gases. The idea is to make the cost of emitting carbon high enough that it encourages companies, individuals, and governments to reduce their carbon footprints.

World Bank's Recommended Carbon Prices:

- By 2020: The World Bank suggested that carbon prices need to be in the range of US$40-$80 per ton.
- By 2030: The target range increases to US$50-$100 per ton.

As of recent years, carbon prices in most regions remain below the recommended levels, raising concerns about the ability to meet the Paris Agreement targets. However, there is growing momentum, with some countries and regions adopting or planning to adopt more aggressive carbon pricing policies.



11.5. Global Goals and Carbon Footprint

Global Carbon Footprint: To prevent a rise in global temperatures exceeding 2°C by 2050, it is imperative that the average global carbon footprint per person falls below 2 tons annually. This is a significant reduction when compared to current averages: in the United States, the carbon footprint is approximately 16 tons per person, in the United Kingdom, it is around 8 tons, and globally, the average stands at 4 tons per person. These figures highlight the urgent need for substantial reductions in carbon emissions across all regions to meet climate targets.

The Role of SPE in Carbon Footprint Reduction: The SPE carbon credit solution is designed to offer a systematic and regulated method for offsetting carbon footprints through both voluntary and certified emission reductions. By leveraging cutting-edge technologies such as NFTs (Non-Fungible Tokens) and blockchain, SPE has developed a scalable and transparent platform for the management and trading of carbon credits.

Integration of Technology for Climate Action: The integration of blockchain technology ensures that all transactions related to carbon credits are secure, transparent, and immutable. This level of transparency builds trust among participants and enhances the credibility of carbon offsetting efforts. NFTs, on the other hand, are used to represent unique carbon credits that can be traded or retired, ensuring that each credit is accounted for and cannot be double counted.

Contribution to Global Climate Goals: Through its innovative approach, SPE is making a significant contribution to global efforts aimed at mitigating climate change. By providing a reliable and efficient system for carbon credit trading, SPE supports individuals, companies, and governments in their quest to reduce carbon footprints and achieve climate goals. This approach not only helps in meeting the stringent targets necessary to limit global warming but also encourages broader participation in carbon reduction initiatives.

Achieving the global carbon footprint reduction needed to avoid catastrophic climate change is a monumental task. However, with structured solutions like those offered by SPE, which harness the power of technology, there is a viable pathway to reaching these critical environmental targets.

12.0. Challenges of Current Carbon Credit Market

The carbon credit market, a crucial mechanism for mitigating climate change, has faced numerous challenges affecting its efficiency, credibility, and overall impact. SPE outlines key issues within the current carbon credit market, supported by research and expert analysis.

Carbon credits are a vital tool for reducing global greenhouse gas emissions. However, the market designed to trade these credits is plagued by several problems that undermine its effectiveness. These issues include lack of standardisation, verification challenges, market manipulation, and limited scalability.

12.1. Challenges

12.1.1. Lack of Standardisation

One of the primary issues in the carbon credit market is the lack of standardisation across different schemes and regions. This lack of uniformity results in

varying quality and credibility of carbon credits, making it difficult for buyers to assess their true environmental impact.

Evidence and Analysis

Diverse Standards: Various voluntary and compliance-based carbon credit standards exist, each has different methodologies, verification processes, and criteria for credit issuance.

Market Fragmentation: The absence of a unified framework leads to market fragmentation, causing inefficiencies and reducing overall trust in carbon credits.

12.1.2. Verification Challenges

Ensuring the integrity and authenticity of carbon credits is another significant challenge. Verification processes are often complex, resource-intensive, and inconsistent, leading to issues such as double counting and overestimation of emission reductions.

Evidence and Analysis

Inconsistent Verification: Different standards and registries employ varied verification protocols, leading to inconsistencies in how emission reductions are measured and reported.

Double Counting: Instances of double counting, where the same emission reduction is claimed by multiple entities, have been reported, undermining the credibility of carbon credits.

Overestimation of Reductions: Some projects overestimate their carbon sequestration or emission reduction potential, resulting in the issuance of credits that do not correspond to actual environmental benefits.

12.1.3. Market Manipulation

The carbon credit market is also vulnerable to manipulation and speculative trading, which can distort prices and reduce the effectiveness of carbon credits in driving genuine emission reductions.

Evidence and Analysis

Speculative Trading: The entry of financial speculators into the carbon market has led to price volatility and the potential for bubbles, which can de-stabilise the market.

Fraudulent Activities: Cases of fraud, such as selling non-existent or invalid credits, have been documented, eroding trust in the market.

12.1.4. Limited Scalability

The current carbon credit market has struggled to scale effectively to meet the growing demand for emission reductions. This limitation is due to bureaucratic processes, high transaction costs, and limited project development capacity.

Evidence and Analysis

High Transaction Costs: The administrative and verification costs associated with generating and trading carbon credits are significant, limiting the scalability of the market.

Project Development Barriers: Developing carbon offset projects, particularly in developing countries, faces numerous barriers, including regulatory hurdles and lack of financing.

The current carbon credit market is hampered by several critical issues that need to be addressed to enhance its effectiveness and credibility. Standardisation, improved verification processes, measures to prevent market manipulation, and strategies to enhance scalability are essential for the market to realise its potential as a tool for combating climate change.

Similar to decentralised bond markets where money is lent with interest rather than stock markets where investors buy shares of companies or other entities in the hope of profiting from their financial performance, carbon markets operate similarly. Carbon credits are injected into this market in the same way that cryptocurrency is assorted into the digital ledger known as a blockchain - a system in which a record of its transactions is kept across numerous computers connected in a peer-to-peer network, making it transparent and unchangeable while operating without involving any third-party intermediary.

Companies with a high number of emissions and few options for reduction can purchase carbon credits from these markets to offset their emissions in a process known as *cap and trading*. The offset will make them carbon-neutral or net-zero. Though, they must still integrate the funding of carbon credits into their Environmental Social and Governance (ESG) criteria, which places emphasis on regulations and investments in those areas.

Carbon markets and ESG criteria are put in place to speed up carbon sequestration efforts as well as help companies adapt to the ever-growing green policies.

https://www.bloomberg.com/news/articles/2020-11-19/the-world-is-running-out-of-carbon-credits-the-un-wants-to-help

"With global carbon prices set to increase further in the future, minimising the GHG emissions of a portfolio should not only contribute to the fight against global warming, but it should also lead to better risk-adjusted returns in the long run."

https://am.jpmorgan.com/hu/en/asset-management/institutional/insights/market-insights/market-updates/on-the-minds-of-investors/carbon-pricing-implications/

"According to the OECD, a price of $147 a tonne is needed by 2030 if the world hopes to reach net-zero carbon emissions by 2050, almost triple the current price in the EU's Emissions Trading System of around $59 a tonne."

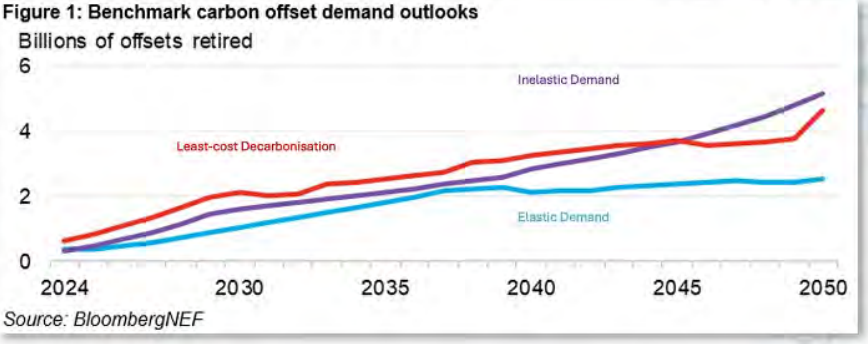
https://www.reuters.com/business/sustainable-business/asset-owners-managing-6-trln-call-global-carbon-price-2021-07-05/

"Exxon believes there will be a $2 trillion market for carbon capture by 2040 and recently announced a $3 billion investment over the next five years in new carbon capture and storage (CCS) projects."

https://www.forbes.com/sites/daneberhart/2021/03/09/oil-giants-bet-big-on-expected-2-trillion-carbon-capture-market/?sh=122602813e8a

VOLUNTARY CARBON MARKET OUTLOOK

Figure 1: Benchmark carbon offset demand outlooks



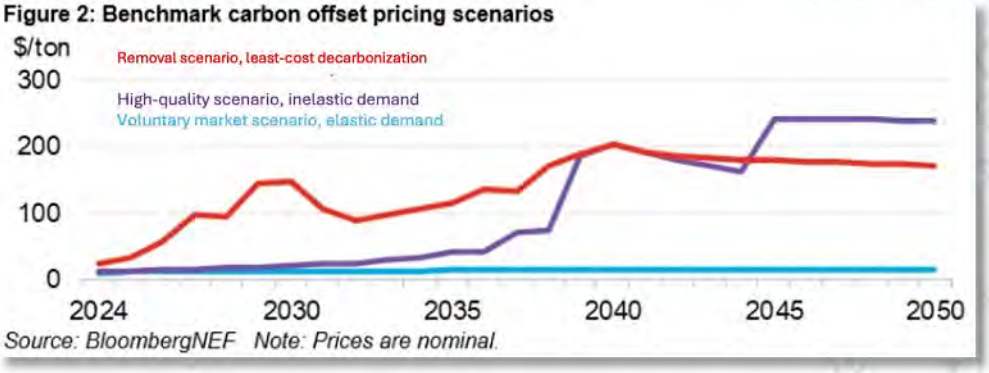
Source: BloombergNEF

Least-cost Decarbonisation (Red Line) scenario represents a pathway where carbon offset demand increases steadily, reflecting the adoption of cost-effective measures to reduce carbon emissions over time.

Inelastic Demand (Purple Line) scenario represents the demand for carbon offsets grows more rapidly, suggesting that the demand is less sensitive to changes in price or other factors.

Elastic Demand (Blue Line) scenario depicts a more moderate increase in demand for carbon offsets, indicating that the demand is more sensitive to changes in price or other factors.

Figure 2: Benchmark carbon offset pricing scenarios



Source: BloombergNEF Note: Prices are nominal.

The inelastic demand scenario (purple line) sees the highest prices, reflecting strong and potentially inflexible demand for high-quality offsets.

The elastic demand scenario (blue line) maintains lower prices due to greater flexibility and supply options.

The least-cost decarbonization scenario (red line) shows significant price increases early on, which then level off, indicating a balance between cost-efficiency and demand.

Carbon Credits Face Biggest Test Yet, Could Reach $238/Ton in 2050, According to BloombergNEF Report | BloombergNEF (bnef.com)

12.3. Current trends in the Voluntary Carbon Market

According to the Ecosystem Marketplace report- 'On the Path to Maturity', State of Voluntary Carbon Market, 2024- in 2023, the Voluntary Carbon Market (VCM) faced a significant contraction as market activity declined sharply for the second consecutive year following its peak in 2021. The total transaction volume dropped by 56%, while the market value shrank by 61%, signalling a retreat in both buyer confidence

and overall investment in carbon credits. Several factors contributed to this downturn, including heightened media scrutiny questioning the additionality of projects and potential corporate greenwashing, which led to increased complexity for project developers and a pullback in buyer investments. Despite these challenges, the average price per ton of CO_2e remained relatively stable, indicating a continued demand for high-quality credits, especially those representing emissions removals and delivering tangible co-benefits.

a) Voluntary Carbon Market Size, by Value of Traded Carbon Credits, pre-2005 to 2023

This chart shows a significant contraction in the Voluntary Carbon Market (VCM) from 2022 to 2023, with a **56% drop in transaction volume**, a **61% decline in total market value**, and an **11% reduction in average carbon credit prices**. Despite reaching a record value of **$1.87 billion USD** and a transaction volume of **253.8 $MtCO_2e$** in 2022, the market shrunk to **$723 million USD** and **110.8 $MtCO_2e$** in 2023, indicating a substantial pullback in activity.

b) Voluntary Carbon Market Size, by Volume of Traded Carbon Credits, pre-2005 to 2023

The VCM experienced a notable drop in transaction volume from **254 $MtCO_2e$** in 2022 to **111 $MtCO_2e$** in 2023, following a peak of **516 $MtCO_2e$** in 2021. Despite this contraction, the cumulative volume of traded carbon credits has steadily increased, reaching **2.4 billion tCO_2e** by 2023.

Source: *Ecosystem Marketplace: Data for 2024. Weighed based on data from Respondents with transactions in 2023, compared to Respondents in 2022.*

The contraction in the VCM was driven in part by growing scepticism about the environmental impact and governance of carbon credit projects. Media reports questioning the effectiveness and credibility of many carbon-offset initiatives led to increased caution among corporate buyers, who feared accusations of greenwashing if their offsets were found to lack genuine additionality. This hesitation translated into a marked reduction in the volume of carbon credits transacted, as shown by the sharp drop from 254 million tons of CO_2e traded in 2022 to just 111 million tons in 2023. Similarly, the total value of the market fell from $1.87 billion in 2022 to $723 million in 2023, reflecting the uncertainty gripping the market. While volumes and values plummeted, the **price per ton of CO_2e** remained relatively stable, with a slight decline from **$7.37 USD in 2022** to **$6.53 USD in 2023**. Despite the downturn, prices in 2023 were still higher than pre-2022 levels, reflecting the ongoing demand for carbon credits, even if reduced in volume.

In response to this environment, buyers became more discerning in their purchasing decisions, favouring credits that clearly demonstrated emissions removals and additionality. However, while there was a growing supply of credits tied to sustainable development goals (SDGs) and other co-benefits, the premium that buyers were willing to pay for these credits declined. This suggests that even as the market matured with more projects providing local co-benefits, price sensitivity increased, further contributing to the overall decline in market value. Despite these setbacks, prices per ton remained higher than pre-2022 levels, signalling the resilience of the market as it adapted to evolving buyer demands and increasing scrutiny.

12.4. Recommendations and Development Basis for PCS

- **Establish Uniform Standards:** Develop and adopt a unified set of standards for carbon credits to ensure consistency and comparability.
- **Enhance Verification Processes:** Implement robust, transparent, and standardised verification protocols to ensure the integrity of carbon credits.
- **Regulate Market Practices:** Introduce regulations to curb speculative trading and prevent fraudulent activities in the carbon credit market.

- **Reduce Transaction Costs:** Streamline administrative processes and leverage technology to reduce the costs associated with generating and trading carbon credits.
- **Support Project Development:** Provide financial and technical support to enhance the development of carbon offset projects, especially in developing countries.

13.0. Addressing Greenwashing and Inherent Issues

The carbon credit market is an essential component of global efforts to mitigate climate change by providing a financial mechanism to offset greenhouse gas emissions. However, this market is fraught with challenges such as greenwashing, double counting, lack of transparency, and inconsistent quality of credits. This whitepaper explores how the Planetary Carbon Standard (PCS) and SavePlanetEarth (SPE) aim to solve these issues using advanced technologies and rigorous governance frameworks.

Greenwashing refers to the practice of conveying a false impression or providing misleading information about how a company's products are more environmentally sound than they truly are. This issue undermines the credibility of the entire carbon market.

Many carbon credit projects lack comprehensive disclosure of their methodologies, baselines, and verification processes, making it difficult for stakeholders to assess the credibility of the credits. The carbon credit market suffers from variability in the quality of credits due to differing standards and methodologies used by various certifying bodies.

13.1. Comprehensive Information Disclosure

PCS and SPE prioritise transparency by providing detailed information on credit activities, ensuring stakeholders access to comprehensive data regarding carbon credits.

Carbon Project Design Document (CPD) - PCS uses a digitised CPD template that includes detailed descriptions of project activities, site descriptions, carbon pools, and strategies to reduce or avoid GHG emissions. This document is scrutinised and undergoes a pre-feasibility study before project registration.

- **Monitoring Strategy -** The CPD template outlines a transparent baseline approach, including methodologies, key information, and data used to determine the baseline scenario.

- **Blockchain Technology** - PCS employs blockchain technology to create an immutable record of each verified carbon project and each carbon credit, ensuring that each credit is unique and cannot be claimed more than once, hence prevention of double counting.
- **Transaction Trails and Offset Wallets** - Blockchain-based transaction trails track the journey of each carbon credit, and offset wallets ensure credits used for offsetting cannot be reused.
- **API Integration** - PCS integrates with its registry via API to update credit statuses in real time, ensuring that all stakeholders have up-to-date information on credit issuance and retirement.
- **Ensuring Permanence of Emission Reductions** - PCS ensures the persistence of emission reductions and removals through long-term strategies and risk mitigation.
- **Long-Term Land Preservation Commitment** - Projects commit to preserving land and enforcing conservation over extended periods.
- **Buffer Pool of Credits** - PCS maintains a buffer pool of credits to compensate for any temporary losses in carbon sequestration.
- **Ongoing Monitoring** - Continuous monitoring and third-party verifications ensure that emission reductions are permanent and accurately reported.
- **Rigorous Governance and Stakeholder Engagement** - PCS and SPE establish strong governance frameworks to maintain transparency, accountability, and credit quality.
- **Stakeholder Roles and Decision-Making Processes** - Clear roles and responsibilities for stakeholders, structured decision-making processes, and conflict resolution mechanisms are detailed in project documents.
- **Transparency and Accountability Mechanisms** - Regular reports, financial audits, and public availability of project documents ensure accountability.
- **Ethical Standards and Compliance** - All project activities adhere to strict ethical standards and compliance requirements.
- **Advanced Monitoring and Verification -** PCS leverages advanced technologies for real-time monitoring and verification of carbon credits.

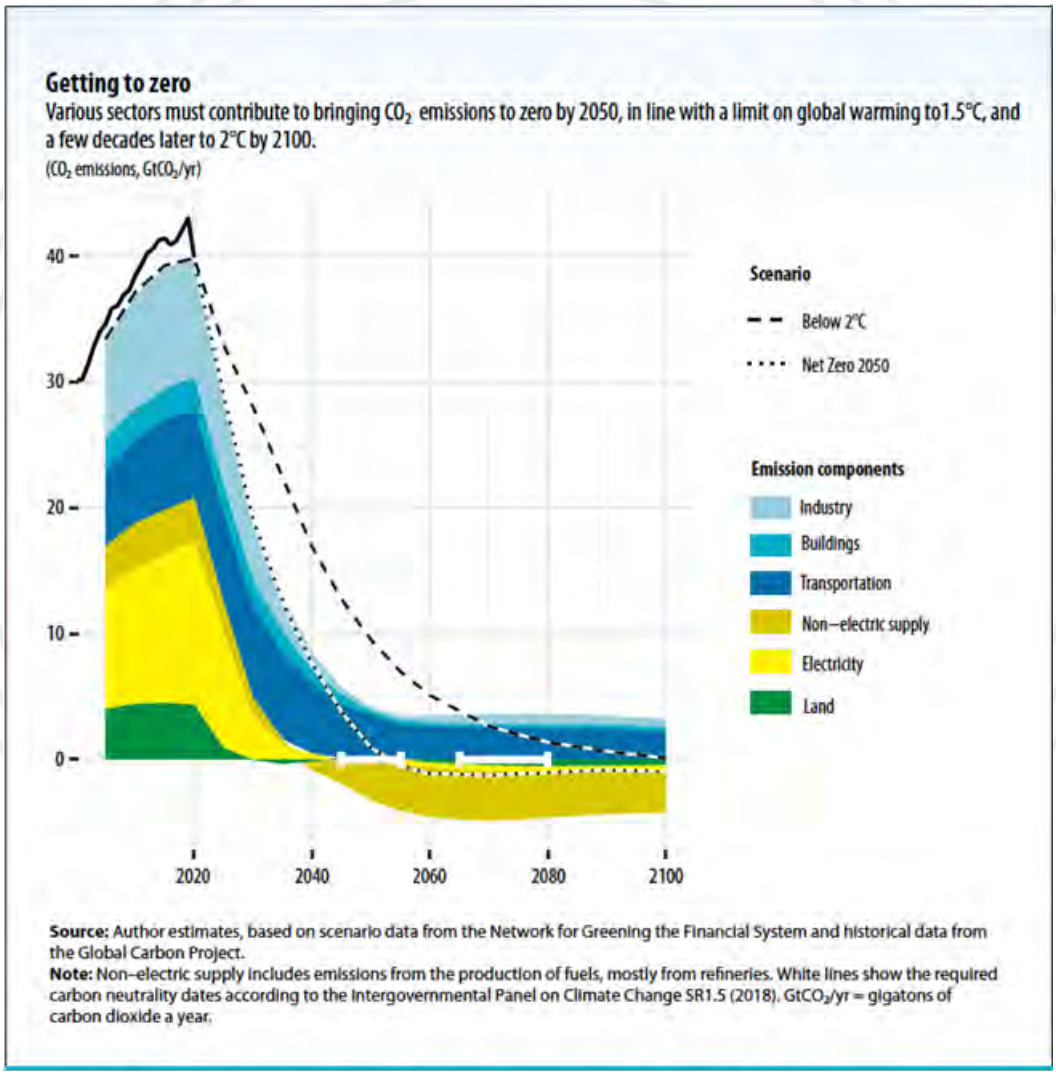
- **AI and Remote Sensing** - AI-driven data insights and remote sensing technologies provide accurate measurements and continuous monitoring of project effectiveness.
- **Third-Party Verification** - Independent impartial third-party verifications, such as those conducted by the Verification and Validation Bodies (VVBs), ensure the credibility of emission reductions.
- **Real-Time Monitoring** - Satellite imagery and ground truth data collection allow for continuous monitoring and early detection of risks.

We address the inherent issues in the carbon credit market through comprehensive transparency, rigorous prevention of double counting, ensuring the permanence of emission reductions, strong governance, and advanced monitoring technologies.

Carbon Credit Lifecycle

14.0. Why Should You Offset Your Company?

Choosing to offset your carbon emissions is a decision that goes beyond being environmental conscious; it has become a strategic business choice and a demonstration of personal responsibility for our planet's well-being. Carbon offsetting with us offers a transparent means of counterbalancing the emissions produced by your organisation or individual activities, through initiatives that actively reduce carbon dioxide and other greenhouse gases (GHGs) elsewhere.



This graph illustrates the global CO2 emissions pathway required to meet key climate targets, showing how various sectors (industry, buildings, transportation, non-electric supply, electricity, and land use) must rapidly reduce emissions to achieve net-zero CO2 by 2050, limiting global warming to 1.5°C, with further reductions needed to limit warming to 2°C by 2100. The dashed line represents the emissions scenario required to stay below 2°C, while the dotted line depicts the pathway to net zero by 2050, emphasizing the urgent need for deep decarbonisation across all sectors.

Source: A Path to Zero (imf.org)

For Organisations

Businesses across all sectors are progressively recognising the myriad benefits that come with carbon offsetting. For high-polluting industries, offsetting has largely become mandatory. However, entities in other sectors are also voluntarily choosing to offset their emissions.

Enhanced Brand Reputation

Companies that commit to offsetting carbon emissions are perceived as environmentally responsible, which can significantly enhance their reputation among consumers, investors, and other stakeholders.

Competitive Advantage

In an era where consumers are becoming increasingly eco-conscious, businesses that prioritise sustainability can distinguish themselves from competitors.

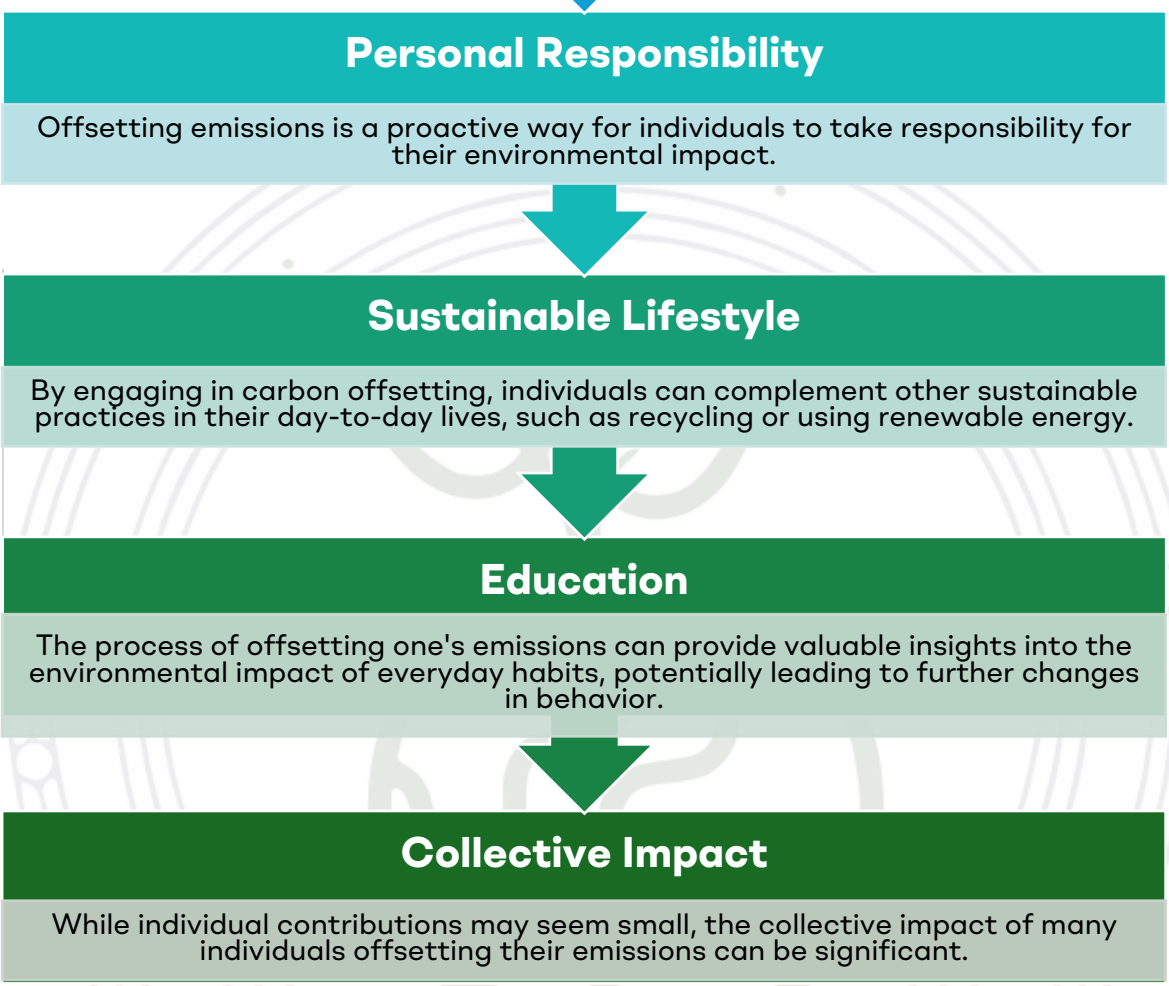
Regulatory Compliance

With governments worldwide implementing stricter environmental regulations, carbon offsetting can assist businesses in meeting these regulatory standards, avoiding potential fines or sanctions.

