WHITE PAPER

Garden Fleet: Regenerative Solution for Coastal Restoration and Waste Management

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This White Paper outlines the operational model at the core of the Garden Fleet (GF) program, which combines low-cost maritime cleanup teams, mobile recycling infrastructure, and education-driven community programs to restore coastal ecosystems. It details how specialized ship teams, modular/mobile CubeSpawn recycling systems, and the EcoSociety public engagement initiative work together to deliver measurable ESG outcomes, removing plastic waste, planting mangroves, and preventing future pollution through education and resilience-building.

By centering on practical, scalable field operations, this document illustrates how real-world environmental restoration can be achieved with localized implementation and global adaptability.

While Palawan is the starting point, Garden Fleet is designed as a replicable model for other high-risk coastal regions around the world where pollution and beach erosion threaten communities and biodiversity.

In addition to this White Paper, the Garden Fleet program is supported by the following companion documents:

- **Program Cost Overview** – Provides an itemized breakdown of the full $4 million budget, covering fleet operations, recycling infrastructure, and community development.
- **Yellow Paper** – Details the technical logic of the GF token, including smart contract architecture, staking mechanisms, and DAO governance which supports the ESG verification model used by GF to account for positive environmental impact.

2. Introduction

2.1 Problem

Plastic pollution and beach erosion are two critical environmental challenges that significantly impact marine ecosystems and coastal communities worldwide. Palawan, often referred to as the "final frontier" of ecological preservation, is home to one of the most biodiverse marine and terrestrial ecosystems in the world. However, this rich natural heritage is under severe threat due to increasing plastic waste accumulation and escalating coastal erosion. In terms of specific rankings, the Philippines is typically listed as the number one country in terms of ocean plastic waste, with estimates suggesting it emits around 356,371 metric tons of plastic into the ocean annually. The region, which once stood as a global symbol of ecological success, now faces biodiversity loss and habitat destruction driven by unchecked pollution and environmental degradation.

- **Plastic Waste:**

The world produces approximately 400 million tonnes of plastic waste annually, a figure that has nearly doubled since the beginning of the century. An estimated 1.7 million tonnes of plastic waste enter the oceans each year, accounting for about 0.5% of global plastic waste. Of the seven billion tonnes of plastic waste generated globally so far, less than 10% has been recycled, leading to significant accumulation in natural environments.

The mismanagement of plastic waste is a pressing concern, with approximately 52 million tonnes entering the environment annually due to inadequate waste management systems. Projections indicate that, without intervention, global plastic waste generation could nearly triple by 2060, reaching a staggering one billion metric tons per year. This trend underscores the urgency for comprehensive strategies to enhance recycling rates, improve waste management infrastructure and anti-pollution efforts.

- **Beach Erosion:**

Approximately 24% of the world's sandy beaches are eroding at rates exceeding 0.5 meters per year, while 28% are accreting and 48% remain stable. Between 1984 and 2015, nearly 28,000 square kilometers of permanent land in coastal areas were lost globally, an area roughly equivalent to the size of Haiti. If current trends persist, it is projected that up to 50% of the world's sandy beaches could disappear by the end of the century due to coastal recession driven by sea-level rise.

If plastic pollution and coastal erosion are not urgently addressed, the environmental damage will become increasingly difficult to reverse, leading to *runaway pollution* that will escalate beyond manageable levels. The unchecked accumulation of plastic waste in oceans will result in widespread biodiversity loss, disrupting marine food chains and accelerating the decline of crucial ecosystems such as coral reefs and mangrove forests. Likewise, escalating beach erosion threatens not only natural landscapes but also human settlements, infrastructure, and economies reliant on coastal tourism. This is a global crisis that demands immediate intervention at both international and local levels to prevent irreversible environmental collapse.

2.2 Solution

To effectively address the dual crises of plastic pollution and coastal erosion, our solution leverages a fleet of low-cost ships dedicated to waste collection, recycling, and mangrove reforestation. This initiative introduces a self-sustaining, decentralized model that ensures continuous funding, operational efficiency, and community engagement.

Our fleet operates on four core principles:

Removing Plastic Waste from Coastal Areas

- Deploying a cost-effective fleet to collect and transport waste from beaches, shallow waters, and nearshore ecosystems.
- Engaging local communities to assist in collection efforts, creating jobs while promoting environmental stewardship.
- Sorting, recycling, and upcycling plastic waste into reusable materials, reducing landfill reliance.