Risk Mitigation

Climate change poses significant risks to businesses, such as supply chain disruptions and extreme weather events. By offsetting emissions, companies contribute to global efforts to mitigate these risks.

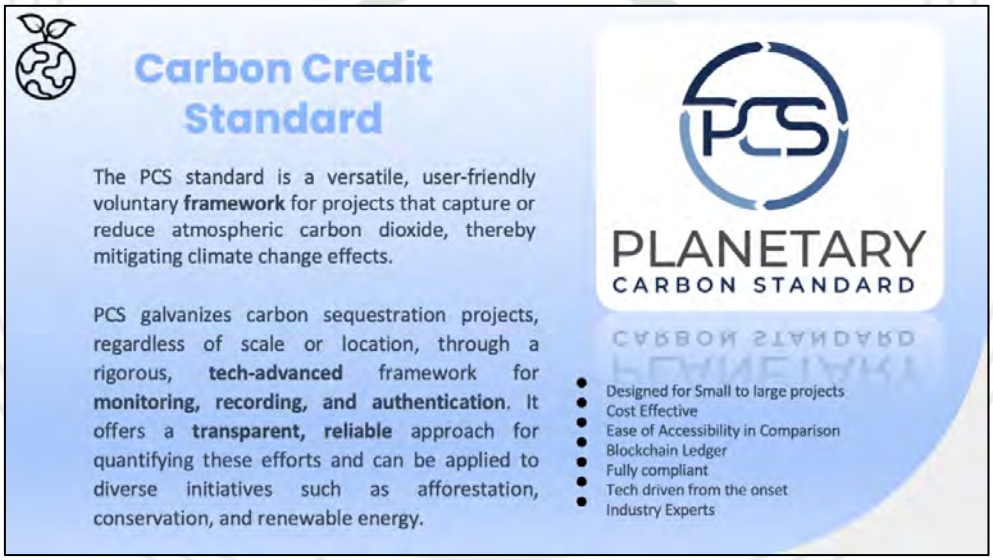
SPE x NGO Collaboration - Zero Plastic



Whether you're an organisation or an individual, SPE provides a trustworthy platform to offset carbon emissions. Not only will this contribute to combatting climate change, but it also aligns with a future where sustainability is central to every action.

15.0. Planetary Carbon Standard (PCS)

Planetary Carbon Standard (PCS) is the carbon standard developed by SPE. PCS was developed by a multi-disciplinary, well-experienced technical team, in line with existing carbon standards, such as the Carbon Core Principles, available in market and based on the UNFCCC framework. SPE identified a necessity for a version of a carbon standard that all can use. Including small to medium project developers the development team measured existing internationally recognised standards as a baseline and developed PCS to assess, monitor, estimate, verify and validate carbon sequestration of afforestation and reforestation projects from small to large scale. PCS is written and presented in modest language and hence can be easily understood and used by anyone with digitalised processes and guidelines for ease of use and encompassing all aspects in line with the UNFCCC Clean Development Mechanism (CDM) Framework, latest peer-reviewed science journals, The Carbon Core Principles, Oxford Offsetting Principles, ISO GHG Verification Standards and CORSIA.



Each of us has a role in preserving our environment for future generations. By making sustainable choices, reducing our carbon footprint, and supporting eco-friendly initiatives, we contribute to a healthier, greener world. Let's commit to environmental responsibility and climate action today for a brighter tomorrow for all to wonder in. ***Every action counts!***

-Founder & CEO

Unlike most of the existing standards that only cater to large-scale projects, evaluations cover only particular types of GHG emissions or operations that are limited to a particular locality. PCS can be used to assess small to large-scale projects in any part of the world, and all types of GHG emissions. PCS also has developed methodologies to evaluate carbon negative effects of Renewable Energy projects. The ultimate purpose of SPE is to encourage people from all parts of the world to be concerned about their carbon footprint, push nations towards being "Carbon Negative" rather than being "Carbon Neutral" and share the benefits of carbon credits with small-scale planters and renewable energy project developers.

PCS can cater to all sorts of projects that are contributing towards achieving "Negative carbon emissions" thus named "Planetary Carbon Standard". Offices are in the United Kingdom and in Singapore with further expansion planned across the globe. Additional details can be found on www.planetarycarbonstandard.com. A partnership for digital twinning with immersive technology has been officially agreed and more details on this in our next whitepaper iteration with an expanded roadmap to follow.

Obtaining the carbon credit issuance certificate from the Ministry of Environment for our inaugural PCS methodology conservation project

15.1. Methodologies

The Nature based module of Planetary Carbon Standard mainly covers the Afforestation and Reforestation sector-related requirements as expected users include entities (e.g. individual landowners, industrial forestry companies, and managers of utility company lands) within a country interested in implementing forestry activities and projects designed to generate reductions in atmospheric carbon dioxide (CO_2) that could be traded as an offset on-chain. Planetary Carbon Energy based module operates on a similar basis but is focused on renewable energy projects (e.g. solar/wind/hydro/biomass energy). A further module for waste management/recycling has been developed and is available on the Portal | Planetary Carbon Standard

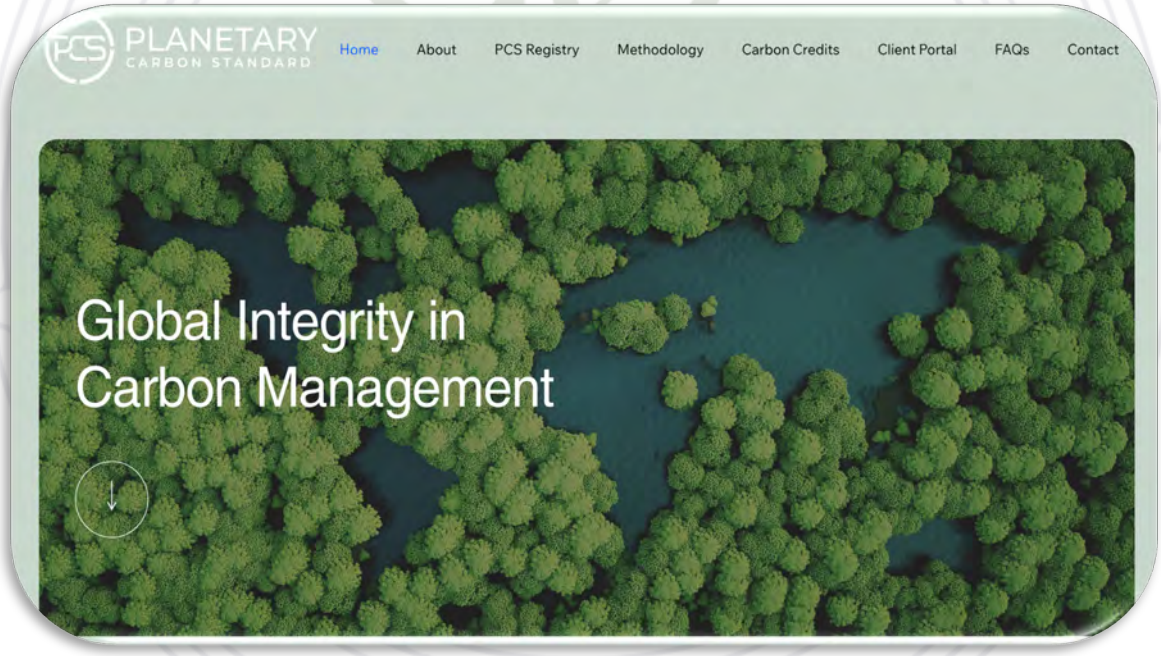
Through vast practical experience gained in the carbon field, SPE believes in the necessity of developing an '*accessible to all and affordable*' standard to promote carbon-based projects throughout the world. SPE considers its crucial to promote small-scale projects as they have a wider impact on removing carbon dioxide from the atmosphere.

Considering the current atmospheric situation with CO_2 levels at their highest PPM, SPE has developed a progressive standard including afforestation and reforestation carbon-based projects addressing all the requirements and for that, a

multi-disciplinary well experienced technical team was given the task. SPE believes that this standard has become a complimentary international standard in this field utilising the latest techniques and is blockchain-friendly, the first carbon credit methodology standard to do so in this manner.

Planetary Carbon Standard is used as the baseline document to assess the suitability of the project. The standard specifies generic requirements and therefore it can be applied to any conservation, afforestation and reforestation project irrespective of its size, technology, or location.

This standard (PCS) indicates requirements to be fulfilled for designing and executing an additionality project activity and seeking the issuance of verified emission reductions (VERs).



Following is a summary of a carbon project document that will describe the baseline approach chosen for proposed project and shall summarise that it is transparently established on a project-specific basis and considering the appropriate national and/or sectoral programs and circumstances.

- The project document shall describe the highest expected baseline scenario considered to be land use before implementation of project activity, either

grasslands or croplands and the proponent shall ensure that baseline is established in a manner that avoids double counting.

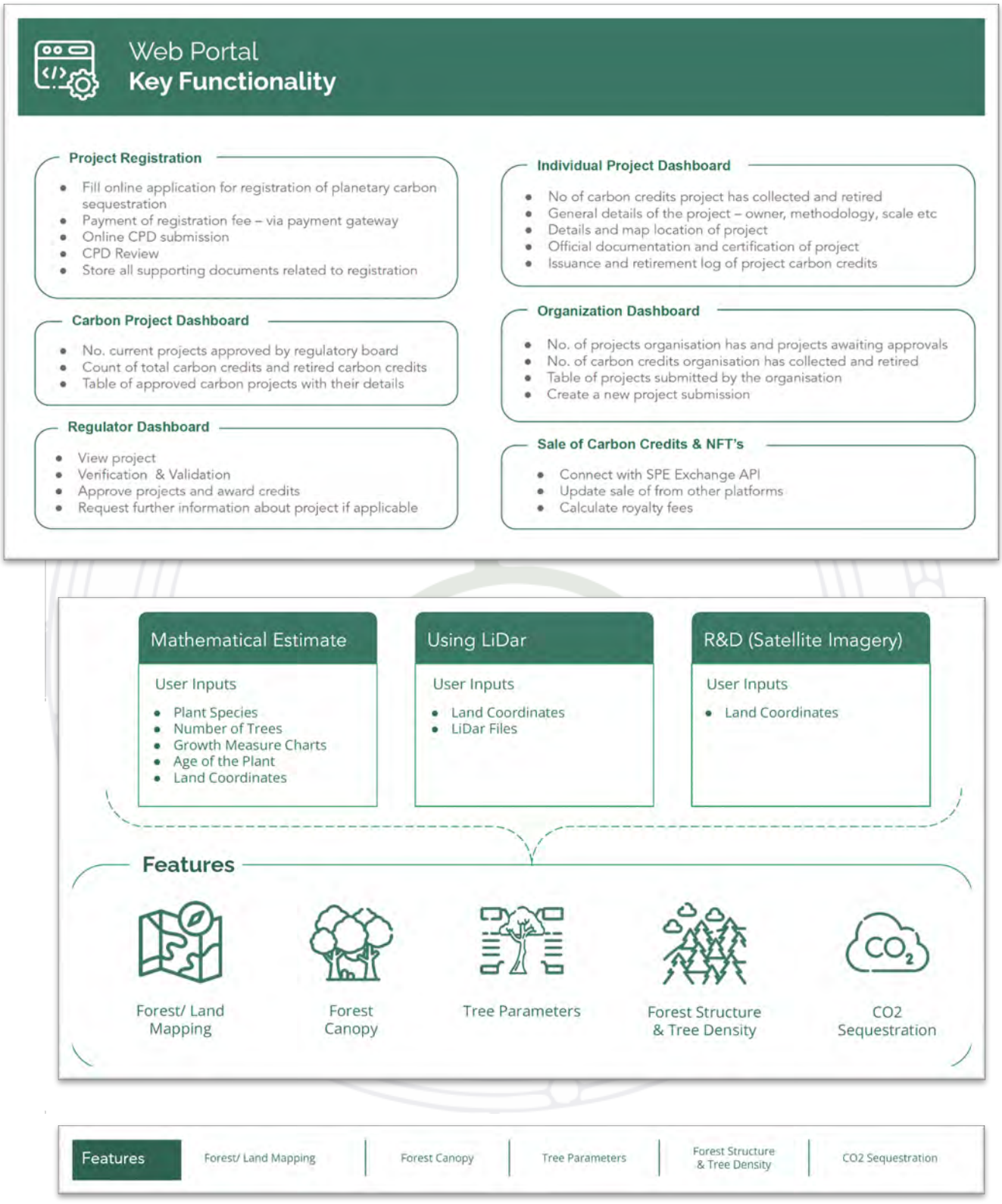
- The project document will describe the selected baseline methodology to meet the requirements such as land eligibility, historic land use, and national, local, and sectoral policies influencing land use of project relative to the baseline.
- The project document should describe baseline methodology that has been applied for the project activity and has key information and data used to determine the baseline scenario that has been provided in table form (variables, parameters, data sources, etc.).
- If an acceptable recognised baseline methodology is selected considering the type of proposed project, then it shall be described in the project document by providing a specific reference and applicability justification.

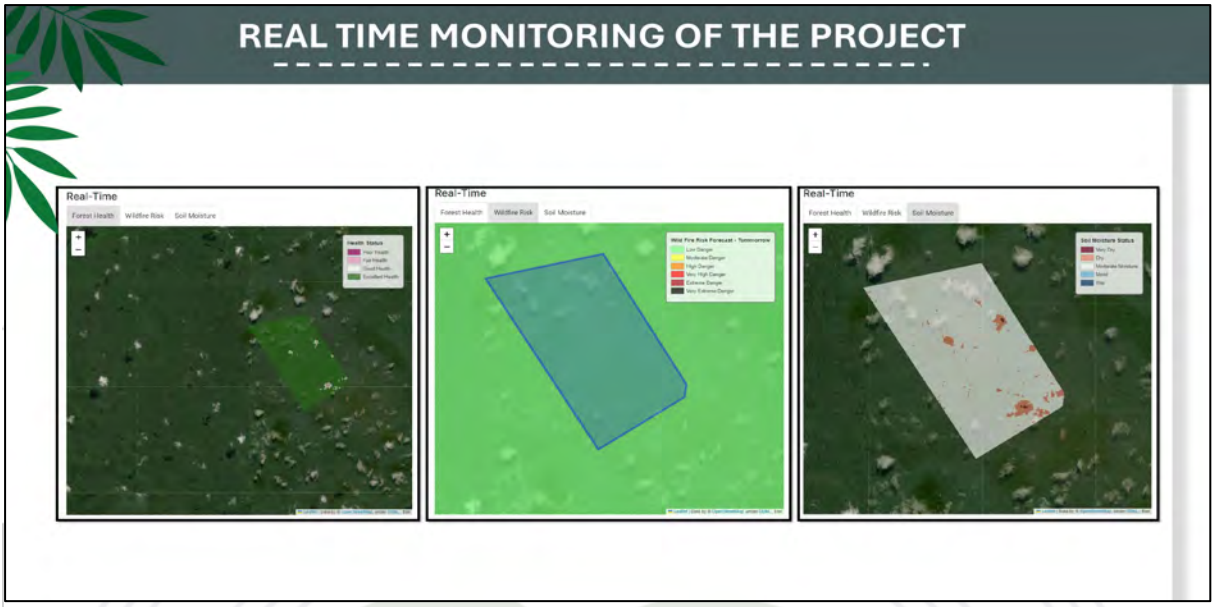
We aim for fewer emissions on the carbon registry, reduced amount of transport emissions to audit, reduced manpower resources, and lower on-boarding costs for small to medium projects which account for a larger number of sequestration potential.

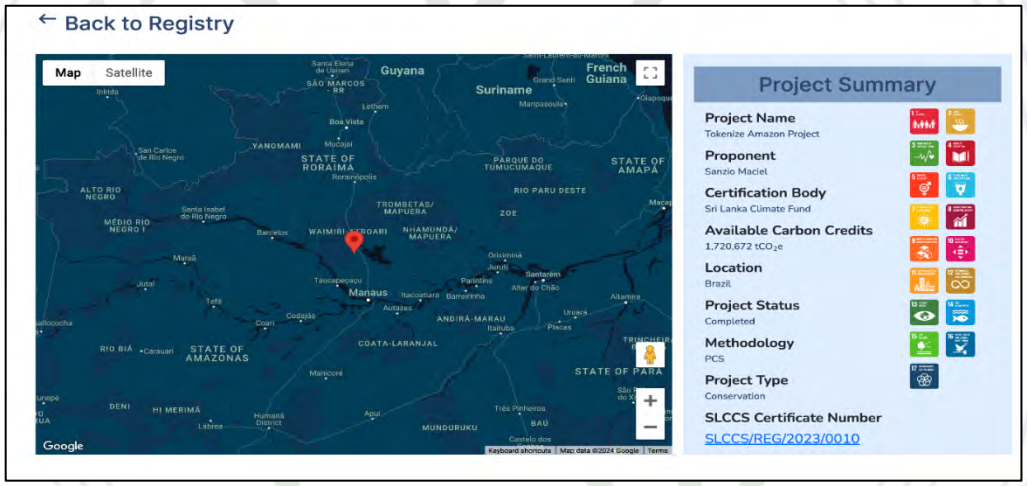
We are working towards increasing the number of peer-reviewed methodologies under the 'International Organization for Standardization' guidelines. These will be verified by an independent third party for feedback for further improvements and transparency for integrity, encouraging the incentives for project developers to actually do their part in the fight against climate change.

The credits currently generated are and all projected will be of the highest quality and in line with UNSDGs, focusing on projects taking atmospheric carbon and putting it into the soil and emission reductions.

Planetary Carbon Standard Technology and Functionality



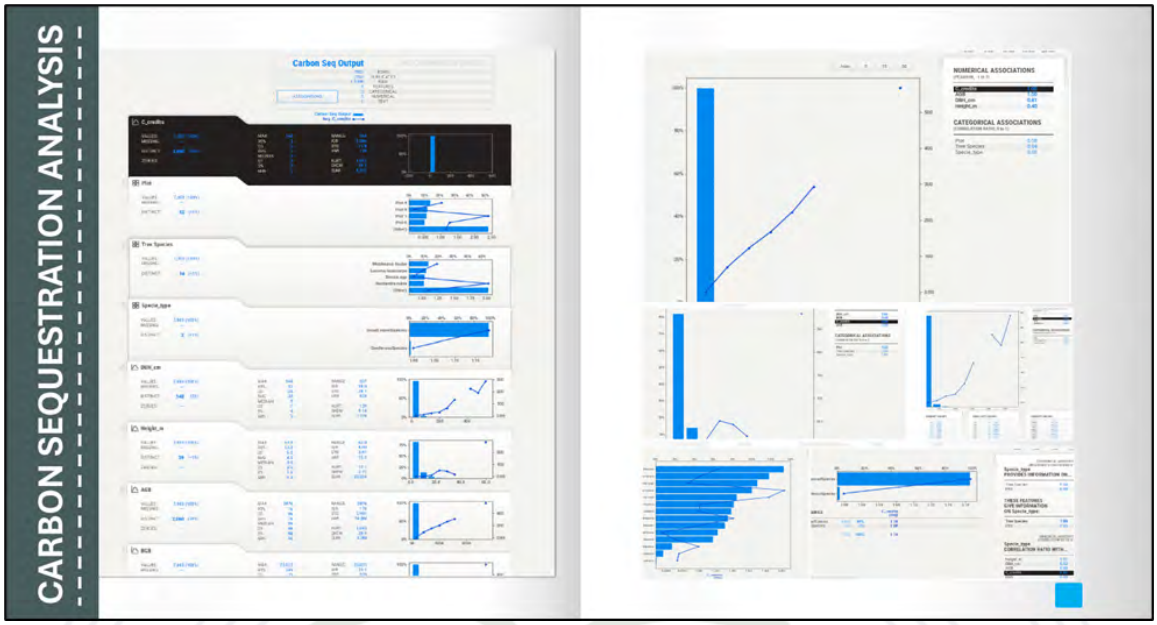




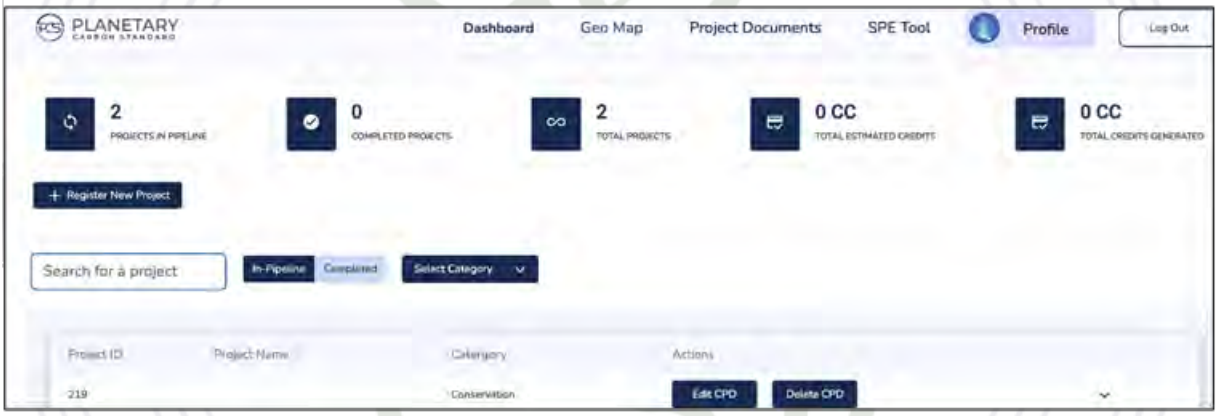
PCS - Registry view

Project Id	Project Name	Location	Proponent	Methodology	Project Type	Certification Body	Status	Carbon Credits		See More
								Under Evaluation/Generated	Available for sale	
PCS-2023-0001-RAMA-0001	Aakash Bamboo Afforestation and Carbon Credit	Kenya	RAMASUBRAMANIAN S	PCS	Afforestation	Sri Lanka Climate Fund	In Progress	900,000	0	
PCS-2023-0001-SANZ-0001	Tokenize Amazon Project	Brazil	Sanzio Maciel	PCS	Conservation	Sri Lanka Climate Fund	Completed	8,603,336	1,720,672	
PCS-2023-0001-SLIM-0001	Keselwatta 2.4 MW Grid Connected Small Hydro Power Project	Sri Lanka	Slimco Engineering Services Private Limited	PCS	Renewable Energy		In Progress	0	0	

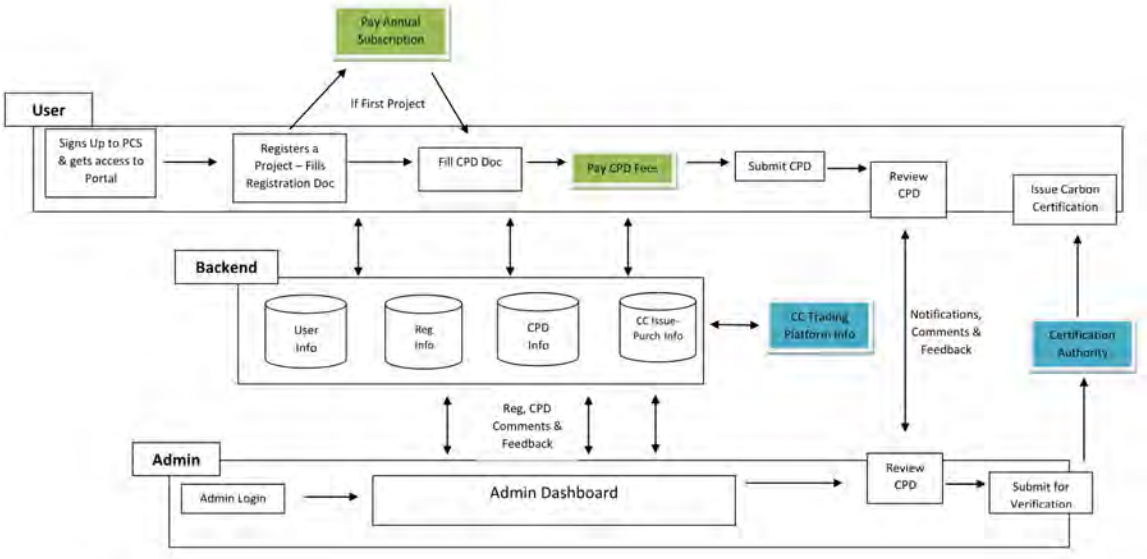
PCS - Project list view highlighting points in each of the projects



Sample plot data analysis using Data Science and anomaly eradication

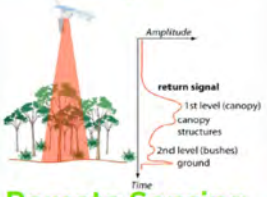


PCS portal view for project developers



Forest Monitoring

WIP

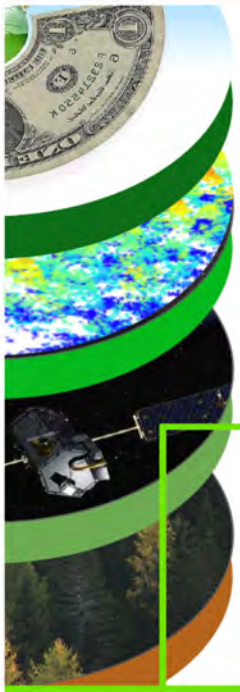


Traditional

The manual field inventory method for measuring forest carbon involves counting and measuring trees in a forested area, estimating the biomass of each tree and the carbon it contains, and measuring the carbon in soil and litter. The total carbon stock of the forest is calculated by summing the carbon from all the trees, soil, and litter.

Remote Sensing

Using satellite imagery and aerial photography to assess the extent and biomass of forests, as well as using digital elevation models to calculate the carbon stored in the forest biomass. The data is analyzed using GIS software, which provides a more comprehensive and accurate assessment of the forest carbon stock.



Features of Carbon Tensor

A PROGRAM TUNED FOR MORE THAN PLANET CARBON MEASUREMENT

1.

Carbon credit Calculation

a). Use of Specific methods of calculations based on forest characteristics, region, rainfall, and available resources

b). Different methods of data capturing

2.

Carbon Credit Forecasting

Combining Machine Learning & Data Science on the base of Industry Research

3.

Land mapping

a). Green Cover estimation

b). Forest Cover Estimation

4.

Forest Health Monitoring

a). Afforestation & Deforestation
b). Detect Wildfire
c). Calculate Wildfire risks
d). Assess Damage after Wildfire
e). Air Quality & Soil condition monitoring

Using Remote Sensing

Advantages of Remote Sensing

1

Speed: Remote sensing and GIS technology allow for rapid assessment of large areas of forest.

Lower cost: Compared to manual field inventory, remote sensing and GIS technology can be more cost-effective, especially for large-scale assessments.

Increased accuracy: The use of satellite imagery and digital elevation models provides more accurate assessments of the forest carbon stock, compared to manual field inventory.

Consistency: Data collection and analysis can be standardized, leading to more consistent and reliable estimates.