Combating Beach Erosion through Mangrove and Coastal Reforestation

- Restoring natural barriers by planting mangroves, which stabilize coastlines, prevent flooding, and enhance biodiversity.
- Partnering with local conservation groups, privater firms and government institutions to ensure ecologically sound reforestation practices that benefit tourism.
- Monitoring and assessing the impact of mangrove growth on sediment retention and shoreline stability.

Leveraging Blockchain technology for Environmental Impact tracking

- Introducing a Regenerative Finance (ReFi) smart contract that supports cleanup operations via non-fungible tokens as a verification tool for work conducted.
- Providing real-time tracking of impact metrics (e.g., plastic removed, trees planted) to ensure transparency, accountability, and measurable progress in conservation efforts.

Selling Coastal Cleanup as a Service to ESG compliant stakeholder

- Offering contract-based coastal waste management services to government agencies, tourism businesses, and ESG compliant businesses seeking to improve their social responsibility and environmental standing.
- Providing subscription-based or pay-per-service models for ongoing waste collection and boosting environmental well being .
- Establishing public-private partnerships to integrate cleanup efforts into municipal waste management plans for long-term sustainability.

3. Business Case

The success of this initiative relies on transforming coastal cleanup and reforestation into a scalable, revenue-generating service. By offering coastal waste management as a commercial solution, the project ensures long-term financial sustainability while maximizing environmental impact. Additionally, GF will offer *ESG compliance packages* tailored for corporations seeking to improve their Environmental, Social, and Governance (ESG) ratings. These packages will provide companies with verified carbon offset impact reports, plastic waste recovery certificates, and corporate social responsibility (CSR) partnerships, allowing them to meet sustainability commitments and regulatory requirements. By directly funding cleanup operations and reforestation projects, businesses can enhance their ESG reporting, fulfill extended producer responsibility (EPR) obligations, and demonstrate measurable contributions to global environmental restoration efforts.

3.1 Market Opportunity

The market opportunity for coastal cleanup and anti-pollution services in the Philippines is substantial, driven by the country's reliance on marine resources and tourism, coupled with the pressing challenges of marine pollution and its negative effects of tourism and biodiversity.

Tourism: In 2016, coastal and marine tourism contributed nearly $3 billion USD to the Philippines' GDP, accounting for approximately 2% of the total GDP, and provided employment to around 900,000 individuals. The presence of plastic debris on beaches has been identified as a key factor deterring tourists, leading to shortened visits or the complete avoidance of certain areas.

Fisheries and Aquaculture: The fisheries and aquaculture sector generated over $2.3 billion USD in 2016, representing about 1.5% of the GDP, and employed approximately 260,000 people. Plastic pollution adversely affects marine ecosystems, leading to reduced fish stocks.

Public Sector: The presence of microplastics in seafood can deter tourists, particularly in coastal areas where marine cuisine is a major attraction. Additionally, microplastics can harm marine life by causing tissue damage and reduced growth, leading to decreased fish populations and affecting the livelihoods of local fishing communities. Addressing microplastic pollution presents a significant market opportunity. Additionally the presence of phthalates in microplastics raises environmental and health concerns since when ingested by marine organisms, these compounds can disrupt endocrine functions, affecting reproduction and development in animals and humans. Moreover, phthalates are known to leach out from microplastics over time, potentially contaminating aquatic ecosystems and entering the human food chain.

These market opportunities exist within various Philippine government agencies, including:

Department of Environment and Natural Resources (DENR)	Oversees environmental protection, pollution control, and reforestation projects.
Department of Tourism (DOT)	Supports initiatives that enhance coastal areas to boost tourism.
Bureau of Fisheries and Aquatic Resources (BFAR)	Focuses on sustaining marine ecosystems and fisheries, which are directly affected by pollution and coastal degradation.
Department of Public Works and Highways (DPWH)	Involved in coastal infrastructure and erosion prevention projects.
Local Government Units (LGUs)	Play a key role in implementing localized environmental programs and enforcing policies.

Beyond economic and environmental concerns, coastal restoration is a critical component of national security. Beach erosion threatens military installations, coastal communities, and vital infrastructure, particularly in regions prone to typhoons and rising sea levels. The Department of National Defense (DND) and the Armed Forces of the Philippines (AFP) recognize the strategic importance of maintaining stable coastlines to prevent land loss, fortify national borders, and mitigate disaster risks.

By partnering with a specialized third-party agent like Garden Fleet (GF), these agencies enhance project efficiency while reducing costs. GF offers a dedicated workforce trained specifically for large-scale coastal reforestation and erosion control.

3.2 ESG Market Opportunity

The ESG and sustainability consulting market is projected to expand from $14 billion in 2023 to over $48 billion by 2028, indicating a compound annual growth rate (CAGR) of approximately 28%. While the ESG advisory market specifically is expected to grow from approximately $15.6 billion in 2024 to nearly $59.6 billion by 2030. These projections suggest a significant profit opportunity for GF to serve as a service to bolster ESG compliance for institutions intending to improve their standing.

Growing public awareness about environmental issues has led to increased demand for cleaner technologies and waste management solutions. Companies are now more inclined to invest in anti-pollution measures to align with consumer expectations and enhance their corporate social responsibility profile

3.3 Value Proposition

The value proposition of GF is centered on delivering economic, environmental, and social benefits through contract-based coastal restoration services. By providing a scalable and transparent solution. The value benefit to each listed stakeholder will be focused on: rejuvenating the ecosystem through trash removal, preventing coastal erosion, the beautification of beaches and providing jobs to the local labor workforce.

Stakeholder Value Propositions

Stakeholder	Value Proposition
Government Agencies & Municipalities	**Regulatory Compliance** – Helps meet local and international environmental mandates (e.g., SDGs, ESG reporting). **Cost-Effective Waste Management** – Outsourcing cleanup reduces public sector burden. **Disaster Mitigation** – Mangroves protect against flooding, storm surges, and erosion.
Tourism & Hospitality Businesses	**Enhanced Tourist Appeal** – Pristine beaches drive bookings and improve guest satisfaction. **ESG & Sustainability Certification** – Helps resorts meet sustainability goals and gain eco-friendly branding. **Higher ROI** – Clean environments increase property value and repeat visitor rates.
Cryptocurrency investors	**Measurable Impact** – Verified waste removal and carbon sequestration metrics. **Token Utility & Staking Rewards** – Investors can **stake tokens** to earn rewards based on environmental impact metrics. **NFT Trading & Ownership** – **Coastal Cleanup NFTs** and **Tree Planting NFTs** provide **investment opportunities and exclusive environmental contributions**.

3.4 Revenue Model

GF operates as a contract-based environmental service provider, offering scalable, technology-driven solutions to stakeholders in both the public and private sectors and leveraging ESG policies. The Philippine Senate introduced bills requiring all corporations, both stock and non-stock, to submit sustainability reports to the SEC. These bills propose integrating sustainability and financial reports, mandating independent assurance of ESG disclosures, and establishing an ESG Code of Conduct for rating providers.

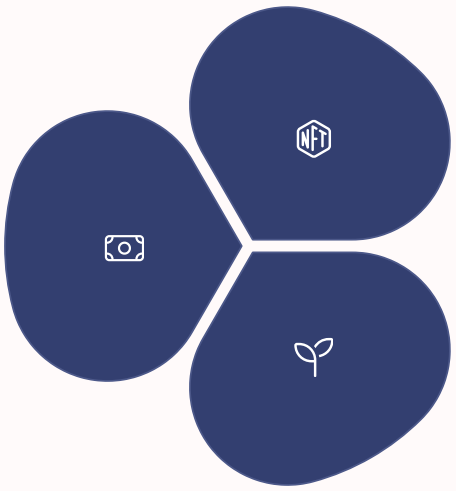
Revenue Source	Target Clients	Services
Regenerative Finance NFTs	Social Responsibility investors, corporations and donors	NFTs tied to verified cleanup and reforestation efforts that can be used as tax-deductible donations. (Also offered as a physical certificate)
Private Cleaning Contracts	Hospitality firms, hotels and island bars	Paid cleanup and restoration services to maintain pristine shorelines for guests and improve ESG compliance
Government Cleaning Contracts	Environmental Government agencies and municipal governments	Long-term service contracts for regular beach cleaning, pollution control.
Government Forestation Contracts	Environmental Government agencies and municipal governments	Long-term contracts for mangrove reforestation and shoreline stabilization to combat coastal erosion.