Increased scope: Remote sensing and GIS technology allow for the assessment of large areas of forest, providing a more comprehensive assessment of the forest carbon stock.

Monitoring & Forecasting

Automation: Allowing for more frequent monitoring of the environment, with minimal human intervention

Early Warning: To detect and monitor natural hazards, such as floods, landslides, and wildfires, which can provide early warning to communities and help mitigate the effects of these hazards

Non-Destructive and Non-Invasive: Can gather information without physical contact with the environment, making it non-destructive and non-invasive. This is particularly useful for monitoring sensitive ecosystems and biodiversity.

Repeatability: Data can be collected repeatedly, allowing for the detection of temporal changes and providing a historical record of the environment

Usage of Data Fusion: Can be equipped with multiple sensors that can measure different characteristics of the environment, such as temperature, moisture, and vegetation health. This provides a holistic view of the environment.

Scalability: Can cover large areas and provide detailed information over time, making it useful for monitoring changes in land use, vegetation, and water resources

Forest Health | Drought Monitoring | Forest Clearing/ Deforestation | CO2 sequestration prediction

Intelligent use of Tech | The advantage

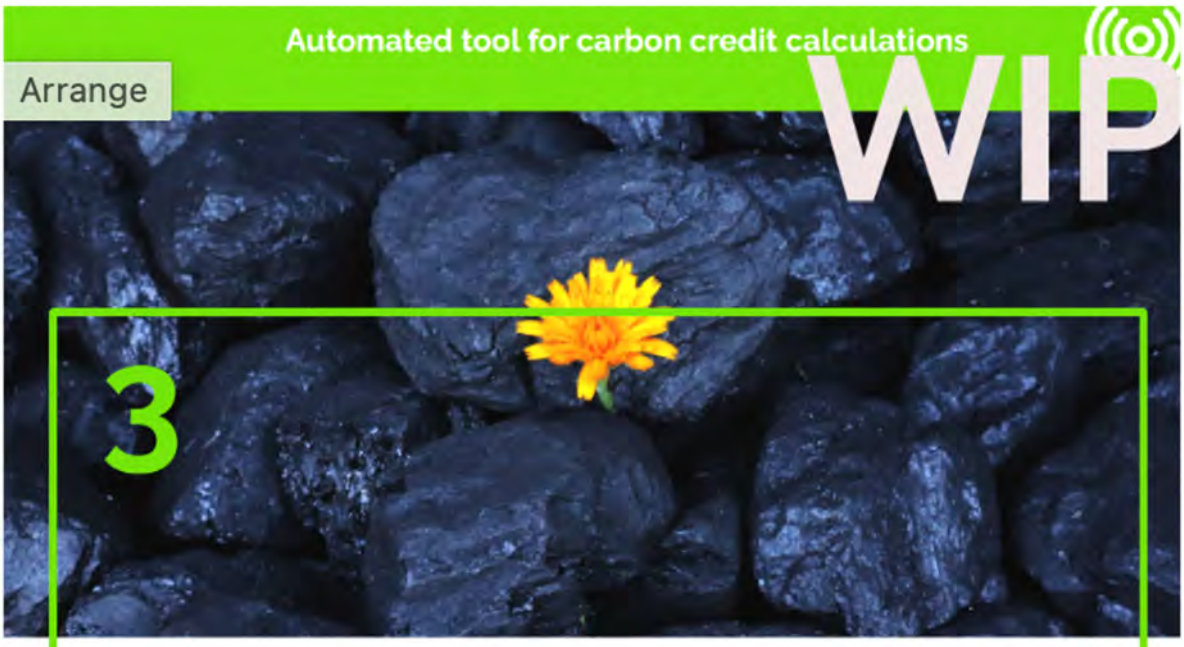
Data-driven decision making:
An AI-driven platform can use data on factors such as tree growth rates, soil type, and local weather patterns to inform decisions about which forests to prioritize for carbon sequestration efforts.

Efficiency:
AI algorithms can analyze large amounts of data quickly and accurately, which can help optimize the carbon sequestration process and identify the most effective strategies for sequestering carbon in forests.

Automation:
An AI-driven platform could automate certain tasks related to carbon sequestration, such as data analysis and reporting, freeing up human resources for other activities.

Monitoring:
An AI-driven platform could be used to monitor forests in real time or near real time, using sensors and other data sources to track changes in carbon levels and other key metrics. This could help identify areas where additional efforts are needed to maintain or increase carbon sequestration.

Cost Savings:
By optimizing the carbon sequestration process, and using AI-driven platform will help reduce costs and make the process more effortless & cost-effective.



PROCESS

Carbon Engine

Specific Methods

To improve the accuracy and robustness of carbon credit measurements, by providing multiple lines of evidence and cross-checking results from different sources with high efficiency

Compare total Carbon credits using different methods/approaches

Fast-tracking

Make the validation process faster

Visualization

to clearly and effectively communicate complex information about land use, land cover, and carbon sequestration

Spatial and temporal coverage

Plot-wise insights

Allows for the accurate and consistent measurement of land cover changes, over time.

Give history about the land on any hazardous events such as deforestation, wildfire, ..

Usage of Data fusion

Provides a holistic view of the environment and can help to identify changes in land use and land cover caused by human activity or natural processes.

WIP

Core Features

Data inputs
Historic data (manual entry) | Satellite | LiDAR | UAV imag

Digital copy of Land of interest
Forest Structure | Forest/land mapping

Carbon credit calculation
Specific approved models based on characteristic of land of interest | Better extrapolation methods than traditional | IF use LiDar, CC calculation to the granular of per-tree basis

Carbon Credit forecast

Simulation
Simulate the amount of CC generated using various species and locations| Possible CC retirement date | Plot-wise / species-wise CC amount / forecast

Peripheric Features

Trend analysis and Inferences on Intrinsic/Extrinsic property of lands of interest
Forest health | Soil Condition Observation | Humidity Variations | Temperature Variations Rainfall | Air Quality

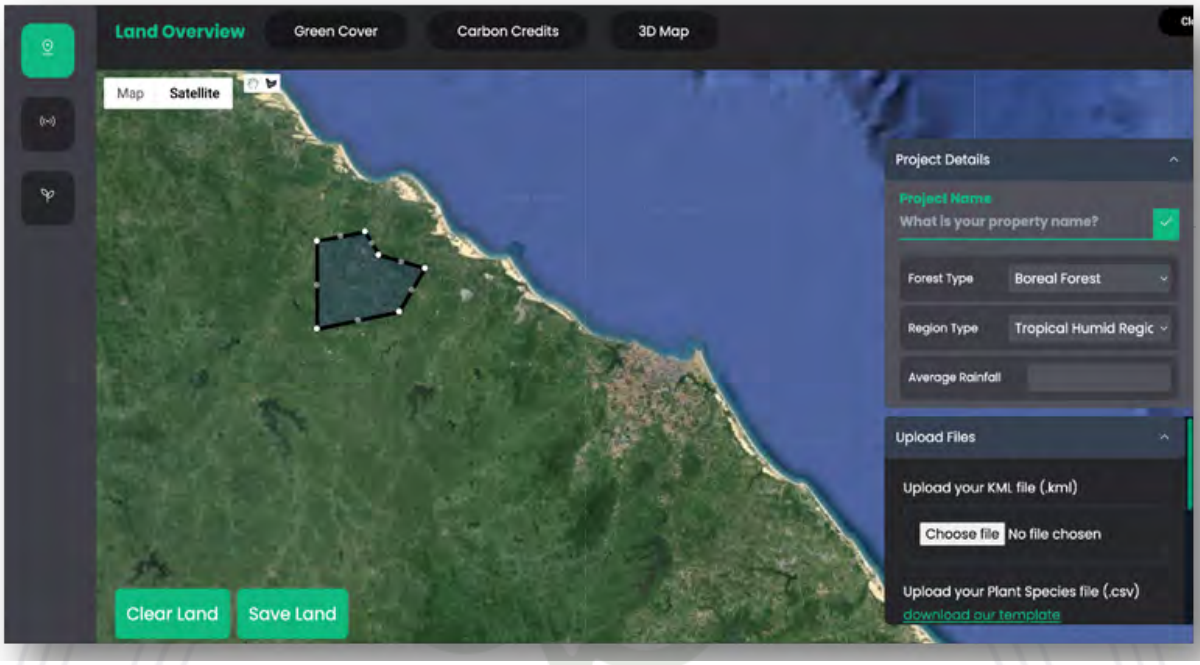
Analysis on historic hazardous/destructive events on land
Forest fire | Deforestations | Landslides

Monitoring land /Forecast on natural disaster on land
Calculate Wildfire Risks Preemptively | Monitor Area of changes (maybe similar to deforestation)

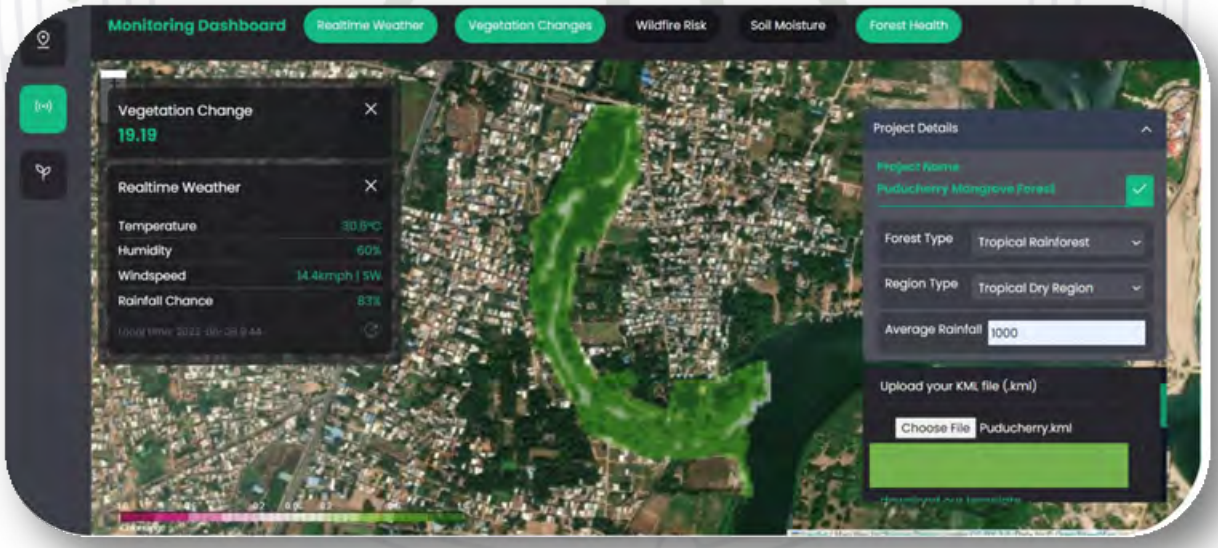
Water body monitoring
Vegetation growth on water bodies | Water capacity changes detection

Other Features

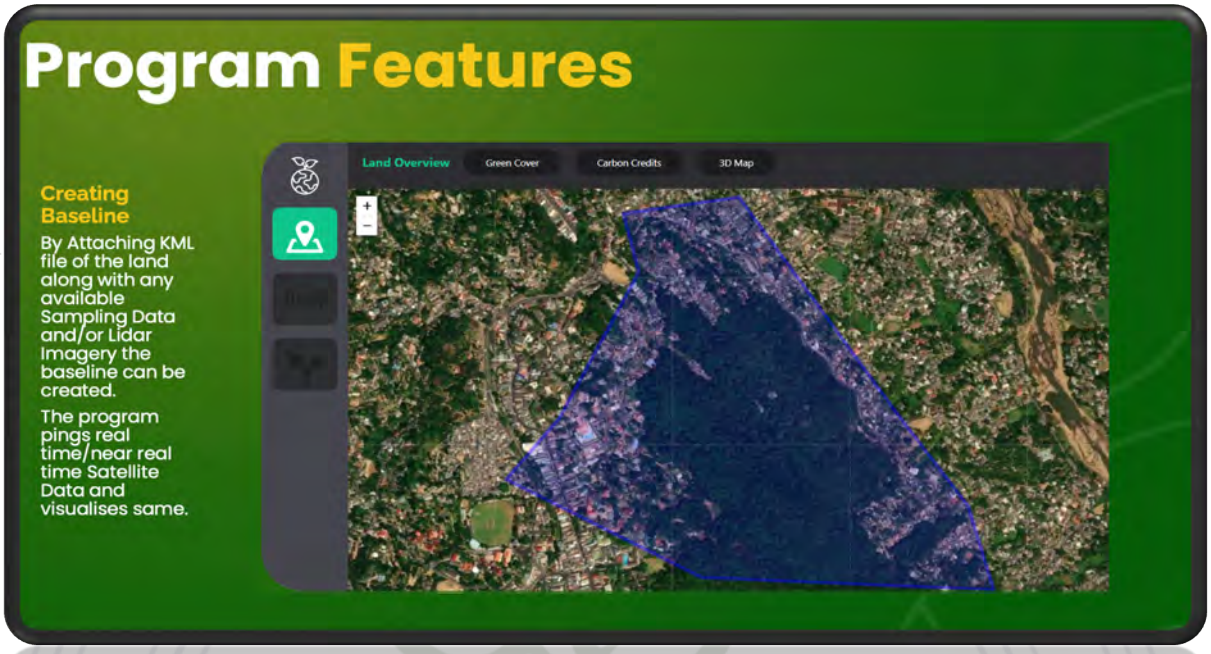
Precision Agriculture
Crop growth monitoring | Crop yield forecast | Crop damage assessment | Suggest Planting and Harvesting Dates

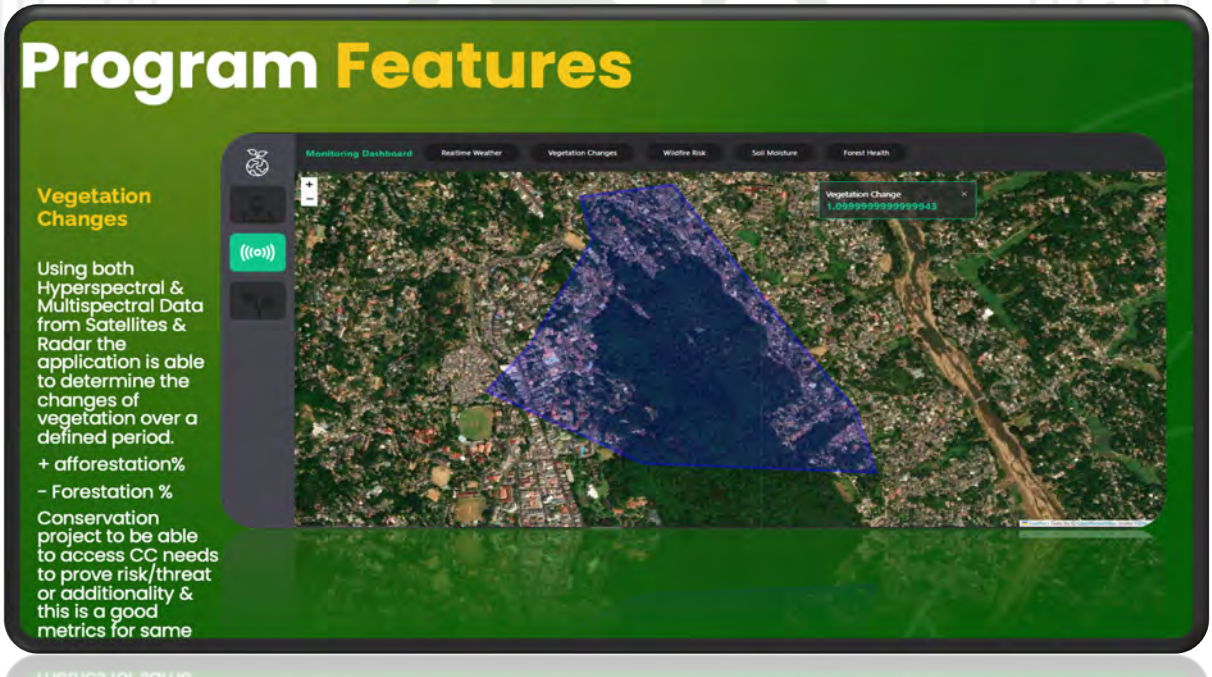


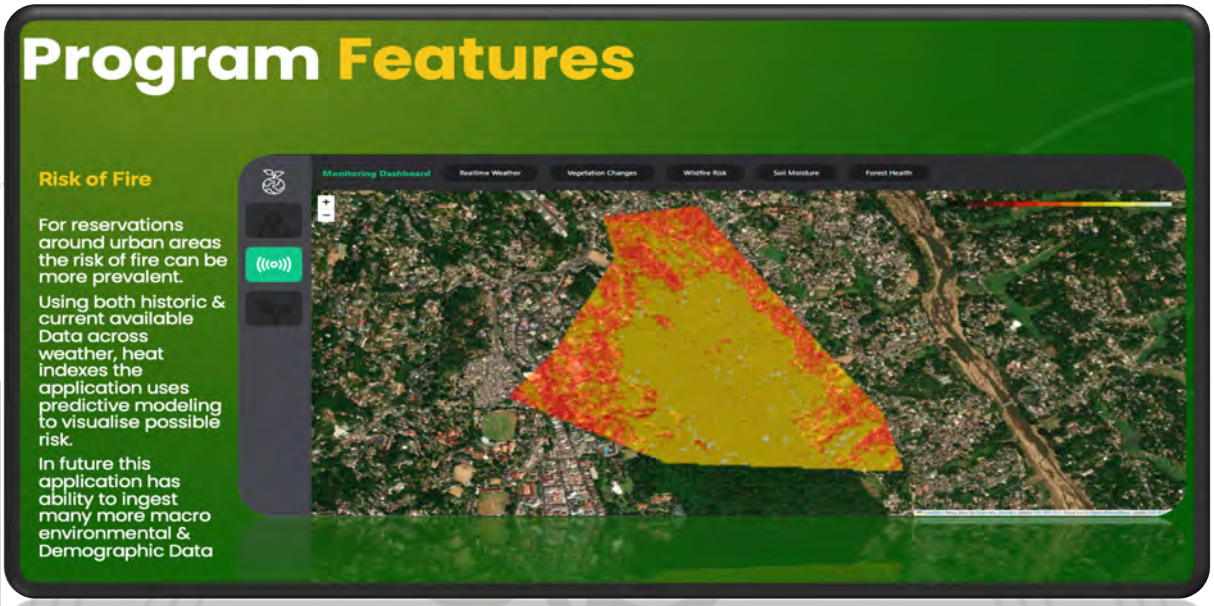
Ability to select land polygon and upload KML/LiDAR files for thorough assessments

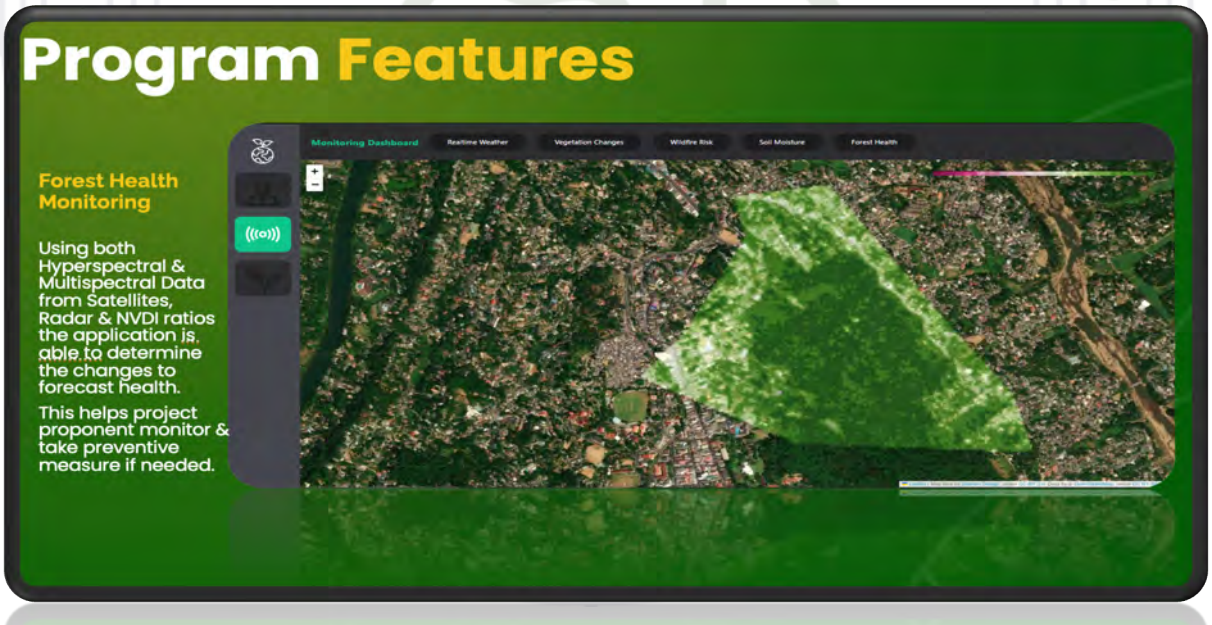


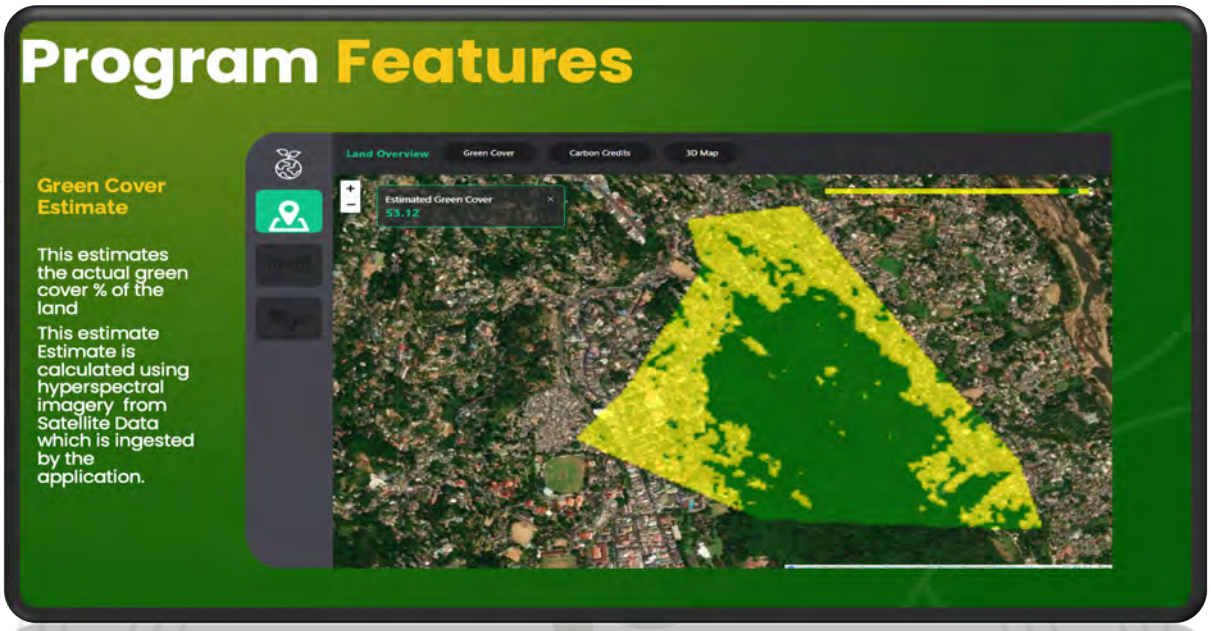
SPE Tool in action (Full QA/QC completed)