A Non-Fungible Token (NFT) is a unique digital asset on a blockchain. For coastal cleanup, an NFT can verify waste removed (in tons) or area cleaned (in km^2), ensuring transparency and impact tracking.

Recurring revenue from government and hospitality contracts ensures long-term financial stability for cleanup and reforestation services. Blockchain-based NFTs create a scalable funding stream, allowing corporations to support ESG initiatives while serving as verifiable proof of impact. These NFTs are also used for tax write-offs, as they certify the tonnage of waste removed, the area (km^2) cleaned, and the number of mangroves planted.

Recurring revenue

Government and hospitality contracts ensures long-term financial stability for cleanup and reforestation services.



Blockchain-based NFTs

provides a scalable, transparent funding stream, allowing corporations to verifiably support ESG initiatives while benefiting from tax deductions.

ESG Services & Compliance Support

As ESG adoption grows, GF can scale by offering third-party verification, impact reporting, and compliance consulting to businesses seeking ESG improvement.

3.5 ESG Service Packages

Garden Fleet (GF) offers ESG-aligned environmental restoration services, focusing exclusively on coastal cleanup and mangrove reforestation. By providing transparent, verifiable **Proof of Impact**.

GF enables businesses, governments, and investors to meet their ESG compliance requirements with measurable environmental contributions. Our services are designed to integrate seamlessly into corporate ESG strategies.

Verified Coastal Cleanup

Systematic removal of plastic waste and marine debris to maintain pristine coastlines and ensure ESG compliance

Service Offerings:

- Removal of plastic waste and marine debris from beaches and shallow coastal waters
- Sorting and proper disposal or recycling of collected waste to minimize environmental impact
- Blockchain-based tracking and verification of waste removed (in metric tons) for ESG reporting

For:

- Hospitality businesses aiming to keep shorelines clean for guests and maintain a positive brand image
- Government agencies responsible for coastal environmental management and pollution control
- Corporations seeking plastic neutrality and compliance with Extended Producer Responsibility (EPR) laws

Benefit:

- Provides documented proof of plastic waste recovery for ESG reporting and regulatory compliance
- Helps businesses offset their plastic footprint and demonstrate measurable environmental impact
- Contributes to ocean health and biodiversity protection by reducing pollution in marine ecosystems

Coastal Forestation

Rebuilding coastal ecosystems with mangrove forests to prevent island erosion and sequester carbon.

Service Offerings:

- Planting and maintaining mangroves to restore natural barriers against coastal erosion
- Strategic reforestation to enhance shoreline stability and protect against storm surges
- Monitoring and data collection to track tree growth and assess environmental benefits
- Blockchain-backed verification of trees planted and hectares restored for ESG compliance

For:

- Corporations looking to invest in carbon sequestration projects and environmental conservation
- Hospitality businesses protecting beachfront properties from erosion and storm damage
- Government agencies focused on climate resilience and biodiversity restoration

Benefit:

- Verifiable carbon sequestration data to support corporate net-zero commitments
- Reduces coastal erosion, preventing infrastructure damage and habitat loss
- Enhances biodiversity, creating ecosystems that support marine and terrestrial wildlife

3.6 Financial Projections

Garden Fleet's financial strategy is designed to balance scalability, operational efficiency, and long-term sustainability. The initial fleet deployment and growth projections are based on a $1.5M startup fund, with expansion contingent upon revenue generation from NFT sales of Impact Reports, private contracts, and government partnerships.

Projection Table:

Year	ESG Services	Gov Contracts	Total Revenue	Total Cost	Net Profit	Profit Margin (%)
2025	$15,000	$0	$15,000	$100,000	$-85,000	0%
2026	$35,000	$50,000	$85,000	$110,000	$-25,000	0%
2027	$70,000	$110,000	$180,000	$135,000	$45,000	25%
2028	$140,000	$260,000	$400,000	$190,000	$210,000	52%
2029	$280,000	$260,000	$540,000	$250,000	$290,000	53%

3.7 Fleet Capital Allocations

Assuming $1.5M to be expended on fleet capital assets based on GF Cost Overview.