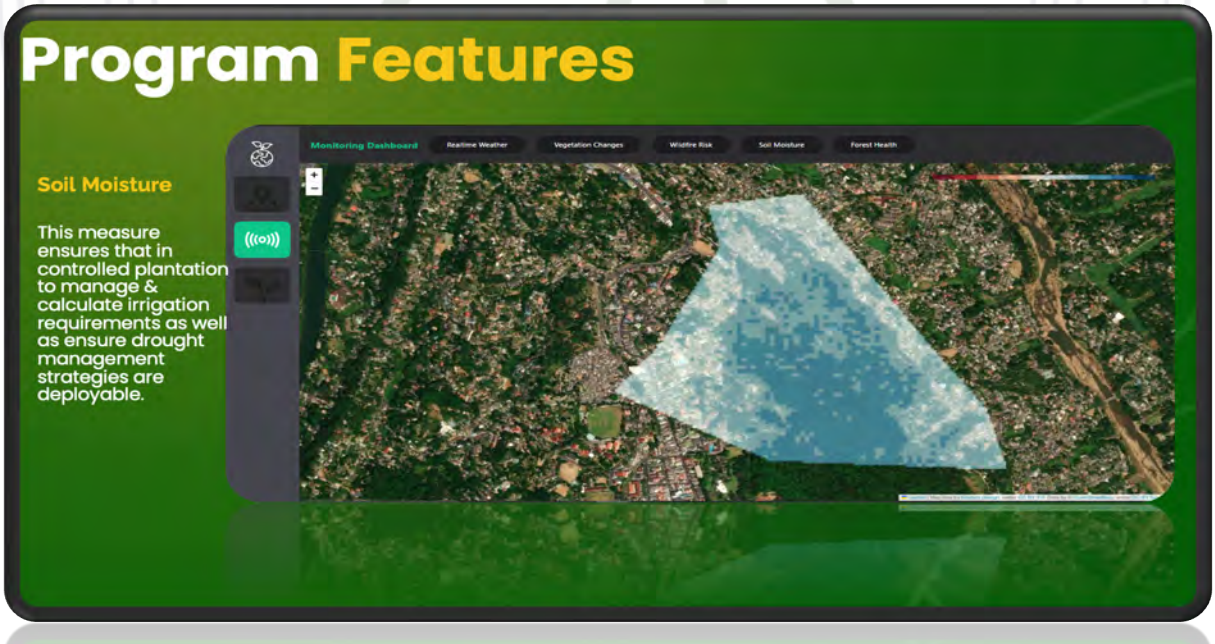


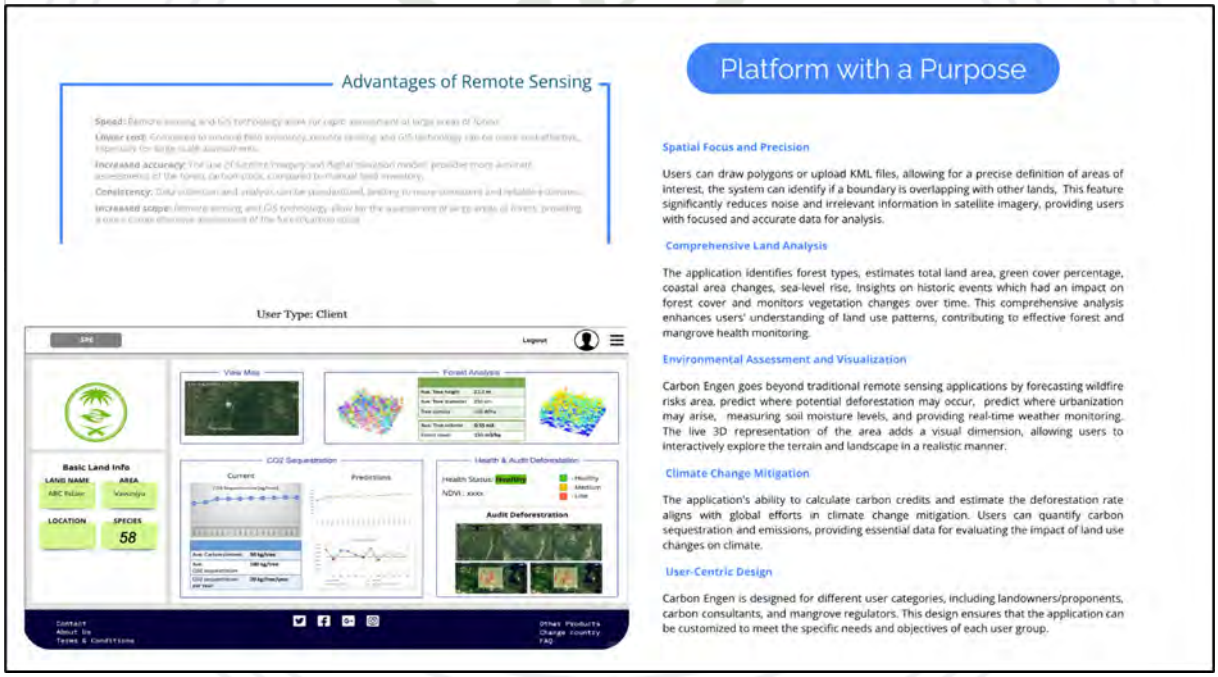












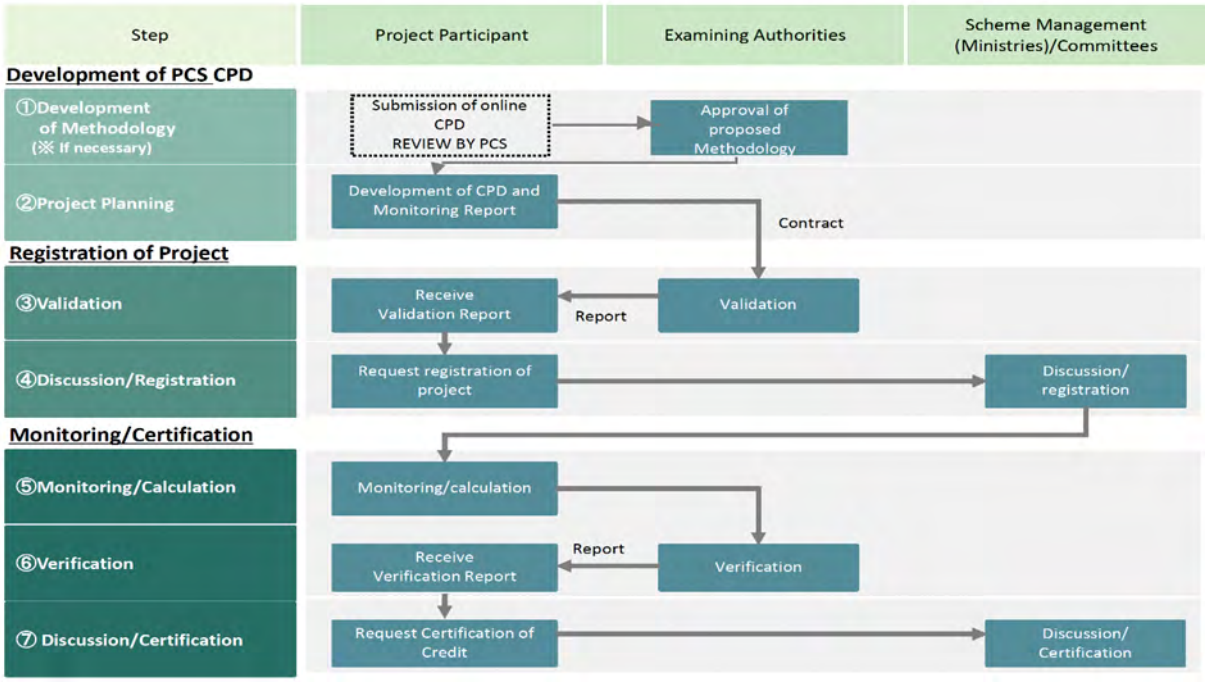
15.2. Fee Structure for Planetary Carbon Standard (PCS)

The PCS methodology is available to small and medium landowners who would otherwise not be included in the incentivisation of green projects. For those projects there is a case-by-case charge for onboarding which is affordable and in some cases pro bono.

Below shows a PCS fee structure regarding Carbon Credit Evaluation and Validation for Nature-Based and Renewable Energy Projects. *NOTE: Waste Management is now complete.*

Stage	Type of Payment (Nature-Based Projects)	Type of Payment (Renewable Energy Projects)
Registration for PCS at the initial stage	Registration Fee	Registration Fee
CPD Registration	Project Registration Fee	
Beginning of Evaluation process	Advance Payment of 30% of the total payment	
After completing Evaluation	50% of the total payment	
Before issuing the Certificate of Validation	20% of the total payment	
Annually	Annual Registry Membership fee	Annual Registry Membership fee

15.3. Process Flow of Obtaining PCS Certification



- **Registration** – The Company seeking PCS services should log in to the website and complete initial registration formalities online on the PCS

Web Portal. Once the required details are furnished and registration fees are paid, SPE will create an account for the company.

- **Evaluation** of the Carbon Project Document should be done after registration. The Company should update details in the "CPD Template" on the website and in the database.

Inhouse experts will review the CPD, inform and provide feedback on the CPD within 10 days after submission. Any other information required should be submitted upon request. The evaluation process will start after the CPD review

- **Verification** of the project will be done by a third-party company completely independent of SPE/PCS.
- **Validation** of the project will be done after completion of the verification process.

A certificate of validation will be issued after validation of the project and logged on the blockchain.

The carbon development company should provide written confirmation on the sale of carbon credits before issuance of the certificate of validation. If the Company is using the SPE Carbon Exchange platform for sale of carbon credits, a value shall be charged as a Royalty fee. If a company decides to sell the carbon credits at any other platform but not SPE, a percentage of total value shall be charged as a Royalty fee. Royalty fees go to SPE initiatives, staking, buyback, and burns, and use cases. This will be decided on a case-by-case basis.

15.4. Comparison of Carbon Credit programs with PCS

PCS is low-cost, easy to understand, and most importantly, wholly accessible in comparison to the currently existing standards. This was done so by looking through the mechanism of previous standards and implementing the best qualities they conveyed into the PCS blueprint. Further technology such as AI and Machine Learning (ML), Data Science are used from the Carbon Project Design (CPD) document creation process ensuring a baseline measurement.

Carbon Credit Standards		CDM	Verified Carbon Standard	Gold Standard for the Global Goals	PLANETARY CARBON STANDARD
Core Carbon Principles	Reality	●	●	●	●
	Measurability	●	●	●	●
	Additionality	●	●	●	●
	Permanence	●	●	●	●
	Third Party Verification	●	●	●	●
	Unicity (Registry)	●	●	●	●
Environmental Impact	Leakage	●	●	●	●
	Do Not Harm			●	●
	No Double Counting		●	●	●
Methods	Stakeholder Consultation	●	●	●	●
	SD Impact Assessment	●	●	●	●
	Carbon Monitoring	●	●	●	●
	SD Impact Monitoring			●	●
	Meta Registry (Blockchain)				●
	Metaverse (Digital Twin)				●
	Real Time Monitoring				●
	Inclusivity of all Project Sizes				●
	Artificial Intelligence & Machine Learning Algorithms				●
	Digitalisation of Carbon Project Documentation				●
	Affordability				●

Comparative Analysis

** Disclaimer: The comparison presented is intended solely for the purpose of demonstrating the capabilities of the technology. It is not meant to challenge, undermine, or belittle any organisation, or system. The goal is to provide clarity and showcase potential applications, without any implications of superiority or criticism.*

15.5. Key Points of a CPD Template

- Project Background
- Type of Project Activity
- Location of Project Activity
- Project ownership
- Legal compliance with the project
- Project Eligibility (including start date, operational lifetime, and crediting period of the project)
- Sustainable Development
- Environmental Impact
- Technology applied
- Non-permanence
- Application of Project Baseline and Baseline Methodology
- Demonstration of Additionality
- Monitoring Methodology and Measurement Tools
- Monitoring Plan
- Monitoring Leakages
- Application of Quality Control (QC) and Quality Assurance (QA)
- Quantification of estimated Baseline net GHG removals by sinks
- Quantification of estimated Leakage
- Quantification of GHG emissions reductions and removals
- Socio-Economic Impacts
- Stakeholder Consultation

15.5.1. Carbon Credit Issuance

Carbon credits will be designed similarly to NFTs and will become digital certificates on the blockchain for auditing, ownership and retirement thus fully transparent. We will only be able to mint carbon credit certificates backed by certified carbon credits project proponents have earned (ex-post). We will also mint carbon credit certificates for other companies that want to sell their carbon credits on our platform. However, they will be required to verify that their carbon credits are adequately certified through the strict protocols of the Planetary Carbon Standard.

Carbon credit certification entails getting external regulators such as Verification and Validation Bodies (VVBs) to approve various environmental projects, including renewable energy, planting trees and mangroves, recycling, cleaning beaches, oceans, and more.

Each carbon credit will equate to one ton of carbon emissions being offset. Every carbon credit that is offset will be traceable back to the wallet address as it is all tracked on the blockchain, making whole process transparent and legally verifiable.

15.5. Retirement of Carbon Credits

The integration of Planetary Carbon Standard (PCS) Registry, SavePlanetEarth (SPE) Marketplace, and blockchain technology creates a seamless and transparent process for issuing and retiring carbon credits. This integration is achieved using APIs that enable communication and data exchange between these platforms.

Key Components:

1. **Blockchain Integration:**
    - Ensures transparency and immutability of carbon credit transactions.
    - Stores transaction hashes to verify the integrity of data.
2. **PCS Registry:**
    - Maintains a centralised database of carbon credits.
    - Manages the issuance and retirement of carbon credits.
    - Provides endpoints for external systems to interact with the registry.
3. **SPE Marketplace:**
    - Facilitates the buying, selling, and retiring of carbon credits.
    - Updates its database based on the PCS registry's data.
    - Provides endpoints for PCS registry and other systems to interact.

Issuance and Retirement of Carbon Credits:

1. **Issuance Process:**
    - When carbon credits are issued, PCS portal updates the marketplace database.

- Endpoint: **POST /marketplace/xxx/issue**
- Parameters:
  - **Project ID**: Unique identifier for the project.
  - **Issued CC**: Number of carbon credits issued.

2. **Retirement Process:**
   - When carbon credits are retired, marketplace notifies the PCS registry.
   - Endpoint: **POST /pcs/xxx/retire**
   - Parameters:
     - **Project ID**: Unique identifier for the project.
     - **Date**: Date of retirement.
     - **Vintage**: Year of the carbon credits.
     - **Serial Number**: Unique serial number of the retired credits.
     - **Quantity Retired**: Number of carbon credits retired.
3. **Activity List Retrieval:**
   - Retrieves full activity list for a project based on the serial number.
   - Endpoint: **GET /marketplace/xxx/activity**
   - Parameters:
     - **Serial Number**: Unique serial number of the project.

Data Flow and API Integration:

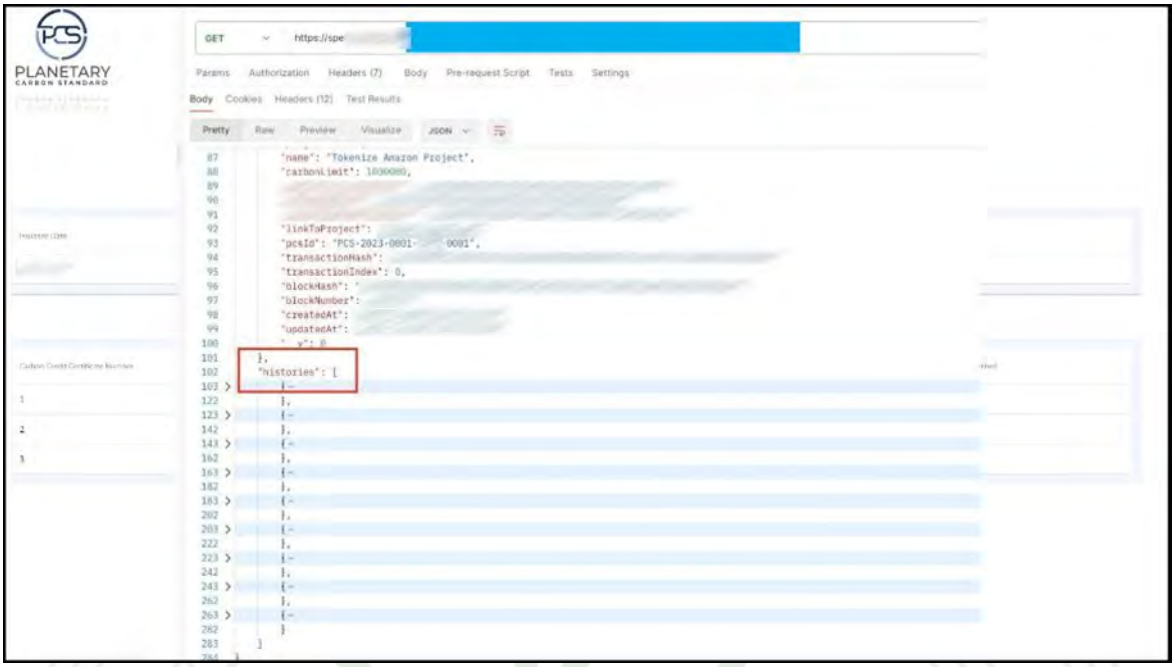
1. **Issuance of Carbon Credits:**
   - PCS registry issues carbon credits and updates the marketplace.
   - The marketplace database is updated using provided issuance endpoint.
2. **Retirement of Carbon Credits:**
   - When carbon credits are retired, marketplace calls the PCS registry retirement endpoint.
   - The registry updates status of the carbon credits to "retired" and stores transaction details.

3. **Activity List:**

- The marketplace can request full activity list of a project using the serial number.
- The registry returns a detailed activity log, including issuance and retirement events.

The integration of PCS Registry, SPE Marketplace, and blockchain technology ensures a transparent and efficient process for managing carbon credits. By using APIs to communicate between the platforms, the system maintains accurate and immutable records of carbon credit issuance and retirement, maintaining trust and reliability in the carbon credits market.

In depth PCS Registry records highlighting the audit trail and ownership



Sample: Blockchain audit trail from Genesis to Retirement Wallet

15.7. Retirement Certificates

Certificate of Carbon Credit Retirement

This is to certify that carbon credits have been retired in accordance with: **SAMPLE Project**

Project Name: SAMPLE

Project ID: SAMPLE

Retiree Information:

Retiree: SAMPLE

Address: SAMPLE

Reason for Retirement: 2023 offset internally.

Date of Retirement: 6th February 2024

Number of Credits Retired:

Blockchain Hash Link for Retirement:

Compliance with Standards The retirement of carbon credits under the SAMPLE complies with the Planetary Carbon Standards, ensuring transparency, integrity, and credibility in the carbon offset market.

Verification Body (VVB):

Certificate Number: SAMPLE

Blockchain Verification: Recipients can independently verify the retirement of carbon credits using the provided blockchain hash link.

Detailed instructions for project verification can be found here.

Sample Retirement Certificate issued by PCS

16.0. Environmental, Social and Governance (ESG)

16.1. Organisational Risk

On a basic level, holistic organisational risk strategy is based on the following three pillars:

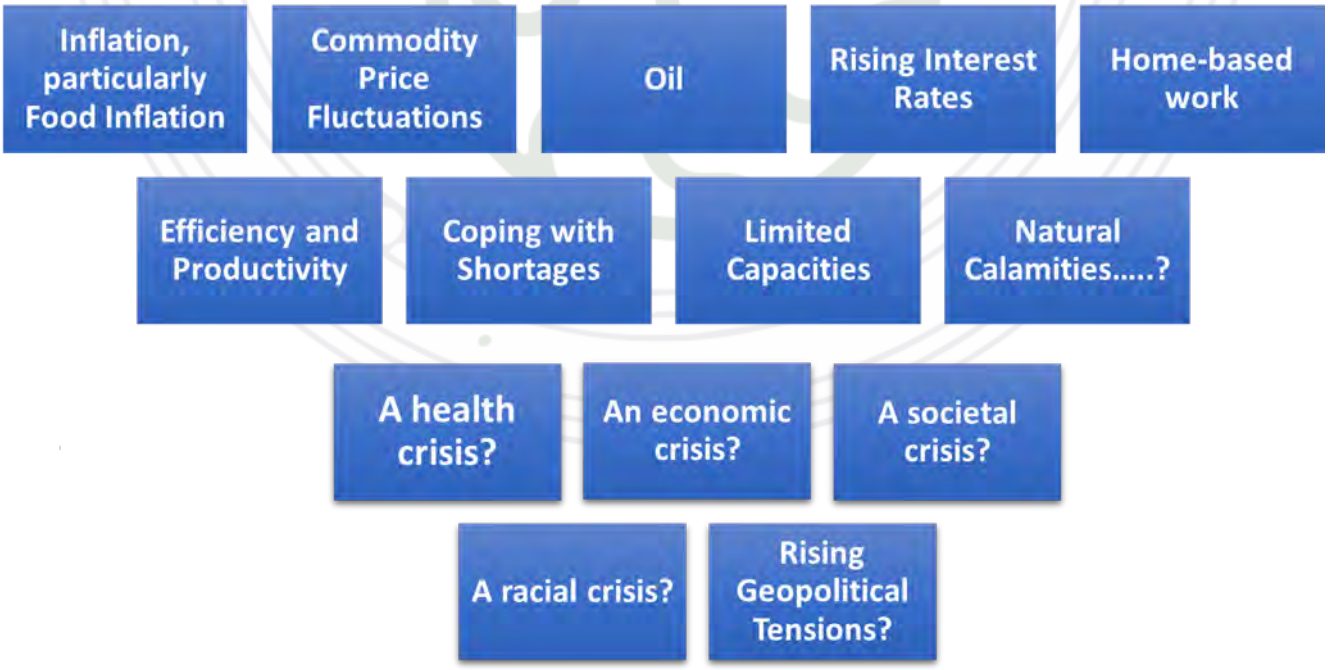
"Environmental, Social, and Governance (ESG)."

16.2. ESG Strategies – Reporting Frameworks & Standards

ESG is a framework that helps stakeholders understand how an organisation is managing risks and opportunities related to Environmental, Social, and Governance criteria.

ESG has now evolved into a comprehensive framework that includes key elements around environmental and social impact as well as how governance structures can be amended to maximise stakeholder well-being. There is no single Framework for ESG and at present different internationally recognised frameworks are available.

16.3. Multifaceted Crises in Changing Global Context

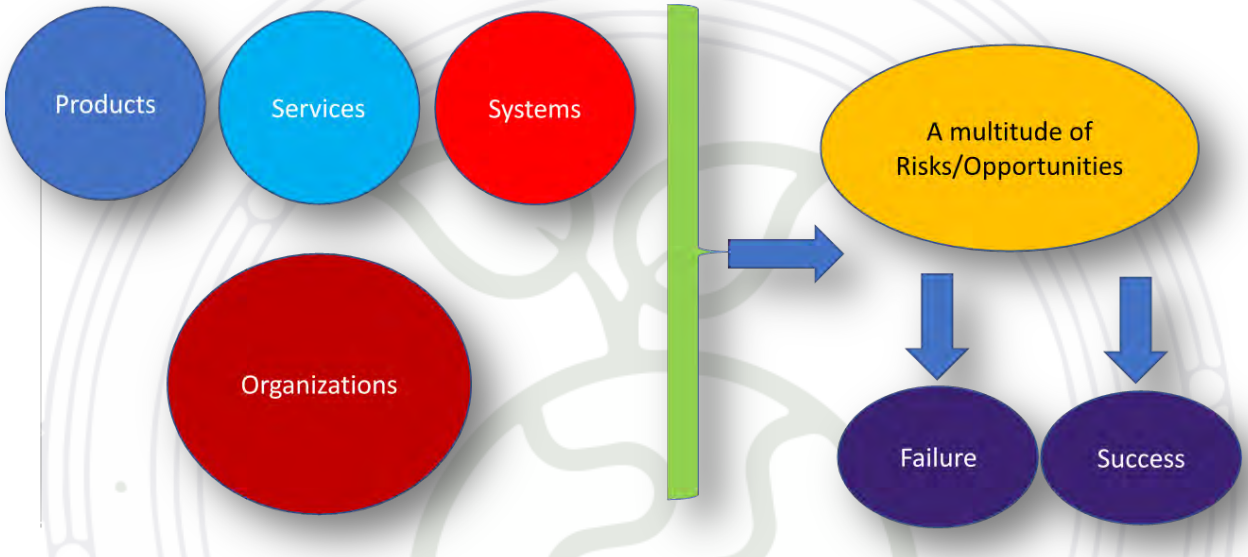


16.4. Challenge in Changing Global Context

In the face of these challenges, there is a growing realisation that **business and society** cannot thrive if **employees, customers, and communities** are not healthy; if our planet is on fire; and if our society is fractured.

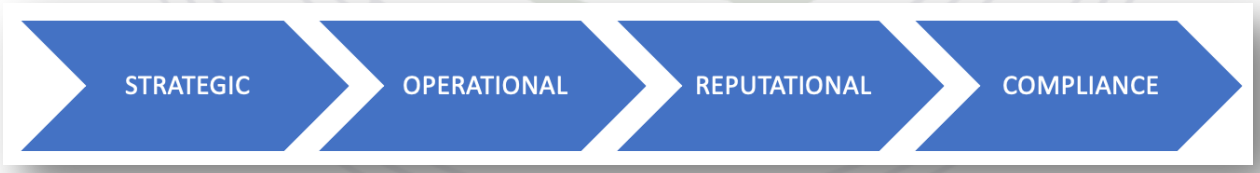
More and more leaders believe that creating a better and sustainable future requires corporations to serve all their stakeholders — not just their investors — in a harmonious fashion.

16.5. Business and Organisational Environments

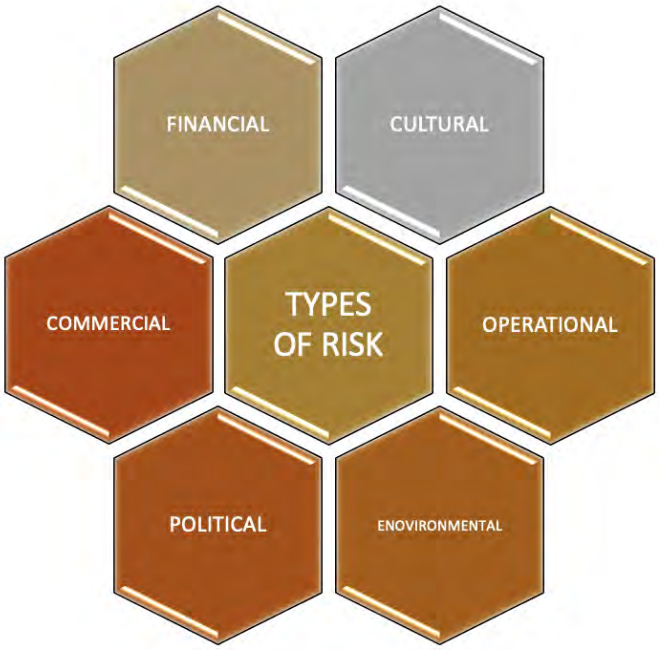


16.6. Assessing Types of Risks & Opportunities

Almost half of companies and institutions have no meaningful integrated management systems to address the issues.



Following types of risks will be identified:



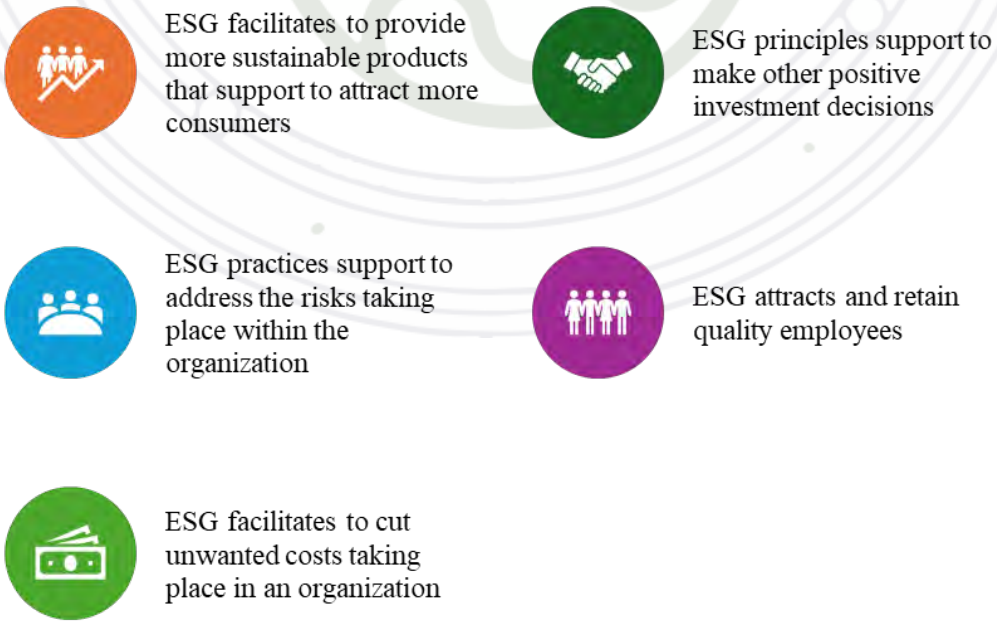
16.7. ESG Standards & Frameworks

- **UNEP FI's Principles for Responsible Banking (PRB)** – Provide the framework for a sustainable banking system and help the industry demonstrate how it makes a positive contribution to society.
- **UNPRI Principles for Responsible Investing (PRI)** – A voluntary and aspirational set of investment principles that offer a menu of possible actions for incorporating ESG issues into investment practice.
- **UNEP FI Principles for Sustainable Insurance Initiative (PSI)** – Aimed to better understand, prevent and reduce environmental, social, and governance risks, and better manage opportunities to provide quality and reliable risk protection.
- **The Partnership for Carbon Accounting Financials (PCAF)** – A global partnership of financial institutions that work in tandem to develop and

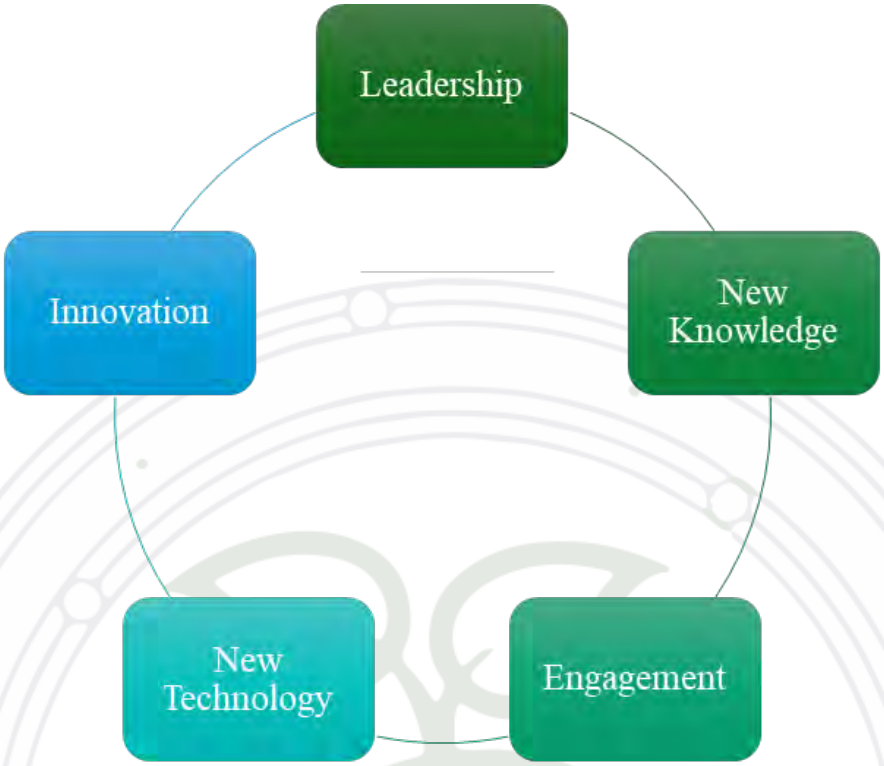
implement a harmonised approach to assess and disclose the GHG emissions associated with their loans and investments. It has developed an open- source global GHG accounting standard for financial institutions, the Global GHG Accounting and Reporting Standard for the Financial Industry against which organisations can report.