Total Fleet Capital Allocation

Category	**Allocations (USD)**
Ship Acquisition	23.3%
Port Construction & Infrastructure	23.3%
Operations	23.3%
ESG Admin, Blockchain & Legal	7.7%
Technology & Monitoring (PHC)	8.3%
Impact Media & Communications	4.7%
Contingency	9.3%

Per Squad Capital Allocation

Each fleet squad consists of two transport ships for crew deployment, one tugboat for carrying equipment and botanical supplies, and a Floating Transport Unit (FTU) for collecting and transporting coastal waste. The estimated minimum cost per fleet is $30,000, but actual costs may vary depending on available funding, which influences the quality of equipment and the operational scope of each team.

Per Squad Capital Allocation Table

Item	Cost (USD)
Transport Ships (2 units)	$2,400
Tugboat	$14,800
Floating Transport Unit (FTU)	$800
Safety	$2,500
Fuel/Energy	$3,500
Equipment & Special Tools	$2,000
Cleaning & Sanitation	$500
Monitoring/Data	$1,700
Crew Essentials	$1,800

To ensure crew safety and adherence to maritime nautical standards. **$30,000** is considered the **minimum viable investment** per team.

4.1 Social & Environmental ROI

Investors receive blockchain-based **Impact NFTs**, providing transparent, auditable, and regulatory-compliant proof of their social and environmental contributions. These certifications include detailed metrics on:

- **Waste Removal (metric tons)**
- **Mangroves Planted (count)**
- **Restored Coastal Areas (km^2)**
- **Verified Carbon Sequestration (credits)**

These NFTs serve as credible ESG documentation, boosting investor confidence and enhancing corporate social responsibility reputations.

Garden Fleet (GF), incorporated as a **social enterprise**, offers investors returns that extend beyond traditional financial gains. Investors receive a dual benefit, comprising measurable social and environmental impacts alongside sustainable financial returns.

4.2 Financial ROI

Garden Fleet (GF) offers investors attractive financial returns through strategic use of blockchain technology, specifically the GF non-fungible tokens, which serves as the cornerstone of its regenerative finance model and a blockchain based proof of impact certificate.

- Provides access to impact-driven staking digital assets, offering stakeholders Impact NFTs for verified environmental contributions.
- Creates potential for significant token appreciation tied to increasing global demand for verifiable ESG solutions beyond carbon credit systems.
- Offers liquidity opportunities through decentralized exchanges, providing flexible exit strategies for investors.

5. Risk Management

Garden Fleet (GF) is dedicated to transparency and proactive management of risks inherent in environmental and blockchain-related projects. The following outlines key risks and GF's strategies for mitigation:

5.1 Operational Risks

Risk	Description	Mitigation Strategy
Fleet Disruptions	Natural disasters, extreme weather, and logistical challenges may hinder operations.	Weather-resistant vessel designs, real-time forecasting, contingency plans, and diversified supply chains.
Safety Concerns	Occupational hazards and maritime risks may affect personnel and operations.	Strict safety protocols, regular crew training, safety gear, and emergency response strategies.

5.2 Financial & Market Risks

Risk	Description	Mitigation Strategy
Cost Management	Rising maintenance, fuel, and operational costs could strain resources.	Conservative financial planning, regular audits, and contingency budgets.

5.3 Regulatory & Compliance Risks

Risk	Description	Mitigation Strategy
Legal Changes	Evolving maritime, environmental, and blockchain regulations may affect compliance.	Engage legal experts, monitor policy updates, and ensure adaptable operational frameworks.
Environmental Standards	Non-compliance with sustainability guidelines may impact reputation and contracts.	Internal audits, third-party sustainability certifications, and adherence to global environmental policies.

5.4 Social & Community Risks

Risk	Description	Mitigation Strategy
Local Engagement	Resistance or lack of community support may hinder project success.	Transparent communication, community education, local employment, and integrating feedback into planning.

6. Tokenomics

The fleet will feature the Garden Fleet (GF) Token, built on the Celo ecosystem, to support governance, liquidity distribution, and the issuance of NFTs as verifiable certificates for ESG compliance.