- **The Partnership for Biodiversity Accounting Financials (PBAF)** – A partnership of financial institutions that work together to explore the opportunities and challenges surrounding assessment and disclosure of the impact on biodiversity associated with their loans and investments.
- **Global Reporting Initiative (GRI)** – Global standard setter for impact reporting.
- **Sustainability Accounting Standards Board (SASB)** – Set to develop a common language about the financial impacts of sustainability.
- **Climate Disclosure Standards Board (CDSB)** – An international consortium of business and environmental NGOs committed to advancing and aligning the global mainstream corporate reporting model to equate natural capital with financial capital. CDSB offers entities a framework for reporting environmental information with the same rigor as financial information. In turn, this helps them to provide investors with decision-useful environmental information via the mainstream corporate report, enhancing the efficient allocation of capital.

16.8. Benefits of ESG



16.9. What's the Goal?



16.10. The Mantra for New Normal ESG

- Maximise the value of the resources we use.
- Minimise the waste we create.
- Cut emissions.
- Cleaner, Greener, Healthier Planet and a prosperous business.
- Be Inspirational.
- Create a trustworthy environment.
- Success is Transformation.

17.0. Tokenomics

The SPE tokenomics are designed to support the sustainable and transparent operation of SavePlanetEarth ($SPE), leveraging blockchain technology to address environmental challenges by incentivising green initiatives by providing a medium for carbon credit trading while implementing unique token utilisation strategies to encourage investment, in turn accelerating operations and more green initiatives. Below is a detailed breakdown of the $SPE tokenomics, focusing on the SPE Marketplace, staking, and DEX trading.

17.1. Overview of $SPE Token Use Case

$SPE is the native utility token used for transacting carbon credits on the SavePlanetEarth Carbon Credit Marketplace (SPECCM). The utility fee for each carbon credit transaction on the marketplace is allocated as follows:

- **60% Burned: Creating a deflationary effect on the token supply.**
- **30% Staking Rewards: Allocated to reward participants in the staking pool.**
- **10% LECCNFT Holders: Distributed to holders of Limited-Edition Carbon Credit NFTs.**

The $SPE utility fee for normal marketplace transactions will be equivalent to 3% of the of the sale price of the carbon credits. For larger transactions, our team will provide manual assistance to simplify the payment process and accommodate the needs of larger clients. Many of these clients may require Non-Disclosure Agreements (NDAs), which prevent us from publicly disclosing certain transaction details, including the final price.

To maintain confidentiality and adhere to these agreements, manually handled transactions will incur a variable fee ranging from 1% to 3%. The fee will depend on the specifics of the deal, including its margin and complexity, but will always be set with the best intentions for the platform and its stakeholders. NDAs are a common requirement in large-scale transactions, especially when clients need to protect pricing details for strategic reasons. A flexible fee ensures we can honor these agreements while still maintaining our commitment to transparency wherever possible.

Market Competitiveness: By tailoring fees to specific transactions, we can remain competitive in attracting high-value clients while ensuring that all deals contribute meaningfully to the buyback pool.

Guaranteed Buyback Contribution: Regardless of the final fee, at least 1% of the transaction value will always be allocated to the buyback pool, strengthening the $SPE token's utility.

17.2. Current Tokenomics (as of December 1st, 2024)

- Max Supply: *1,000,000,000 $SPE*
- Burned Tokens: *412,646,629 $SPE*
- Total Supply: *587,353,371 $SPE*
- Dedicated Team Tokens: *120,000,000 $SPE*, to be vested monthly over 10 years.
- Tokens dedicated for Staking Pool: *80,000,000 $SPE*, to be vested monthly over 12 years.
- Circulating Supply: *387,353,371 $SPE*

The token contract includes an adjustable buy and sell tax capped at 10%. Currently, **there are no taxes** for buying or selling Ethereum SPE on Uniswap. This is subject to change in the future and will be advised well beforehand to the community.

Neither team tokens nor staking tokens will begin vesting until the staking platform is finished.

Team tokens will be used for future exchange liquidity when needed, marketing and brand development, operational reserves and contingency, product development and innovation, prizes in the upcoming metaverse initiative.

17.3. Deflationary Mechanism

60% of the utility fee from carbon credit transactions is used to buy back and burn $SPE creating buy pressure and scarcity, and also making it deflationary, in turn increasing the value of $SPE and benefiting all holders of the token.

17.4. Automatic Liquidity Function

When enabled, the $SPE contract's liquidity function taxes transactions to enhance liquidity, aiming for a liquidity-to-market-cap ratio of 10%. As of December 1st, 2024, this function is not enabled on Ethereum, and there are no short terms plans to change this.

17.5. DEX Trading and Tax Characteristics

Adjustable Buy/Sell Tax: The current buy tax is 2.5% and the sell tax is 10%, with a cap at 10%. These taxes support liquidity and the staking pool.

Automatic Liquidity: The contract holds $SPE until it reaches a threshold, then splits and sells for BNB, adding to liquidity.

17.6. Disclaimers

All numbers and percentages mentioned are subject to change as the project evolves. The staking mechanism and token vesting schedules are still in development and may be adjusted before implementation.

17.7. Conclusion

The $SPE tokenomics framework is meticulously designed to incentivise a sustainable ecosystem, promote the value of the $SPE token, and support SavePlanetEarth's mission. Through deflationary mechanisms, innovative staking, and the SPECCM, SPE aims to drive significant environmental impact while rewarding its community and investors.

18.0. SPE's Innovative Staking System

Expected for launch in the near future, SPE's proprietary staking platform aims to offer long-term investors an opportunity to participate in SPE's earnings. All here is subject to change and improvement. There exists a strong possibility that unforeseen scenarios may arise due to the innovative nature of this system.

18.1. Reward Structure

- Unlike traditional fixed APY% systems, SPE will not offer a fixed APY% for stakers. Fixed APY% models usually are unsustainable and often have negative outcomes for projects.
- Instead, our staking pool will be divided monthly, focusing on performance-based rewards.
- **100% of all tokens in the staking pool are reserved exclusively for stakers.**

18.2. Monthly Staking Pool

The monthly staking pool operates on a calendar month basis, beginning and ending/resetting on day 1 of each calendar month. Rewards for the previous month are calculated and distributed between day 1-3 of each month. The exact day and time of the snapshot/reset will be announced at least 24 hours before each date (the logic for this is still being debated, subject to change).

18.2.1. Components of the monthly staking pool

- **555,555.555 $SPE:** Vested monthly for the next 12 years as per the new proposed tokenomics.
- **A variable portion of the DEX buy and sell tax:** Deposited directly and automatically to the staking pool.
- **30% of the $SPE required for onboarding/sales of carbon credits on the SPE Carbon Credit Marketplace (SPECCM):** Deposited directly to the staking pool.

18.3. Staking Rewards Calculation

Staking rewards for each participant are calculated from points derived from the total $SPE staked combined with a weight multiplier.

1,000 $SPE staked = 1 point

Weight multipliers are added to points derived from total tokens staked (subject to change):

- **Calendar Day Multiplier:** Increases by +1.0x for each day staked in each month (e.g., 2 days = 2.0x, 30 days = 30.0x, etc).
- **Lock Period Multiplier:** Longer lock-up period = more rewards. Current estimates: 1 month = 1.0x

3 months = 1.2x
6 months = 1.5x
12 months = 2.0x

- **LECCNFTs Held Multiplier:** Awards more weight based on the number of LECCNFTs held (up to a maximum of 10 per wallet):

1. LECCNFTs: 1.1x
2. LECCNFTs: 1.2x
3. LECCNFTs: 1.3x
4. LECCNFTs: 1.4x
5. LECCNFTs: 1.5x
6. LECCNFTs: 1.6x
7. LECCNFTs: 1.7x
8. LECCNFTs: 1.8x
9. LECCNFTs: 1.9x
10. LECCNFTs: 2.0x

- **Top Ten LECCNFT Multiplier:** LECCNFTs #1-#10 receive added benefits, as initially stated in 2021 during the initial auctions:

#10 - 1.1x
#9 - 1.2x
#8 - 1.3x
#7 - 1.4x
#6 - 1.5x
#5 - 1.6x
#4 - 1.7x
#3 - 1.9x
#2 - 2.2x
#1 - 2.5x

18.3.1. Some Examples for Clarity

In this example, we calculate how staking rewards are split between 3 holders assuming there are 10,000 $SPE in the pool.

Example 1: Holder A

- $SPE Staked: 1,000,000 $SPE
- Lock Period: 3 months
- LECCNFTs Held: 2
- Top Ten LECCNFT Multiplier: Not applicable
- Days Staked: 30 days

Calculation:

1. Basic Points from $SPE: 1,000,000 / 1,000 = 1,000 points
2. Lock Period Multiplier: 1.2x for 3 months
3. LECCNFTs Multiplier: 1.2x for 2 LECCNFTs
4. Calendar Day Multiplier: 30.0x for 30 days
5. Total Multiplier: 1.2 * 1.2 * 30 = 43.2
6. Total Points: 1,000 * 43.2 = 43,200 points

Example 2: Holder B

- $SPE Staked: 2,000,000 $SPE
- Lock Period: 6 months
- LECCNFTs Held: 3
- Top Ten LECCNFT Multiplier: Holder of LECCNFT #6 (1.5x)
- Days Staked: 4 days

Calculation:

1. Basic Points from $SPE: 2,000,000 / 1,000 = 2,000 points
2. Lock Period Multiplier: 1.5x for 6 months
3. LECCNFTs Multiplier: 1.3x for 3 LECCNFTs
4. Top Ten LECCNFT Multiplier: 1.5x for LECCNFT #6
5. Calendar Day Multiplier: 4.0x for 4 days
6. Total Multiplier: 1.5 * 1.3 * 1.5 * 4 = 11.7
7. Total Points: 2,000 * 11.7 = 23,400 points

Example 3: Holder C

- $SPE Staked: 25,000 $SPE
- Lock Period: 1 month
- LECCNFTs Held: 0
- Top Ten LECCNFT Multiplier: Not applicable
- Days Staked: 29 days

Calculation:

1. Basic Points from $SPE: 25,000 / 1,000 = 25 points
2. Lock Period Multiplier: 1.0x for 1 month
3. Calendar Day Multiplier: 29.0x for 29 days
4. Total Multiplier: 1.0 * 29 = 29
5. Total Points: 25 * 29 = 725 points

Pool Division:

- Total Points in the System: 43,200 + 23,400 + 725 = 67,325 points
- Holder A's Share: 43,200 / 67,325 ≈ 64.166%
- Holder B's Share: 23,400 / 67,325 ≈ 34.757%
- Holder C's Share: 725 / 67,325 ≈ 1.077%

Each holder will receive a percentage of the 10,000 $SPE reward pool equivalent to their share of the total points:

- Holder A: 10,000 * 64.190% = 6,416.6 $SPE
- Holder B: 10,000 * 34.753% = 3,475.7 $SPE
- Holder C: 10,000 * 1.077% = 107.7 $SPE

18.3.2. Other Aspects

- A variable cap on $SPE will be imposed on investors who do not hold a LECCNFT, now set at 25,000 $SPE (subject to modification).
- **Monthly Lottery:** Offers a chance for smaller investors without LECCNFTs to participate; eligibility criteria include not owning a LECCNFT, staking the maximum cap amount (currently 25,000 $SPE), staking for at least one full month.

- Stakers starting on a day other than the first of the month will see their Lock Period begin on the first day of the following calendar month. They will still benefit from the Lock Period Multiplier for the partial first month.
- Stakers must unlock tokens and stake again when their lock period expires to maintain the Lock Period Multiplier. Failure to do so will revert the multiplier to 1.0x.
- Rewards are finalised and distributed on day 1-3 of the following month. To avoid confusion, users receive warnings via the UI of the platform if they attempt to unstake prematurely.
- Staking rewards accumulate and remain inside the platform until the staker withdraws their tokens.
- Early unstaking results in the forfeiture of 100% of accumulated rewards back into the same month's pool to be enjoyed by stakers who complete their lock periods correctly, and an additional 2% penalty applied to the amount principally staked, which is also added to the same reward pool.
- The user interface of the staking platform will provide transparent real-time metrics, including total $SPE staked, a list of staked wallets and their associated weight multipliers, the accumulated $SPE in the pool, rewards accumulated, real-time actions such as $SPE added to the pool from carbon credits purchases on the marketplace, and more gamified features.

18.3.3. Gamified Features

- Monthly lottery with allocated $SPE prizes where every LECCNFT owner receives a ticket.
- Monthly LECCNFT winner.
- Additional social media contests to be announced.

This comprehensive staking system aims to cater to the diverse needs of our community, offering opportunities for long-term holders and smaller investors alike while promoting transparency and fairness. The system aligns rewards with performance, discouraging unrealistic fixed APY% promises often seen in the crypto space. As with any system, careful monitoring and community feedback will be essential to ensure its continued success and alignment with project goals.

19.0. SPE Carbon Credit Exchange/Marketplace

The SPE Carbon Credits Marketplace is designed to facilitate the purchase, transfer, and retirement of carbon credits (CCs) for both individual users and brokers. This guide provides a detailed overview of the processes involved in managing carbon credits through our platform, ensuring a seamless and transparent experience.

SPE has conceptualised a two-tiered exchange that will serve as a conduit for carbon credit transactions and project tokenization. Connection with PCS registry and connection with Blockchain ledger utilising APIs is in place for seamless and transparent real time updates to eliminate double claiming.

Within the marketplace, SPE serves as the medium for paying transaction fees. Every transaction involving purchase of carbon credits includes a fee (1%-3%) which represents $SPE, making the token a fundamental and obligatory aspect of the transaction process.

The first level 'Purchase Carbon Credits' of the exchange functions as a carbon credit broker. Users can purchase PCS-certified carbon credits in a straightforward manner, much like an online store transaction. Upon acquiring carbon credits at this level, a multi-fold transaction process is activated:

- A designated percentage of every fee generated from PCS carbon credits is transferred to a burn address. This makes SPE deflationary, reducing total supply over time and potentially increasing the value of remaining tokens.
- A portion is directed to the staking pool as a reward for our investors, acknowledging their support and bolstering their loyalty. See tokenomics.
- A fraction of the fee goes to LECCNFT holders, giving yet another extra benefit to those who hold one or more of the limited-edition NFTs that have helped fund operations during the bear market.
- Whenever carbon credits of other companies are sold, a percentage is also allocated to fund SPE's environmental projects.

- When interacting with the marketplace, a 3% fee is applied to both cryptocurrency payments and payments made via credit card or bank transfer. The fee is included in the total amount of the sale, and is separated and accumulated transparently in adherence to the marketplace's tokenomics for all to see. These funds are then used to buy $SPE on the market, which are redistributed based on the established tokenomics.

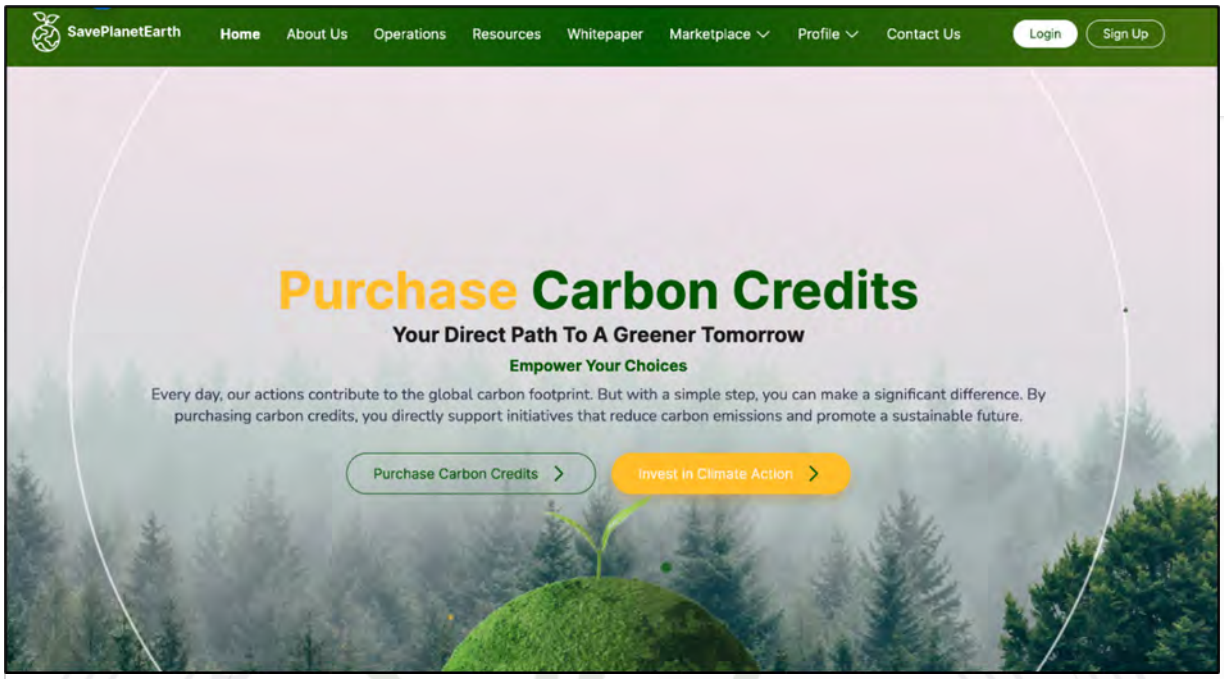
- The second level 'Invest in Climate Action' of the exchange serves as a marketplace where anyone can tokenise their Planetary Carbon Standard (PCS) registered carbon credit project. It democratises the process of gaining capital for environmental projects, encouraging more innovation and participation in the field.

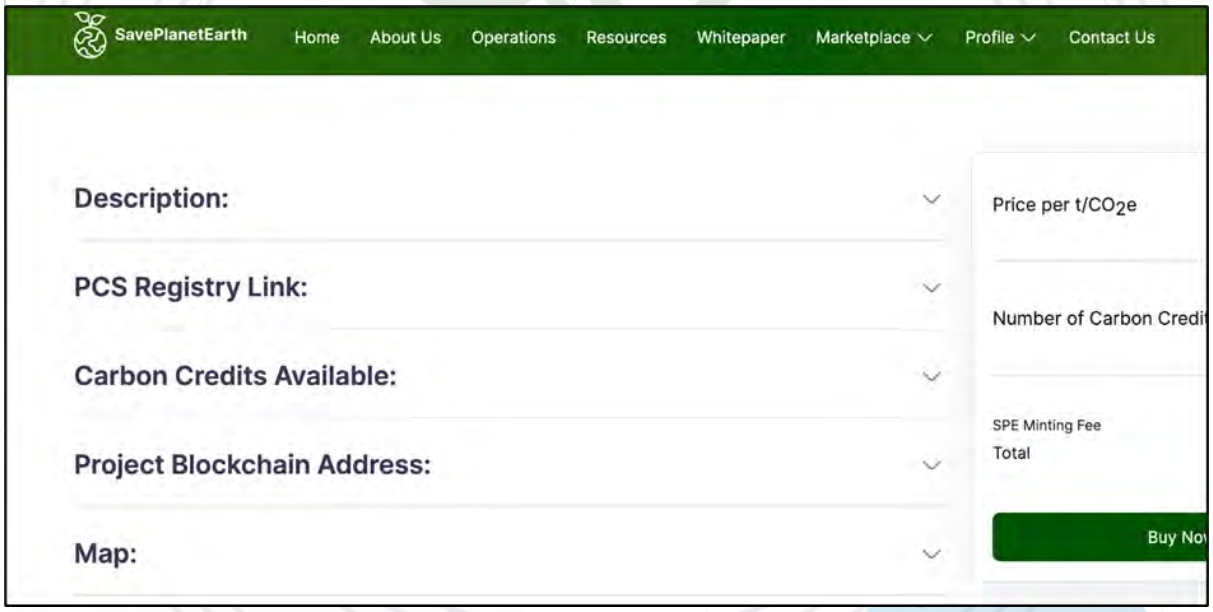
During the transaction process on Level 2, a system similar to Level 1 is in place:

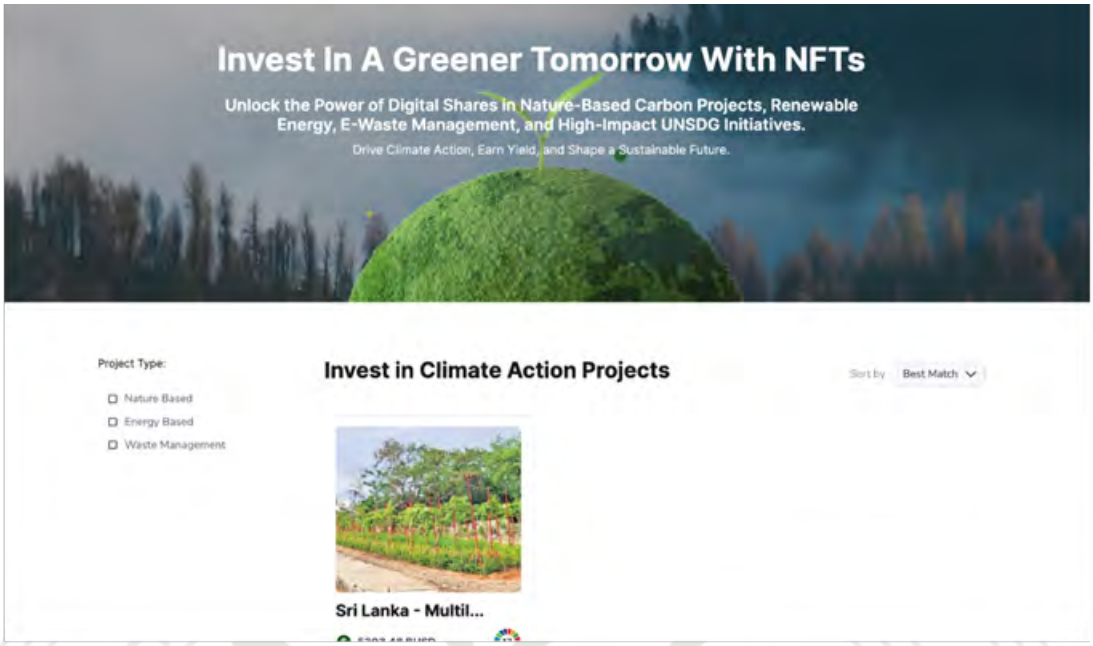
- Level 2 allows the tokenization of diverse projects such as solar recycling, solar energy, other renewable energy projects, and tree planting initiatives through non-fungible tokens (NFTs).

- The tokenised projects can then secure funding through this platform. Moreover, these tokenised projects generate a revenue stream that is transferred back to the NFT holders' wallets, providing them with a return on their investment.

SPE's two-level exchange is designed to facilitate sale of carbon credits and tokenization of eco-friendly projects along with any additional revenues. It creates a symbiotic ecosystem where the carbon credit buyers, project creators, and investors all contribute to and benefit from the shared goal of promoting sustainability.



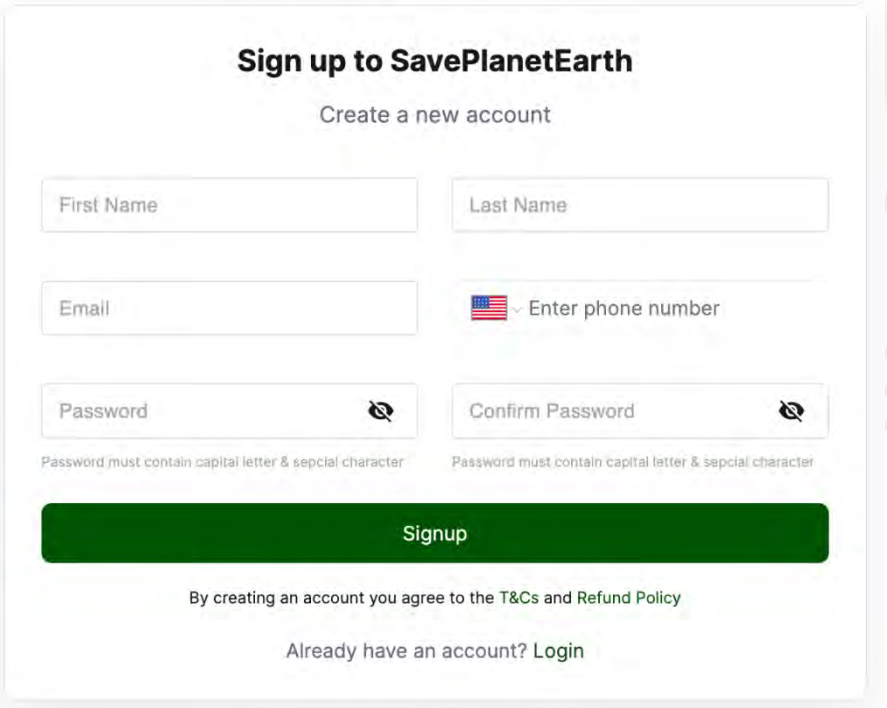




Invest in Climate Action digital shares (NFTs)

User Guide:

I. Sign-Up Process



- Registration: Begin by adding your personal details to create an account.
- Email Verification: Verify your email address to activate your account.

- Login: Access your dashboard by logging in with your verified credentials.

II. Account Management

- Account Settings: Manage all your personal and card details securely from the Account Settings section of your dashboard.

III. Marketplace Transactions

- Project Selection: Navigate to the marketplace and select the project you wish to offset your carbon credits against.
- Purchase CCs: Complete the purchase using available payment methods, such as wallets or credit/debit cards.
- Transaction Tracking: Monitor real-time transactions on the blockchain via the Recent Transactions section on your dashboard.

Broker Guide

I. Transaction Management

- Access Tabs: Navigate to the Purchase / Transfer / Retire tab on your dashboard.

II. Purchasing CCs

- Select the Purchase option.
- Fill out all the required data in the form provided.

III. Transferring CCs

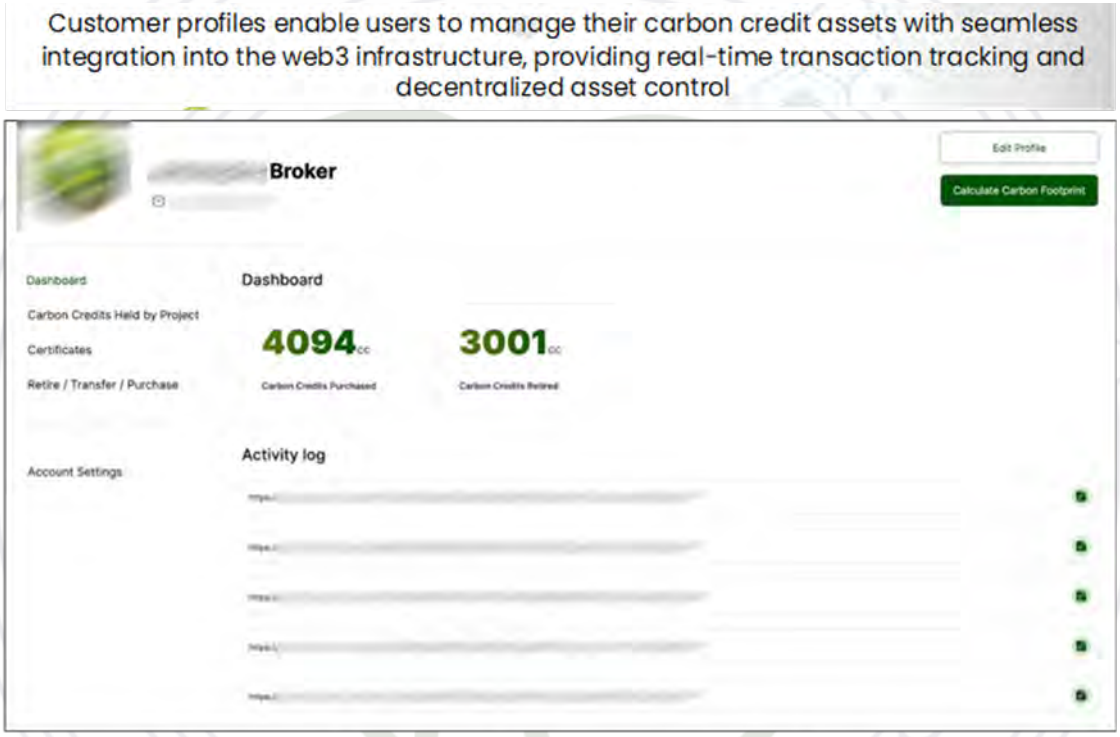
- Select the Transfer option.
- Complete the required data fields for the transfer.

IV. Retiring CCs

- Select the Retire option.
- Fill out the necessary data for retirement.
- Request Processing
- Request Submission: Once the forms are completed, your request will be forwarded to the admin for approval.
- Approval Notification: You will receive an email notification upon the approval of your request.

V. Asset and Certificate Management

- NFT Holdings: Check all the NFTs you hold in the 'Carbon Credits Held by Project' tab.
- Certificates: Access all retirement certificates in the Certificates tab.
- Transaction Tracking: View real-time transactions on the blockchain from the Recent Transactions section on your dashboard.



Empowerment with Decentralised Controlling Carbon Credit Management

20.0. Basis of SPE Invest in Climate Action Projects -UNSDGS

20.1. Carbon Offsetting/Insetting

SavePlanetEarth will quantify the emission reductions that will result from diverse portfolio of projects facilitated by SPE through its **'Invest in Climate Action Projects'**, from tree planting to renewable energy generation and so on. Using up to date methodologies, PCS will submit each project to be independently verified as per ISO 14064, which verifies the reductions of greenhouse gases. Verification and Validation Bodies (VVBs) will carry out the verification and certification. we are already working with the Ministry of Environment in Sri Lanka as it is the first body to be accredited to issue both parts of this standard in South Asia. Further VVBs have been identified in Europe, America and Asia.

SavePlanetEarth (SPE) aligns its operations and projects with the United Nations Sustainable Development Goals (UNSGDs) as part of its commitment to sustainable development and responsible environmental actions. SPE sees each goal as an opportunity to further its mission, contributing to a sustainable and equitable future. Here's how SPE expands on the mentioned goals through the Climate Action projects to be released on the SPE marketplace:

NO POVERTY

Employments generated by the project aims to eradicate poverty from the local community.

ZERO HUNGER

SPE's projects include the cultivation of agricultural crops and plants with nutritional value, supporting local food security and reducing hunger.

GOOD HEALTH & WELL-BEING

SPE educates communities on the importance of adopting healthy lifestyles. The organization employs qualified professionals to deliver wellness initiatives and support community health.

QUALITY EDUCATION

SPE backs the development of greener schools, emphasizing environmental education and awareness to foster a new generation of environmentally conscious individuals.

GENDER EQUALITY

SPE practices equal opportunity employment, involving individuals of all genders in its projects and decision-making processes.

CLEAN WATER & SANITATION

SPE's afforestation projects help replenish underground water resources. Its waste management programs promote clean environments and provide necessary compost for cultivation.

AFFORDABLE & CLEAN ENERGY

SPE endorses the use of renewable energy sources, contributing to the transition towards a sustainable, low-carbon future.

DECENT WORK & ECONOMIC GROWTH

Through its projects, SPE provides decent work conditions, promoting sustainable economic growth and contributing to community development.

INDUSTRIAL, INNOVATION & INFRASTRUCTURE

SPE encourages industry innovation and develops infrastructure that supports sustainable growth, emphasizing the importance of sustainability in the future of industry.

REDUCED INEQUALITIES

SPE works to reduce inequalities through its employment practices and project implementation, promoting inclusivity and equal opportunity.

SUSTAINABLE CITIES & COMMUNITIES

SPE's initiatives contribute to the development of sustainable cities and communities, emphasizing responsible land use and green urban planning.

RESPONSIBLE CONSUMPTION & PRODUCTION

SPE promotes responsible consumption and production patterns, encouraging efficient use of resources and sustainable practices.

CLIMATE ACTION

As a core part of its mission, SPE is actively engaged in combatting climate change through its carbon sequestration initiatives and climate education programs.

LIFE BELOW WATER

SPE works on projects that promote cleaner oceans and rivers, supporting aquatic biodiversity and the health of marine ecosystems.

LIFE ON LAND

SPE's afforestation and reforestation initiatives help protect and restore terrestrial ecosystems, supporting biodiversity and contributing to the health of our planet.

PEACE JUSTICE & STRONG INSTITUTIONS

SPE advocates for peaceful and inclusive societies, supporting justice for all, and building effective, accountable institutions at all levels.

PARTNERSHIP FOR THE GOALS

SPE actively seeks alliances with like-minded organisations, recognising that collaboration is essential to achieving these ambitious goals.

By aligning its projects with these UNSDGs, SPE is not only furthering its own mission but also contributing to a global movement towards sustainability and equity.

20.2. Organic Agriculture

SPE will be supporting the community by initiating organic farming activities in the region. Crops can be selected based on the climate and soil type. SPE will be providing costs for agricultural projects and profits can be shared once harvests are sold.

20.3. Waste to Compost Projects

SPE will invest in Waste Management projects/Waste to Compost projects. The compost produced can be used for agricultural/cultivation projects while excess production can be released to the market.

20.4. Renewable Energy Projects

Solar and wind power-based energy generation projects will be initiated by SPE.

20.5. Eco-Resorts

Eco-resorts designed in an environmentally friendly manner will attract tourists who are interested in the "Eco-Friendly" lifestyle. One or more Islands can be developed as an Eco-Resort, which will generate employment opportunities for the local families while attracting foreign currency to the country through tourism. SPE can promote the region among its international community for Eco-Tourism.

20.6. Commercial Farming

The tree layer, sub-tree layer, and shrubs will consist of trees with commercial and food value. Jackfruits, mango, other fruits, cinnamon, cloves, cocoa, coffee, peanuts, taro root, cassava, etc. will be planted as a preparation to face an upcoming food crisis. In addition, trees with high timber value will be planted which can be regarded as an investment.

20.7. Urban Parks / Public Gardens

SPE will sponsor the design and development of "Green Urban parks" and "Public Gardens" for the benefit of local community, as a support to the visions of SPE and affiliated administrative/governmental alliances.

20.8. Home Gardens

Valuable trees will be distributed among the families to plant in their home gardens, generating an income with their timber value once they reach maturity.

20.9. Criteria

Apart from its main purpose of afforestation and reforestation, SPE can facilitate other green projects. Below are the criteria to be fulfilled and facilitated for SPE to ensure the sustainability of projects.

20.9.1. Afforestation/Reforestation projects

- Ownership of the lands may be either privately owned or state-owned.
- All lands need to have motorable access.
- The minimum size of the land should be 10 acres. A few lands of smaller size forming a cluster, which is more than 10 acres within the same locality can be considered.
- Easy access to water sources is a must. Lands close to a river or a tank would be preferred.
- If the ownership of the land is private, a long-term contract shall be signed with the landowner before starting operations.
- Labor should be arranged from the locality and landowner should manage the operations.
- If the land is state-owned, a long-term lease agreement shall be signed with the state.
- Necessary approvals need to be arranged by the landowner.
- Carbon credit rights should solely be with Save Planet Earth.

20.9.2. Organic Agriculture

- Ownership of the land may be either privately owned or state-owned with long term leases and carbon rights.
- All lands need to have motorable access.
- A part of the land allocated for Afforestation/Reforestation purposes can be used for organic farming.
- Easy access to a water source is a must. Lands close to a river or a tank would be preferred.
- If ownership of the land is private, a long-term contract shall be signed with the landowner before starting operations.
- Labor should be arranged from the locality and landowner should manage the operations.
- If the lands are state-owned, a long-term lease agreement shall be signed with the state.
- Necessary approvals need to be arranged by the landowner.
- Profits should be shared at a pre-agreed rate with SPE.

20.9.3. Waste to Compost/Recycling projects

- Ownership of lands may be either privately owned or state-owned.
- All lands need to have motorable access.
- The minimum size of the land should be 8-10 acres.
- A long-term lease agreement shall be signed with the state or landowner. (33-year lease agreement)
- Necessary approvals should be arranged.
- The supply of graded waste should be ensured by the local authorities.

20.9.4. Renewable Energy projects

- Ownership of the lands/properties may be either privately owned or state-owned with carbon rights.
- All lands need to have motorable access.
- Labor should be arranged from the locality and the owner of the land should manage the operations.
- If the lands are state-owned, a long-term lease agreement shall be signed with the state.
- Necessary approvals need to be arranged by the landowner.
- Carbon credit rights should be solely with Save Planet Earth.

20.9.5. Eco-Resorts

- Ownership of the lands/properties may be either privately owned or state-owned.
- All lands need to have motorable access and or easy access to an accepted mode.
- An Island or land from the mainland should be allocated by a long-term lease agreement.
- Necessary approvals need to be arranged by the promoter.

20.9.6. Home Gardens

- SPE will provide the required trees for planting.
- The owner of garden should look after the tree.
- The growth of the tree will be monitored through an app. The owner should upload photos of the tree periodically to the app.
- Carbon credit rights should be solely with SavePlanetEarth.

20.9.7. Urban Parks/Public Gardens

- SPE will design and develop Urban parks.
- All necessary approvals should be arranged by local authorities.
- Management and maintenance should be handled by the local authority.
- If ownership of land is private, a long-term contract shall be signed with the owner of the land before starting operations.

21.0. SPE's LECCNFT

Limited Edition Carbon Credit Non-Fungible Token

LECCNFT stands for Limited Edition Carbon Credit Non-Fungible Token. Released by SPE in late 2021, these tokens offer long-term holders a unique opportunity to support SPE's operations while enjoying a variety of exclusive benefits. There are only 1,000 of these special NFTs in existence, and the list of benefits they offer has grown since their inception, with further expansions planned for the future.

21.1. Benefits

1. **Airdrops:** LECCNFT holders periodically receive airdrops of $SPE tokens and tokens from SPEPad projects. Over 30 airdrops have taken place since late 2021. Although 2024 has seen fewer airdrops, they will continue in the future. Once SPE's carbon credit marketplace is operational, staking and marketplace benefits will take precedence. Each LECCNFT entitles its holder to a proportional share of these airdrops, with larger holdings receiving larger allocations.
2. **SPEPad Entry:** SPEPad serves as a launchpad for environmentally focused projects. LECCNFT holders receive exclusive access to private sales of these projects.
3. **Extra Staking Benefits:** Significant benefits will be available to LECCNFT holders when SPE's proprietary staking platform becomes operational. These benefits include increasing multipliers based on the number of LECCNFTs held. Additionally, NFTs that are among the top ten in the series (#1-#10) will receive extra multipliers. For more detailed information, please refer to the Staking section of this whitepaper.
4. **Marketplace $SPE Fees:** According to the SPE Marketplace tokenomics, 10% of the fees generated from selling and onboarding carbon credits will be distributed to LECCNFT holders. Similar to the airdrops, each LECCNFT entitles its holder to a proportional share of these fees.

5. **Invest in Climate Action:** LECCNFT holders will enjoy additional benefits when participating in Invest in Climate Action projects, which will be announced in the near future.
6. **More Benefits to be Announced:** As SPE's operations continue to evolve, additional benefits for LECCNFT holders will be announced, providing further incentives for long-term participation.

LECCNFTs are currently available for purchase directly from SPE administration for 3 BNB each. They are also available on the NFTrade marketplace, which can be accessed here:

https://nftrade.com/assets/bsc/0xcfebe69abd068025321d8661810c58a9d00c4bd3

The available token numbers can be viewed here:

https://bscscan.com/token/0xcfebe69abd068025321d8661810c58a9d00c4bd3?a=0x473111c152d36abae249ab902c76dcdb71e576e7#inventory

Signed Agreement with Maldives Integrated Tourism Development Corporation

22.0. SPEPad

While SavePlanetEarth continues to engage in a global struggle to combat climate change via traditional carbon sequestration efforts alongside the innovative prowess of blockchain technology, it is also setting its sights on an opportunity in fostering its very own environmentally-oriented IDO launchpad community – the SPEPad – for other crypto-based startups aiming to make their impact on global warming. This creates yet another use case for $SPE and will reward holders with access to private sales of each project launched by us.

IDO is an abbreviation of "Initial DEX Offering" (the DEX stands for Decentralised Exchange) and is lucrative crowdfunding model in the cryptocurrency market based on approval of the market community and other like-minded traders. Ideally, it builds up and expands the legitimacy of up-and-coming project's coin or token through the public eye, without any third parties affecting its implementation.

SPE will insert itself into this "green launchpad" as a guide operating in due diligence to verify that the new entries have a proper use case and a good roadmap, as well as a fair launch and allocation of tokens. The entries will be vetted through multiple tiers, preventing any instances of potential fraud. Currently, for each project and token, first, there will be a private sale accessible only to holders of $SPE and a LECCNFT, and then a fair presale held in coordination with the SPEPad team on any one of several IDO platforms. Ultimately, SPE will be harnessing the community trust for these new coins/tokens to guarantee better performance and results.

We have already taken swift action to operationalise the SPEPad aspect of our project by employing third-party Initial DEX Offering (IDO) platforms. Recognising the urgency of our mission, several reputable environmental projects have approached us for assistance in launching their tokens. Acknowledging their timelines and the lack of a native IDO platform at our disposal, we opted to facilitate these launches using trusted third-party platforms for the presales.

We are continuously exploring opportunities and are currently engaged in discussions to find solutions for a native IDO platform. While this is a future goal, we

remain committed to ensuring that meaningful environmental projects have the support and resources they need to make a real impact today.

22.1. Private Sale Access and Tiers for $SPE Holders

There will be tiers ranging from 250,000 to 1,000,000 $SPE. The more $SPE one holds, the more they are allowed to buy into the private sale. For each project, the amount allocated for the private sale will vary, and each tier will have its own limit on how much a holder can invest. This will be calculated as a multiple of the minimum investment. Holders of $SPE that meet requirements have guaranteed allocations to private sales.

- Tier 1: Holders with 250,000 $SPE – 1x minimum investment
- Tier 2: Holders with 500,000 $SPE – 2.5x minimum investment
- Tier 3: Holders with 1,000,000 $SPE – 6x minimum investment

For example, if the minimum investment for the private sale is $500, holders could invest as follows:

- Tier 1: $500
- Tier 2: $500-$1250
- Tier 3: $500-$3000

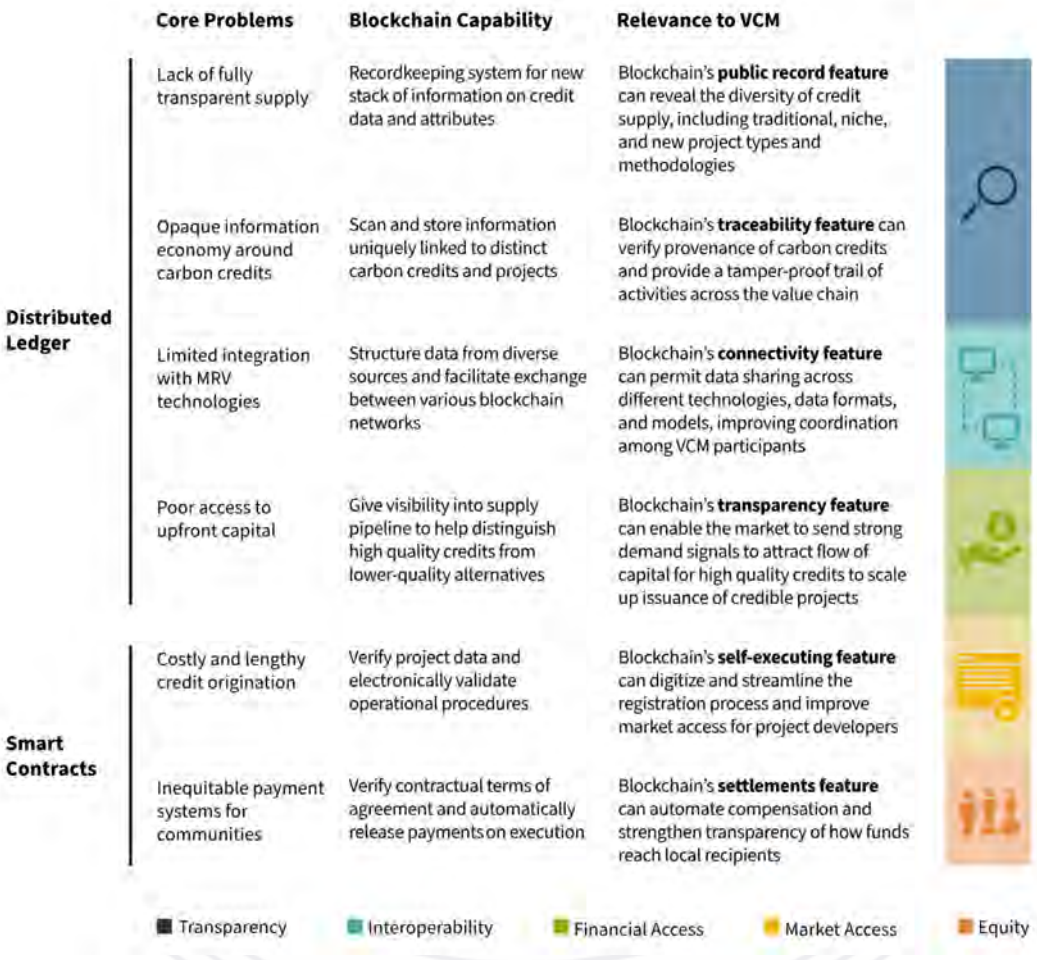
Holders of $SPE who do not meet requirements will have an opportunity to participate in the launch's presale. However, allocation is not guaranteed as presales tend to fill very quickly.

For updates, join the SPEPad Announcement Channel.

(Subject to modification at any time)

23.0. Why Blockchain? Doesn't Bitcoin Mining use a lot of Electricity?

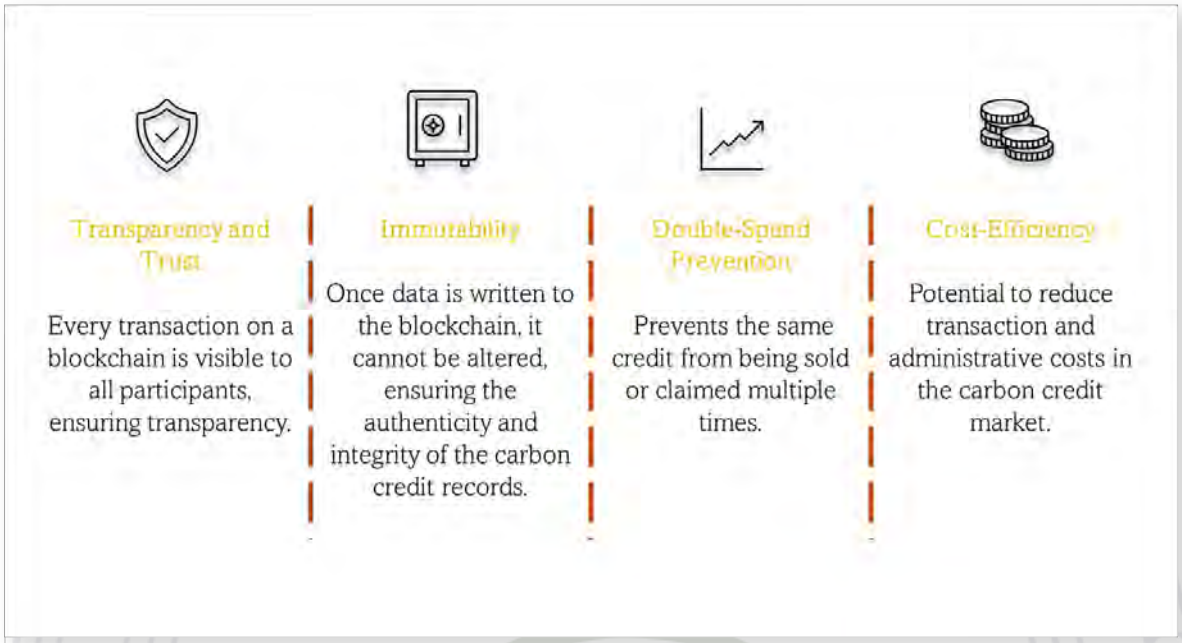
Blockchain technology is an innovative solution to the issues in centralised banking. We chose blockchain technology because of its worldwide accessibility and because it makes everything transparently verifiable for everybody involved, which is an excellent feature for regulators and our investors alike. While it is not mature yet, many practical blockchains are being developed, an exciting new technology.



Why Blockchain
Source: https://rmi.org/what-can-blockchain-do-for-carbon-markets/

By using the blockchain, we become instantly accessible to anyone around the globe. There is immense growth potential once blockchains become more widely adopted. Also, the NFT system itself allows for innovative mechanisms for carbon credit binding. Planted trees can be monitored and bound to an NFT, making it essentially a

form of carbon credit. We are currently actively working with accredited agencies and governing bodies on developing the certification for these carbon credit NFTs.



Blockchain Safeguarding Ownership

We understand that certain blockchains use a large amount of energy, resulting in a sizable carbon footprint. For example, the CBECI (Cambridge Bitcoin Electricity Consumption Index) reports that electricity consumption for Bitcoin operation is anywhere from 45 to 500 Terawatt-hours. We should note that this is still less than the current commercial banking industry, although exact numbers are difficult to estimate.

These problems are inherent with Bitcoin, though, and we want to make it very clear that $SPE initialised on the Binance Chain (BC). BC is not on the Bitcoin blockchain and operates quite differently due to how transactions are verified on the blockchain. BC uses consensus algorithms or consensus mechanisms.

While a deep dive into the software aspects is outside the scope of this discussion, there are many different types of consensus mechanisms. For example, Bitcoin uses Proof of Work (PoW), in which computers that have the blockchain software installed (a bitcoin "node") use computing power electricity to solve complex algorithms (a "hash"). When the algorithm is solved, transaction blocks are validated on

the blockchain, and new bitcoins are minted. This process causes the Bitcoin network to require a large amount of electrical power to operate effectively.

Proof of Stake (PoS) is a different type of consensus mechanism. Instead of computing power, a node can stake a certain amount of an asset and be selected to help validate transactions on the blockchain. Validators are selected arbitrarily depending on the blockchain's consensus algorithm, and the reliance on arbitrary election versus Proof of Work significantly reduces energy consumption. The BSC uses a hybrid system called Proof of Staked Authority (PoSA). The specifics of how PoSA works are similar to PoS, with some changes. This mechanism allows BSC to operate much more energy-efficiently than other blockchains and is one of the reasons we chose to launch on BSC. We also chose to launch on BSC because of its popularity and ease of access to the average investor. It is a worldwide ledger system, allowing access to anybody without sluggish, overbearing centralised banking authorities.

23.1. Recent Update: Migration to Ethereum Blockchain - Enhancing SPE for the Future

On November 3, 2024, SavePlanetEarth (SPE) successfully migrated from the Binance Smart Chain (BSC) to the Ethereum blockchain. This strategic decision was made to support the upcoming launch of the SavePlanetEarth Carbon Credit Marketplace (SPECCM) and position SPE for long-term success in the carbon credit and blockchain ecosystems.

The new Ethereum contract address is:

0x4b91dfa774ACde7Ed70e93a6438363FEAaA40F54

23.1.1. Reasons for Migration to Ethereum

The move to Ethereum aligns with our vision to create a trusted and innovative carbon credit marketplace. Ethereum offers several advantages over BSC, making it the ideal blockchain for SPE's evolution:

1. Enhanced Decentralization

Ethereum's highly decentralised network provides greater security and resistance to manipulation, ensuring that SPE operates on a reliable and resilient

foundation. This is critical for fostering trust among institutional investors and individual users engaging with the SPECCM.