6.1 Token Utility

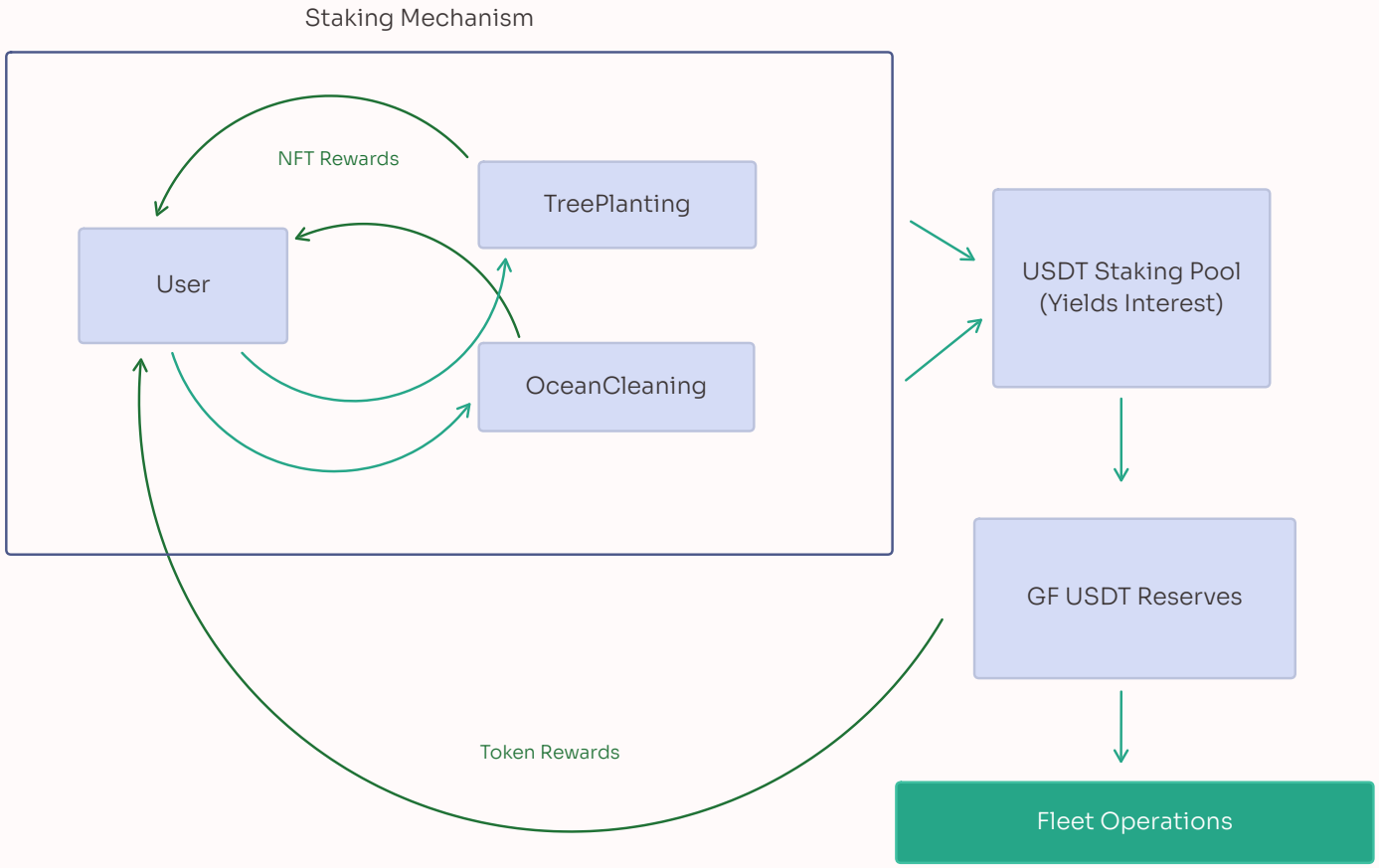
The Garden Fleet **(GF)** token is a **Celo-based ReFi asset** that creates a self-sustaining, impact-driven economy. By aligning blockchain incentives with real-world environmental restoration.

The GF non-fungible tokens are part of a decentralized autonomous organization (DAO) that governs all spending decisions with a policy of Absolute Transparency. Token holders participate in on-chain governance, ensuring that fund allocations for fleet operations, mangrove reforestation, and recycling incentives are fully visible and accountable to the community. Through smart contracts and transparent treasury management, every expenditure is recorded on-chain, making GF a trustless, community-driven financial system for regenerative impact.

The GF blockchain impact token positions us to participate in the rapidly growing blockchain market and its associated revenue opportunities, while simultaneously leveraging the technology to generate immutable, verifiable Impact Reports for our clients.