2. Global Recognition and Trust

Ethereum is the most widely recognised and trusted blockchain platform, particularly among potential buyers and institutional investors in carbon credits. Its reputation as a pioneer in blockchain technology enhances SPE's credibility and market appeal.

3. Scalability Enhancements

Ongoing upgrades to the Ethereum network will facilitate higher transaction volumes at reduced costs, ensuring SPECCM can scale effectively to meet growing demand.

4. Regulatory Favourability

Ethereum's robust development history and strong developer community make it a preferred choice for projects aiming to navigate regulatory scrutiny and attract serious investors.

5. Established Market and Ecosystem

While both Ethereum and BSC share similar smart contract functionalities, Ethereum's established ecosystem, larger developer base, and deeper integration with globally recognised applications make it the superior choice for projects with long-term growth aspirations. This ensures SPE can leverage Ethereum's advanced infrastructure to attract broader adoption and provide a more seamless user experience.

23.1.2. Impact on the SPE Ecosystem

This migration marks a significant milestone for SPE and its community. By transitioning to Ethereum, SPE is now better equipped to achieve its mission of providing a transparent, trusted, and scalable platform for carbon credit trading. This change lays a strong foundation for the SavePlanetEarth Carbon Credit Marketplace to become a global leader in the carbon credit ecosystem.

23.1.3. Next Steps

As we build the SPECCM, we invite our community to embrace the advantages of Ethereum. Token holders are encouraged to stay engaged as we continue delivering updates, enhancing platform functionality, and furthering partnerships to broaden SPE's mission of combating climate change.

The migration to Ethereum is not just a technical upgrade; it is a commitment to innovation, trust, and sustainability. Together, we are building a future where blockchain technology drives impactful environmental solutions.

23.2. How Can I Help?

"Rights of the unborn" and "inter-generational equity" are fundamental.

For some time now, governments worldwide, development agencies, the private sector, non-profit organisations, and like-minded individuals have all been doing many things to impart some relief to avert the build-up of greenhouse gases in the atmosphere.

The striking rise of greenhouse gases, undoubtedly caused mainly by anthropogenic acts in the name of development, leads to global warming. Large amounts of carbon dioxide (CO_2) emissions that have caused atmospheric temperatures to go up to unprecedented levels have been accelerated by climate change. The increase in atmospheric temperatures and reduced sunlight on Earth's surface causes crop cover, habitats, and biodiversity loss. At the same time, it is responsible for causing severe weather events such as thunderstorms and cyclones with increased regularity and impact on a scale never experienced before. Global warming is also rapidly melting polar ice caps and causing an alarming rise in ocean levels. This process could see humankind approach a slow and lingering end unless something is done right now.

Island nations like the Maldives and many Pacific islands may well be the first to feel incoming attack from global warming, as the rising ocean levels will soon engulf these small low-lying island states and make them uninhabitable. The recognition of these perils against such island countries is embodied in themes and declarations adopted by forums hosted by organisations such as the United

Nations, the Climate Change Secretary, and others. However, unfortunately, little action has been taken yet. There has been a sharp rise in CO_2 levels, increasing from about 280 PPM to over 400 PPM in the last century or so, similar to the levels prevalent in the Pliocene Epoch millions of years ago.

However, this unnatural process can be directly attributable to modern human lifestyles using high amounts of electricity and other non-renewable energy forms. The electricity needed for today's society is vast and can only be appeased by large thermal power stations that operate on coal, diesel, and natural gas. A typical coal power generating station can consume more than 5 tons of coal per minute, thus emitting tons and tons of CO_2 every day. In addition to global warming, the use of limited petroleum fuel stocks to appease today's need for energy leaves an irreparable opportunity loss cast on future generations and the birth of an intergenerational equity gap that will heavily affect future generations.

We all have been expecting this catastrophe for some time now. It would be fair to say that most of us, being responsible citizens, would have adopted many personal and corporate measures within our means to reverse the global warming trends and thus make the Earth a better place. Some of us have pursued efforts to seek simple lifestyles with lower emission footprints.

Corporate Social Responsibility (CSR) and Good Governance have all become buzzwords. All this is good, but it will not be enough to save planet Earth from the impending tragedy where all ecosystems will soon be in danger.

Why? We cannot simply undo the level of emissions already released in atmosphere in tonnage and weight by switching to green energy alone, carpooling, energy management, saving the corals, and other trendy adoptions that are going on at this late stage. This is the eleventh hour, and more vigorous or aggressive undertakings to reverse the global warming trends are needed. It is known that CO_2 is a stable molecule that can remain in the atmosphere for over 100 years, and hence undoing what is already in the air should also become part of our master plan of restoring environmental normalcy. In other words, it seems that CO_2 must be removed

from the atmosphere and safely sequestered for generations to come.

Today, many proponents are doing good programs in renewable energy management, enhancing efficiency in public transport, changing fleets, revolutionising naval and air travel, and more. All these efforts are an attempt to arrest the level of CO_2 and other emissions into the air. While these programs to offset CO_2 and other emissions are great, what is needed is to aggressively take on new activities to draw back CO_2 into the soil and convert this to a large tree or canopy cover, which will in turn store the carbon in tree leaves, bark, stems, and roots. Enhanced climatic health and a liveable environment will soon dawn upon us. Reforestation stands out as a simple and economical method to arrest global warming and absorb CO_2 back into the Earth, known as carbon sequestration.

Carbon Capture and Storage (CCS) is a different method using vessels or containers to trap carbon in underground tanks requiring energy in sizable demand. However, anyone can engage in carbon sequestration by growing tree cover without sophisticated equipment and significant expenditure.

In our pursuit to effectively sequester carbon with enhanced tree cover, we have activated a brand-new mechanism using a cryptocurrency-supported program called SavePlanetEarth. A deep-rooted motivation for this was drawn from a famous Dr. Seuss book that the SPE's founder read as a child, called **The Lorax**, which says, *"Unless someone like you cares a whole awful lot about the environment, nothing is going to get better. It's not."*

SavePlanetEarth targets to plant and protect existing trees (beyond 1 billion) worldwide in at least twenty-five countries within ten to twenty years using partnerships formed with concerned action groups in each country. If one medium to large tree sequesters one ton of carbon in forty years, the amount of carbon sequestered will be vast. SavePlanetEarth is setting up a brand-new process unlike any similar programs that have already been developed in parts of the world.

We believe in bringing everyone together in carbon sequestration to fight the common challenge of global warming using new funding methods. We are running out of options and need to act now. It may be a small move that can be made through supporting SavePlanetEarth, but its impact will be far-reaching to the world out there and will signal hope to the rest of the world.

24.0. Partnerships

List of Partners fighting the cause together against Climate Change and Global Warming:

AXTG-USA

AXTG-USA is a prominent American company focused on innovative technologies and sustainability. They strive to develop and promote cutting-edge solutions that contribute to a more environmentally friendly future for the nation.

TMZN - Amazon Project (Brazil)

The Amazon Project is a major initiative in Brazil that aims to preserve the Amazon rainforest while promoting sustainable development in the region. By working with local communities and stakeholders, the project seeks to protect the delicate ecosystem and enhance livelihoods through responsible resource management.

True Footprints

True Footprints is a non-profit organisation that empowers communities to monitor and reduce their ecological footprints. By providing resources and education, they promote sustainable living and environmental responsibility worldwide.

Bizim Dunya Vakfi – Our World Foundation

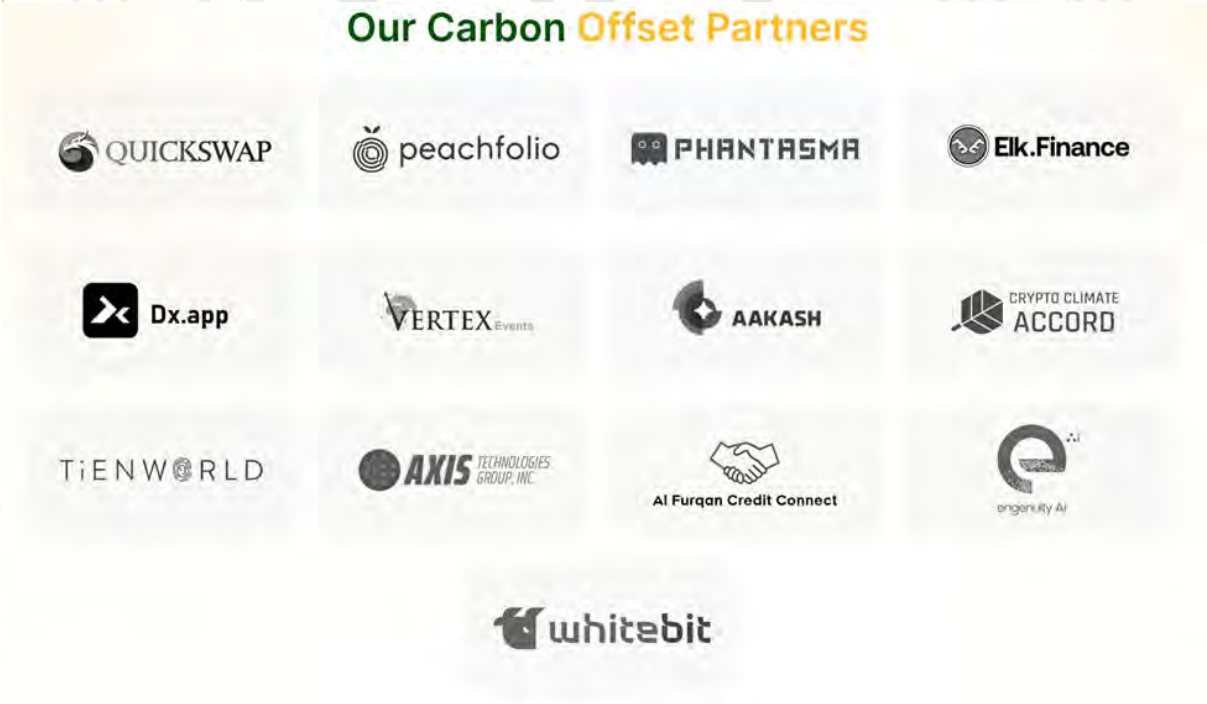
Our World Foundation is a Turkish non-profit organisation that focuses on environmental conservation, social development, and education. They work with communities, governments, and international partners to create a better world for future generations.

Turkey Rugby League

Turkey Rugby League is the governing body for rugby in Turkey, promoting the sport's growth and development. Through training, events, and community engagement, they aim to increase the sport's visibility and popularity across the country.

Aakash Green

Aakash Green is a company specialising in cultivating and processing bamboo, a sustainable and eco-friendly resource. They provide high-quality bamboo products to various industries while promoting sustainable agricultural practices and preserving natural habitats.



Furqan Credit

Furqan Credit is a financial institution that offers ethical financing options and investment opportunities. They adhere to responsible lending practices and prioritise social and environmental concerns in their operations, ensuring a positive impact on communities and the planet.

The Storey Group

The Storey Group is a global consulting firm that specialises in helping organisations develop and implement sustainable business strategies. By focusing on responsible practices and environmental stewardship, they help clients achieve long-term success while minimising their ecological impact.

Vertex

Vertex is an international organisation focused on the events sector. They are committed to sustainable business practices and strive to minimise their environmental impact while supporting global economic growth.

Aakash Bamboo

Aakash Bamboo is a subsidiary of Akaash Green, focused specifically on the production and distribution of bamboo-based products and renewable fuel. They are

dedicated to providing sustainable alternatives to traditional materials, supporting a greener future.

State Plantations Corporation

The State Plantations Corporation is a government-owned entity responsible for the management and development of plantation sectors in Sri Lanka. They promote sustainable agricultural practices and contribute to the country's economic growth while preserving the environment.

Janatha Estates Development Board

The Janatha Estates Development Board is a Sri Lankan government agency responsible for managing and developing state-owned lands and estates. They focus on sustainable land use and resource management, ensuring both economic growth and environmental protection.

Central Environment Authority

The Central Environment Authority is a Sri Lankan government agency that oversees environmental policy, regulation, and conservation efforts. They work to protect the country's natural resources and ecosystems while promoting sustainable development.

Sri Lanka Climate Fund

The Sri Lanka Climate Fund is a government initiative that provides financial support for climate change adaptation and mitigation projects. By investing in innovative solutions, they aim to build a more resilient and sustainable future for the country.

Engenuity Ai

Engenuity Ai is a technology company specialising in the development of artificial intelligence solutions for various industries. They focus on creating innovative, AI-driven applications that enhance efficiency, sustainability, and productivity, helping businesses adapt to the rapidly changing global landscape.

Hayleys Group of Companies

The Hayleys Group is a Sri Lankan conglomerate with diverse interests, including agriculture, manufacturing, and logistics. They are committed to sustainable business practices and strive to make a positive impact on communities, the environment, and the economy.

Northern Province

The Northern Province is a region in Sri Lanka that has experienced significant growth and development in recent years. The provincial government is dedicated to promoting sustainable economic growth, infrastructure development, and environmental conservation to ensure long-term prosperity.

AXTG-China

AXTG-China is the Chinese branch of AXTG, a global leader in sustainable technologies and innovation. They work on developing and promoting cutting-edge solutions to address environmental challenges and contribute to a greener future for China and the world.

Carbonis

Carbonis is a company focused on carbon markets. Their mission is to mitigate climate change by reducing greenhouse gas emissions and promoting the efficient use of carbon resources.

Housing Development Authority

The Housing Development Authority is a government organisation responsible for promoting affordable and sustainable housing solutions. They work with various stakeholders to plan and develop housing projects that meet the needs of communities while minimising environmental impacts.

Advocating the Rights of Children

Advocating the Rights of Children is a non-profit organisation dedicated to protecting and promoting the rights of children worldwide. They work to ensure that every child has access to education, healthcare, and a safe and nurturing environment.

Maldives Integrated Tourism Development Corporation

The Integrated Tourism Development Corporation is a government organisation that focuses on sustainable and responsible tourism development. They collaborate with governments, businesses, and communities to create eco-friendly tourism initiatives that benefit local economies and preserve natural and cultural resources.

Sakura Solar

Sakura Solar is a renewable energy company specialising in solar power solutions. They provide cost-effective, environmentally friendly energy options for residential, commercial, and industrial applications, helping to reduce reliance on fossil fuels and promote a sustainable future.

25.0. Road Map Summary

As we progress through our project milestones, our focus remains on development, building strategic partnerships and forming impactful joint ventures. These collaborations are vital to achieving our long-term goals and delivering value to our community. We are currently in discussions with several potential partners, and we will share detailed updates once these partnerships and joint ventures are finalised.

To stay informed about our latest developments and official announcements, please keep an eye on our announcements channel in Discord. This will be your primary source for timely updates regarding our roadmap and future plans.

** Roadmap summary is subject to change due to market demands.*

25.1. Marketing Strategy for SavePlanetEarth and Planetary Carbon Standard

25.1.1. Commencement Timeline

Q3 Marketing Launch: Marketing efforts for SavePlanetEarth and the Planetary Carbon Standard will commence in Q3 - 2024, focusing on the sale of carbon credits and onboarding various carbon offset and reduction projects.

25.1.2. Marketing Techniques and Strategies:

1. **Digital Marketing:**
    - Campaigns utilising platforms like Twitter, LinkedIn, Facebook, and Instagram to share engaging content about the benefits of carbon credits and SPE's projects which alleviate current greenwashing issues plaguing the market. Regular updates, infographics, and educational posts will help build a strong online presence.
    - SEO and Content Marketing: Creation of high-quality blog posts, articles, and videos that focus on carbon credits, environmental sustainability, and SPE's innovative projects. Optimising content for search engines will drive organic traffic to SPE's website and online portal.

2. **Influencer Partnerships:**
    - Collaborating with environmental influencers and thought leaders to promote SPE's initiatives.
3. **Email Marketing:**
    - Developing targeted email campaigns to inform potential customers and investors about the benefits of purchasing carbon credits and participating in SPE's projects. Regular newsletters will keep subscribers updated on new projects, partnerships, and milestones.
4. **Webinars and Online Events:**
    - Hosting of webinars and virtual events to educate the public about carbon credits, the importance of offsetting carbon footprints, and SPE's role in these efforts. These events will provide a platform for direct interaction with potential buyers and stakeholders.
5. **Public Relations (PR):**
    - Issue press releases and engage with media outlets to gain coverage for SPE's initiatives. Highlighting successful projects and partnerships to build credibility and raise awareness in the broader community.
6. **Advertising:**
    - Investing in online advertising through Google Ads, social media ads, and display networks to reach targeted audiences interested in environmental sustainability and carbon offsetting.
7. **Community Engagement:**
    - Build and nurture an active community both physical and online through forums, events, conferences, social media groups, and discussion boards. Encouraging user-generated content and discussions will create a sense of community and shared purpose among supporters.

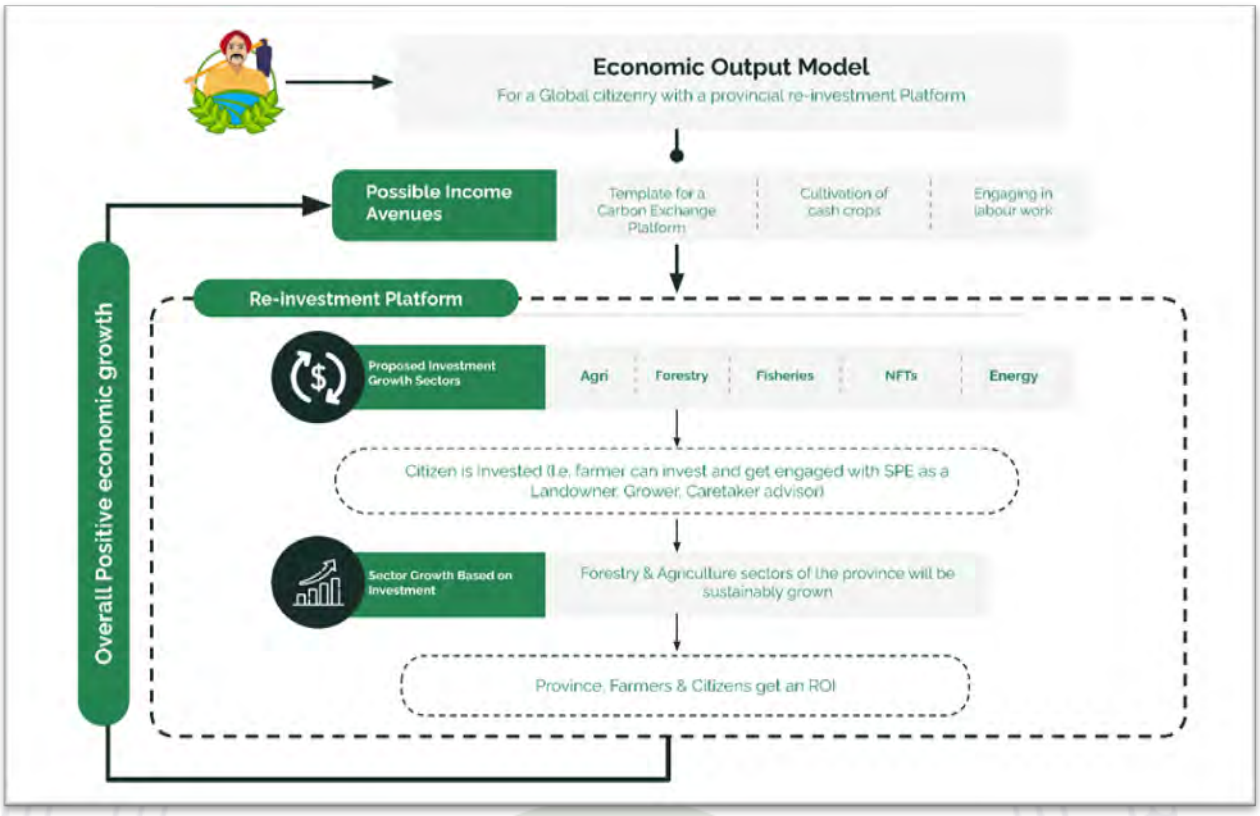
8. **Partnerships and Collaborations:**

    - Forming strategic partnerships with environmental organisations, businesses, and governments to expand the reach and impact of SPE's carbon credit initiatives. Collaborative projects and endorsements will enhance credibility and attract more participants.

25.1.3. Boosting Awareness for Environmental Cryptocurrency

- Education Campaigns: Develop educational content to explain how SPE's environmental impact works and its benefits for sustainable development. Use of clear and concise language to make the concept accessible to a broad audience.
- Transparency and Security: Highlight the security features and transparency of the blockchain technology used by SPE and PCS. Emphasise the environmental benefits of using a low emission/carbon-neutral blockchain.
- Case Studies and Testimonials: Share success stories and testimonials from early adopters and partners to build trust and demonstrate the real-world impact of SPE's initiatives and carbon credit projects.
- Interactive Tools: Provide interactive tools like carbon footprint calculators and project trackers on the SPE website and app. These tools will engage users and help them understand their personal or organisational impact on the environment. This will bolster sales of PCS generated carbon credits.

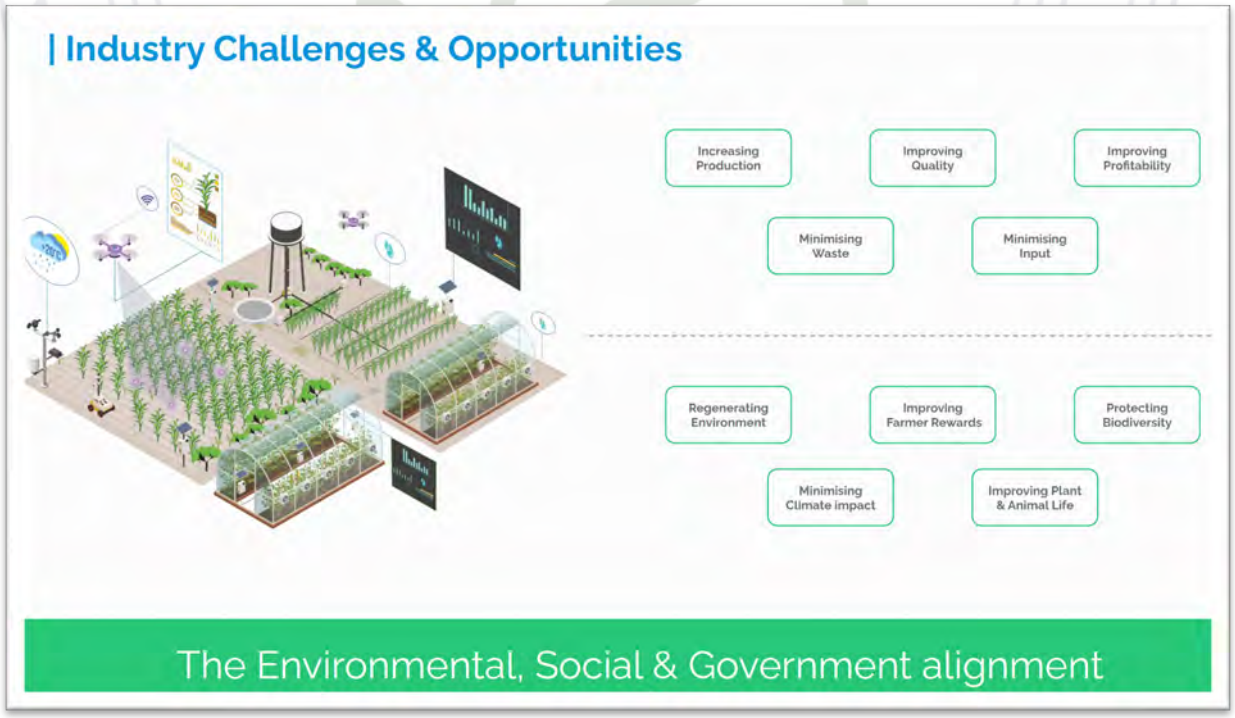
SPE aims to increase awareness, drive the adoption of its carbon credits thus creating further demand, and promote our environmental cryptocurrency, ultimately contributing to global sustainability efforts.

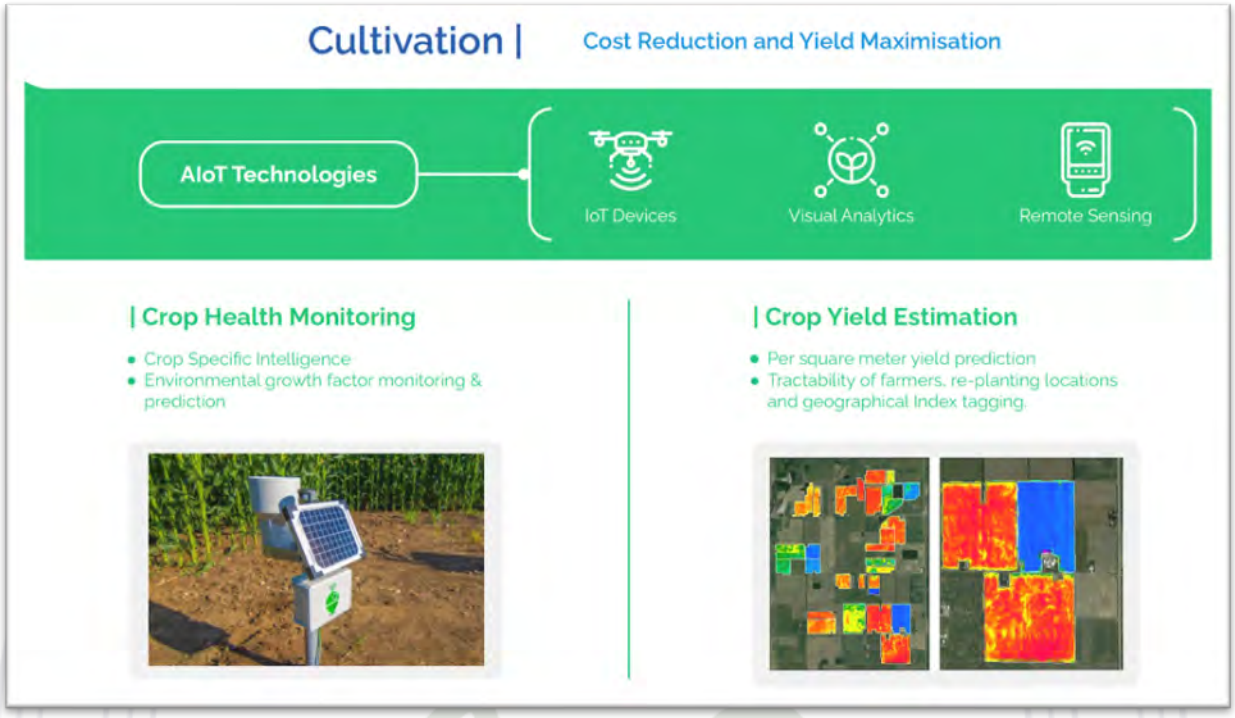


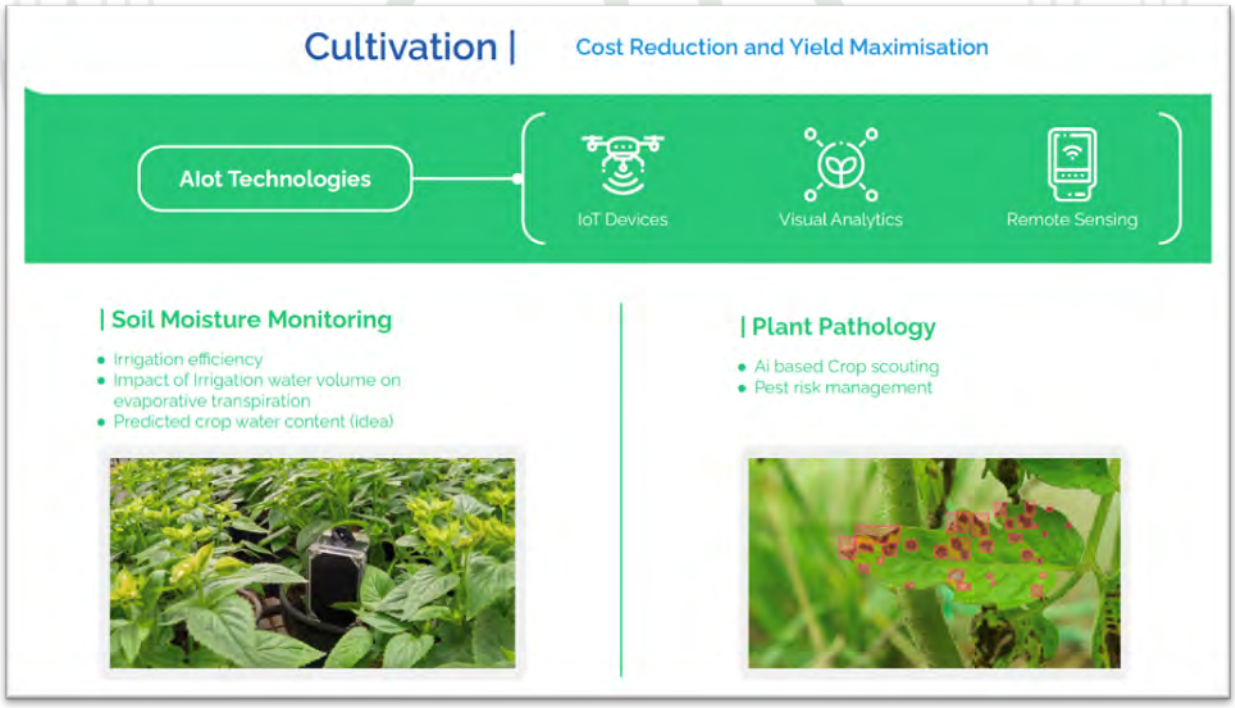
The diagram above outlines an "Economic Output Model" that incorporates farmers into a provincial reinvestment platform, emphasising sustainable growth across sectors such as agriculture, forestry, fisheries, NFTs, and energy. It highlights various income avenues, including carbon exchange platforms, cash crop cultivation, and labour work. Farmers are encouraged to invest in these sectors, becoming stakeholders and benefiting from their contributions. The model aims to diversify farmers' income sources, offer investment opportunities, and ensure long-term economic stability through sustainable practices, leading to overall positive economic growth for both farmers and the province.

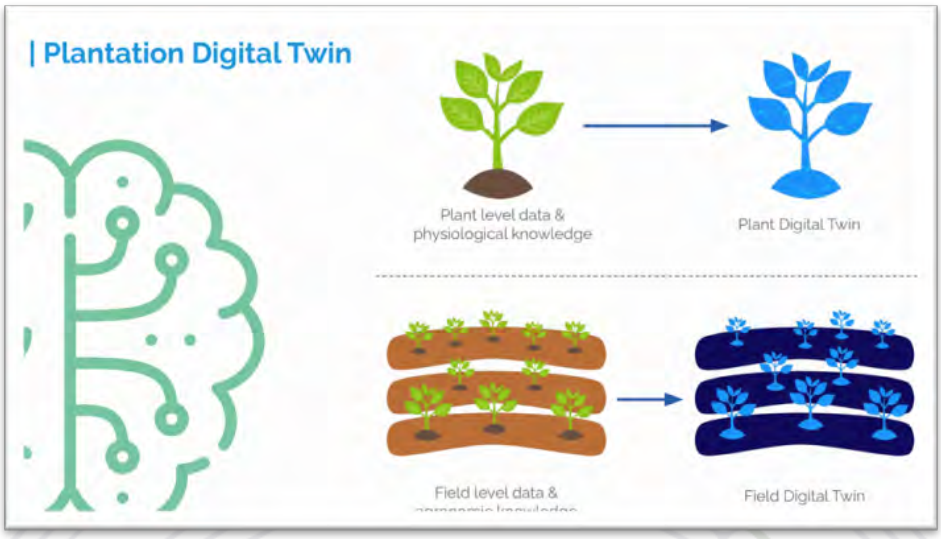
26.0. AI-Driven Forest Carbon Sequestration & Plantation Monitoring Platform

The following are the technologies we are currently working on to release as per the road map. Some are already live, and demonstrations can be provided at info@saveplanetearth.io.







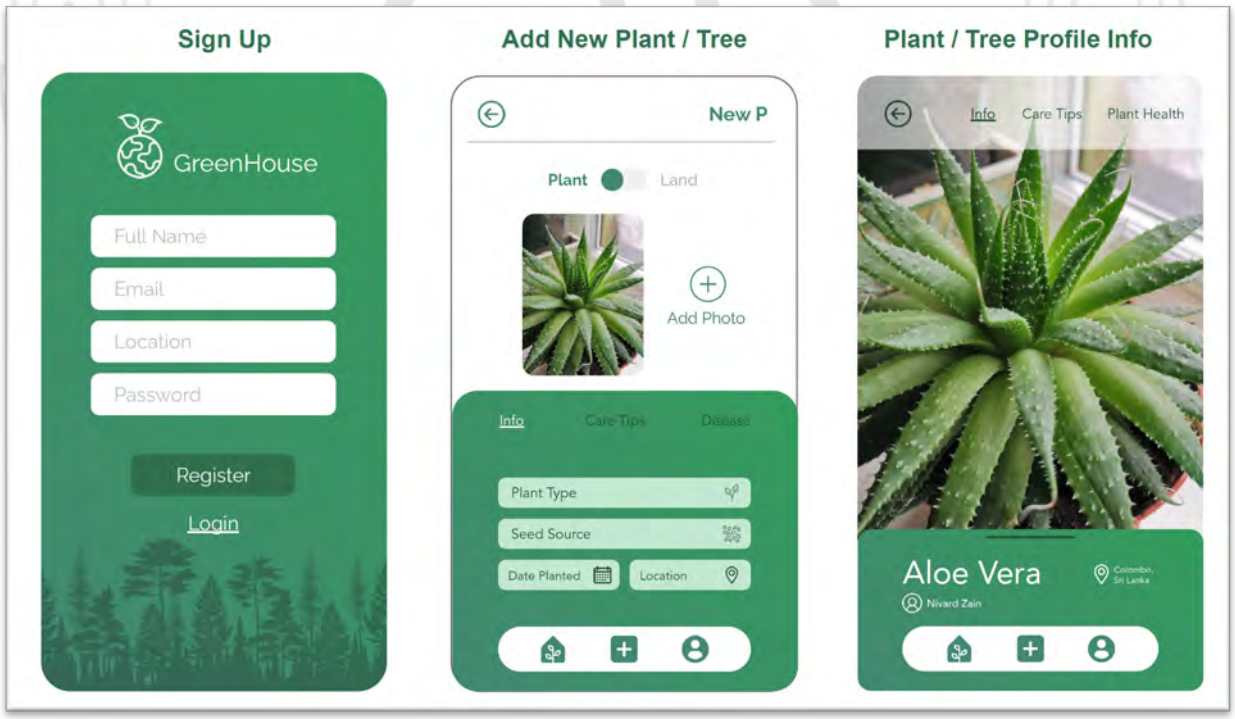


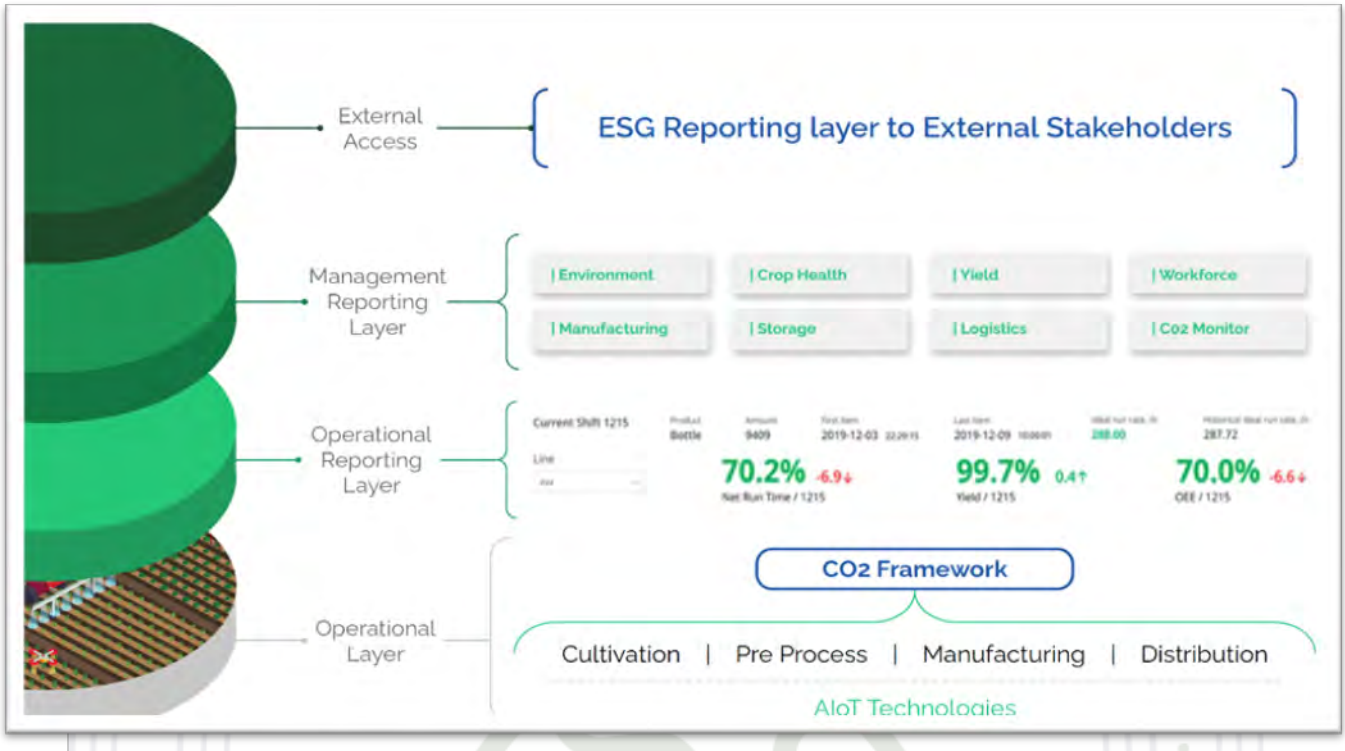
Plant Maintenance (Feature Add-On Options)

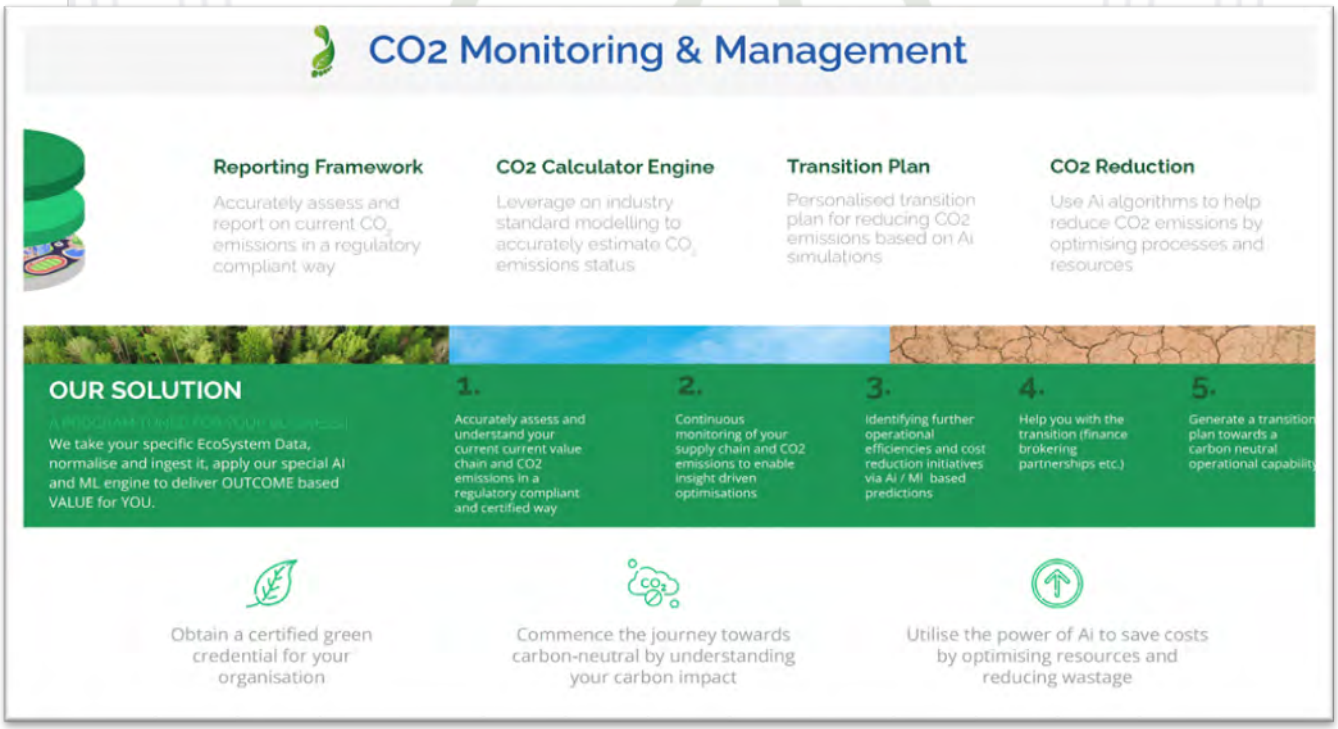
- Disease / Allergen diagnosis based on latest photo upload
- Disease / Allergen remedial suggestions
- Disease / Allergen alerts based on plants or trees in close proximity / vicinity
- Detailed plant care & seed planting guides
- Reminders

Rewards & Points (Possible Options)

- Number of Trees or plants under user – Number target
- Milestone achievement based on user contribution to carbon credits
- Number of species – Number target
- Lifetime based milestones







27.0. Stakeholder Engagement and Governance

Effective stakeholder engagement and healthy governance structures are critical to the success and sustainability of SavePlanetEarth's initiatives. By involving a diverse range of stakeholders and establishing clear governance mechanisms, we ensure transparency, accountability, and inclusive decision-making. This section outlines our approach to stakeholder engagement and governance.

27.1. Identifying Stakeholders

We recognise that our projects impacts are influenced by a variety of stakeholders, including:

1. Local Communities: Residents and local organisations where projects are implemented.
2. Investors and Financial Partners: Entities providing funding and financial support.
3. Government Agencies: Regulatory bodies and local authorities.
4. Environmental NGOs and Advocacy Groups: Organisations focused on environmental conservation and sustainability.
5. Academic and Research Institutions: Universities and research centres contributing to project development and monitoring.
6. Customers and General Public: Individuals and organisations purchasing carbon credits and supporting our initiatives.

27.2. Engagement Strategies

To nurture meaningful engagement with our stakeholders, we employ the following strategies:

- ✓ Regular Consultations: Conducting regular meetings, workshops, and forums to gather feedback and discuss project developments.
- ✓ Transparent Communication: Providing clear and consistent updates through our website, newsletters, and social media channels.
- ✓ Collaborative Partnerships: Building strategic alliances with stakeholders to leverage their expertise, resources, and networks.

- ✓ Feedback Mechanisms: Establishing channels for stakeholders to provide input and raise concerns, ensuring their voices are heard and considered.
- ✓ Capacity Building: Offering training and support to local communities and partners to enhance their involvement and contribution to our projects.

27.3. Governance Structure - Organisational Framework

SavePlanetEarth operates under a structured governance framework designed to ensure effective management and oversight. Key components of our governance structure include:

Board of Directors

Our Board of Directors provides strategic direction and oversight, ensuring that our initiatives align with our mission and values. The Board is composed of individuals with diverse backgrounds and expertise in environmental science, finance, policy, and community development.

Advisory Committees

We have established several advisory committees focused on specific areas such as scientific research, community engagement, and financial management. These committees provide expert advice and recommendations to the Board and executive team.

Executive Team

The executive team, led by the Chief Executive Officer (CEO), is responsible for day-to-day management of SavePlanetEarth. Team implements the strategies approved by the Board and oversees project execution, stakeholder engagement, and financial management.

Project Management Office (PMO)

The PMO ensures that all projects are executed efficiently and effectively. It monitors project progress, manages risks, and coordinates with various stakeholders to achieve project goals.

27.4. Transparency and Accountability - Reporting and Disclosure

We are committed to maintaining high standards of transparency and accountability. We regularly publish detailed reports on our project activities, and environmental impact.

These reports will be made available to all stakeholders through our website and other communication channels once the final structures are in place.

27.5. Ethical Standards

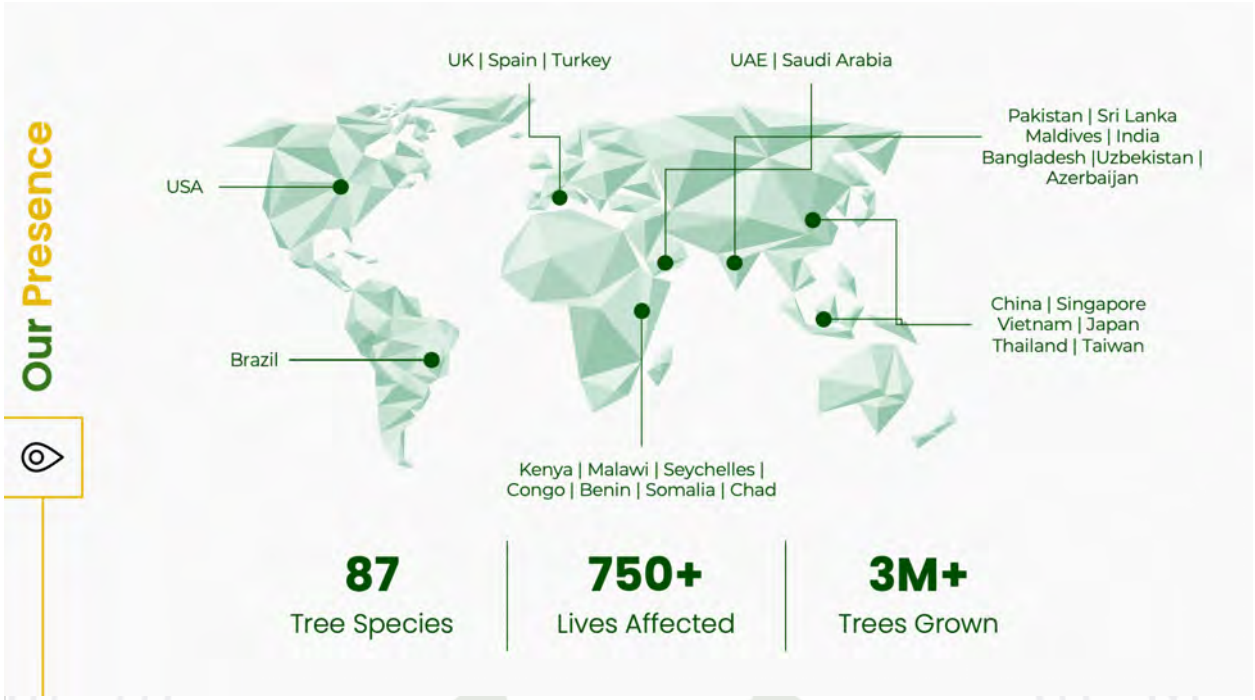
SavePlanetEarth adheres to stringent ethical standards in all our operations. We have established a code of conduct that guides the behaviour of our Board, executive team, employees, and partners. This code emphasises integrity, transparency, and respect for all stakeholders.

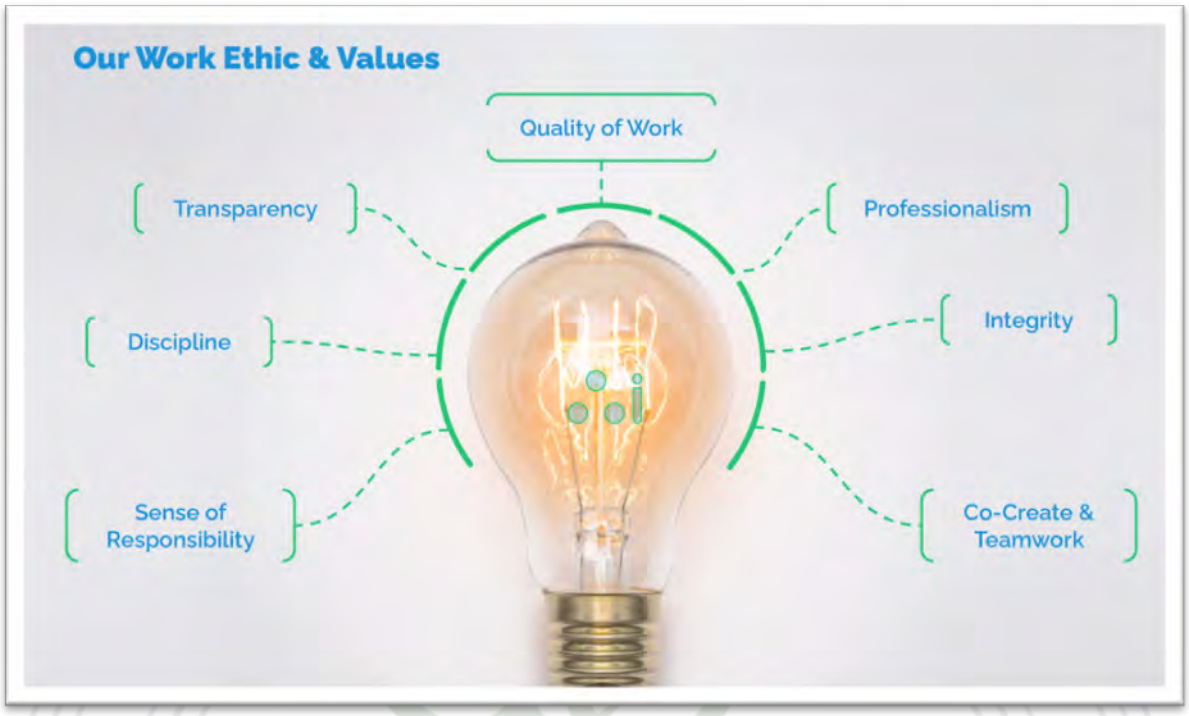
27.6. Risk Management

Effective risk management is integral to our governance framework. We identify, assess, and mitigate risks associated with our projects and operations. Our risk management practices are regularly reviewed and updated to address emerging challenges and ensure the resilience of our initiatives.

28.0. Community platforms

Discord / Telegram / Reddit / Twitter / Instagram / Blog





29.0. List of References and Citations and Appendix

1. United Nations Framework Convention on Climate Change (UNFCCC)
    - The UNFCCC provides the foundation for global climate change negotiations and sets the framework for initiatives such as REDD+ and the Conference of the Parties (COP).
    - Citation: United Nations Framework Convention on Climate Change (UNFCCC). Retrieved from UNFCCC Official Website.
2. Intergovernmental Panel on Climate Change (IPCC)
    - The IPCC publishes comprehensive assessments on climate change science, impacts, and mitigation strategies.
    - Citation: Intergovernmental Panel on Climate Change (IPCC). (2021). Sixth Assessment Report. Retrieved from IPCC Official Website.
3. International Organization for Standardisation (ISO)
    - ISO 14064-1:2018 provides specifications for quantification and reporting of greenhouse gas emissions and removals.
    - Citation: International Organization for Standardisation (ISO). (2018). ISO 14064-1:2018. Retrieved from ISO Official Website.
4. World Bank Group
    - The World Bank offers extensive research and data on global carbon markets and carbon pricing mechanisms.
    - Citation: World Bank Group. (2020). State and Trends of Carbon Pricing 2020. Retrieved from World Bank Official Website.
5. European Commission
    - The European Commission's reports on environmental policies and carbon market developments in the EU.

- Citation: European Commission. (2019). The EU Emissions Trading System (EU ETS). Retrieved from European Commission Official Website.

6. SavePlanetEarth (SPE) Initiative
    - SPE's official documents and resources provide detailed information on their environmental programs and carbon credit systems.
    - Citation: SavePlanetEarth (SPE). (2024). SavePlanetEarth. Retrieved from SPE Official Website.
7. Planetary Carbon Standard
    - The Planetary Carbon Standard ensures the integrity and quality of carbon credits, promoting transparency and trust in the carbon credit market.
    - Citation: Planetary Carbon Standard. Retrieved from Planetary Carbon Standard Website.
8. World Resources Institute (WRI)
    - WRI conducts research on environmental sustainability, including carbon sequestration and ecosystem services.
    - Citation: World Resources Institute (WRI). (2022). Climate and Energy Program. Retrieved from WRI Official Website.
9. United Nations Environment Programme (UNEP)
    - UNEP publishes reports on global environmental trends and initiatives to combat climate change.
    - Citation: United Nations Environment Programme (UNEP). (2022). Emissions Gap Report 2022. Retrieved from UNEP Official Website.
10. Food and Agriculture Organization (FAO)
    - FAO provides data and guidelines on sustainable forest management and afforestation techniques.

- Citation: Food and Agriculture Organization (FAO). (2021). Global Forest Resources Assessment 2020. Retrieved from FAO Official Website.

11. International Emissions Trading Association (IETA)
    - IETA offers resources and publications on carbon markets and emissions trading systems.
    - Citation: International Emissions Trading Association (IETA). (2023). IETA Insights. Retrieved from IETA Official Website.
12. Environmental Defence Fund (EDF)
    - EDF's research on the environmental impacts of various industries and strategies for emissions reduction.
    - Citation: Environmental Defence Fund (EDF). (2022). Carbon Markets and Climate Solutions. Retrieved from EDF Official Website.
13. Carbon Market Watch
    - Carbon Market Watch provides analysis and insights on the functioning and growth of carbon markets globally.
    - Citation: Carbon Market Watch. (2023). Annual Report on Carbon Markets. Retrieved from Carbon Market Watch Official Website