6.2 Liquidity Flow Diagram & Distribution

Tokens serve as the primary medium for funding and rewarding ecological activities. The ecosystem is designed to encourage participation from individuals and institutions in coastal cleanup and mangrove reforestation.



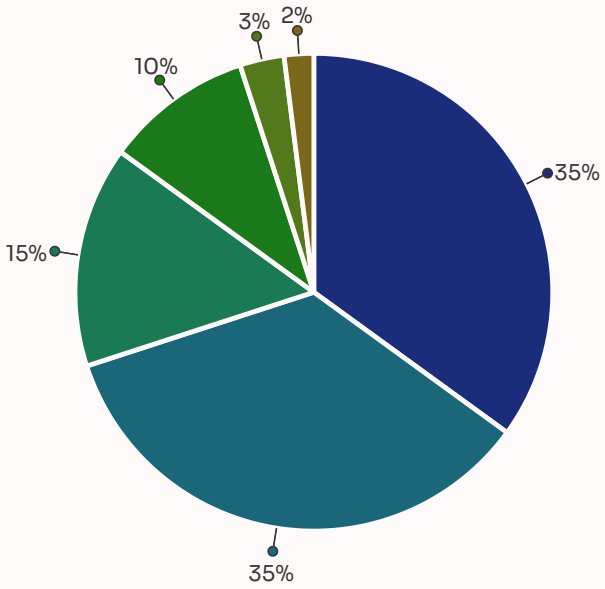
1. Token purchases made in the marketplace are used to Stake USDT in either **TreePlanting** pool or **OceanCleaning** pool.
2. The user's wallet is periodically rewarded with **Impact NFTs** for either Tree Planting and/or Ocean Cleaning based on the amount of tokens staked.
   a. **Mangrove Guardian NFT** - is issued to users participating in the **TreePlanting** staking pool
   b. **Ocean Guardian NFT** - is issues to users participating in the **TreePlanting** staking pool
3. Staking NFT rewards are issued monthly to participating wallets.
4. Money generated from the staking mechanism in USDT interest is used for Fleet Operations
5. Token Rewards are issued periodically as Drop Rewards to participating wallets who hold any amount of GF tokens

Impact NFTs display the user's investment amount in USDT (calculated based on the token's price at the time of issuance) and can later serve as Proof of Impact for ESG compliance.

Staking Reward Model & Token Distribution

- **Stake Duration:** Monthly lock-in with auto-renewal.
- **NFT Distribution:** Sent at the end of each staking cycle.

Total Supply: 1,000,000,000 GF



Token Allocations Table:

Category	Allocation (%)	Allocation (GF)	Purpose
Initial Coin Offering (IEO)	35%	350,000,000	Provides liquidity & funding for operations.
Fleet Operations Reserve Wallet	35%	350,000,000	Funds coastal cleanup & mangrove reforestation
Staking & ESG Impact Rewards	15%	150,000,000	Users stake GF to fund cleanup and reforestation, earning monthly NFT and token rewards.
DAO Treasury & Governance	10%	100,000,000	Funds community-led projects, fleet expansion, and technology development
Liquidity & Market Stability	3%	30,000,000	Ensures smooth trading & market stability on CEX & DEX
Team & Advisors	2%	20,000,000	4-year vesting with a 1-year cliff for executive blockchain team.

Initial Coin Offering (IEO) – 35%

The IEO (Initial Coin Offering) is the primary fundraising mechanism to support fleet deployment, impact tracking technology, exchange listings, and operational scaling.

1. A portion of the raised funds will ensure **sufficient liquidity on decentralized (DEX) and centralized exchanges (CEX)** to maintain a stable trading market for GF tokens.
2. The funds will help purchase and **deploy cleanup fleets** in coastal areas.
3. Supports public awareness efforts, including **media campaigns, partnerships, and direct engagement** with potential stakeholders and investors.

Fleet Operations Reserve Wallet – 35%

This reserve is dedicated to funding coastal cleanup operations, mangrove reforestation, and the ESG services offered by GF to clients.

1. Directly **funds on-the-ground operations**, ensuring a steady flow of capital for cleanup activities.
2. Provides maintenance and fuel for the transport & tugboat fleets used for waste collection and disposal.
3. Ensures continued expansion into new cleanup sites beyond Palawan by deploying additional ships and personnel. **Supports GF's ESG services** offered to businesses.

Staking & ESG Impact Rewards – 15%

This allocation incentivizes user participation in impact-driven staking pools. Participants stake GF tokens to directly fund cleanup and reforestation, receiving monthly rewards in tokens and NFTs.

1. Encourages **institutional and individual staking**, allowing participants to support coastal restoration while earning blockchain-verified impact rewards.
2. Users earn **impact-based NFTs** representing their contributions (e.g., "Mangrove Guardian" for reforestation).

DAO Treasury & Governance – 10%

The DAO Treasury ensures absolute transparency in all expenditures and public-facing activities while funding community-led proposals, fleet expansion, and ecosystem development through decentralized governance. Token holders vote on new projects, sustainability initiatives, and treasury allocations.

1. Ensures **Absolute Transparency**. Every expenditure from the DAO Treasury is trackable on-chain, providing full public visibility into how funds are used.
2. GF holders can vote on how funds are allocated for impact-driven initiatives.
3. The DAO funds new fleet launches, scaling operations beyond the Philippines

Liquidity & Market Stability – 3%

This allocation ensures sufficient liquidity for GF token trading on exchanges, preventing extreme price volatility.

1. **Funds liquidity pools on DEXs** (Uniswap, PancakeSwap) and market-making reserves on CEXs
2. Supports GF **pairings with stablecoins** (e.g., USDT, CELO) to maintain price stability.
3. Reduces price fluctuations by ensuring sufficient buy/sell depth.

Team & Advisors – 2%

This allocation rewards core contributors, environmental scientists, blockchain developers, and key strategic advisors for their role in building and expanding the project.

1. Funds salaries & incentives for **project founders, developers, and operational managers**.
2. Onboards blockchain engineers & NFT developers to maintain and **improve impact-tracking technology.**
3. Retains environmental scientists & sustainability experts to optimize fleet impact strategies.

6.3 Pseudo-Code

This pseudo-code is a rough draft and an approximation of how the final Garden Fleet (GF) token will function. It outlines the core tokenomics, staking mechanisms, DAO governance, liquidity management, and vesting schedules. However, the actual smart contract implementation will involve more detailed security checks, gas optimizations, and integration with blockchain standards

The final version will also undergo testing, audits, and refinements to ensure it meets industry security standards and operates efficiently on the **Celo blockchain**.

ⓘ All coding-related materials, including technical specifications and implementation details, are documented in the Yellow Paper

7. Operations Framework

The Garden Fleet operates with a structured approach to maximize efficiency in coastal cleanup and mangrove reforestation. Each fleet is composed of four integral components that work in coordination to execute operations.

- **Two Transport Ships:** These vessels transport personnel to and from cleanup and planting sites. Each ship carries a crew of four, totaling eight personnel.
- **One Tug Boat:** The tug boat serves as the primary hauler of equipment and is responsible for towing the Floating Transport Unit (FTU). It is operated by a three-person crew.
- **Floating Transport Unit (FTU):** This device is a specialized barge floating container designed for collecting and transporting waste materials back to shore. It is towed by the tug boat during cleanup operations.

Each fleet operates with a total of **11 personnel**, ensuring effective execution of tasks, from trash collection to reforestation efforts.

Fleet Component	Function	Crew Size
Transport Ship 1	Personnel transport (4 people)	4
Transport Ship 2	Personnel transport (4 people)	4
Tug Boat	Equipment & FTU towing	3
Floating Transport Unit (FTU)	Trash collection vessel	0
Total Crew	-	11

Operational Workflow

1 2 3 4

Deployment

The transport ships deliver personnel to the designated cleanup or planting site, while the tug boat tows the FTU with necessary equipment.

Execution

Crews collect waste and load it into the FTU. Simultaneously, another team plants mangroves or conducts erosion control activities.

Retrieval

Once the FTU is filled, the tug boat hauls it back to shore for waste processing and disposal.

Reset

Equipment is inspected, and the fleet is returned to port and prepared for the next mission.

This fleet configuration ensures **efficient, low-cost, and scalable operations**, supporting the Garden Fleet's mission to restore and protect coastal ecosystems while maintaining operational sustainability.

8. Governance

8.1 Core Leadership Team

Abu-Bakr Harakat

Founder and leader of Garden Fleet, with over a decade of experience in military operations, U.S political campaigns, and information systems. A seasoned project management specialist, driven by the purpose of reducing global pollution. Leverages AI-driven tools and the PHC methodology to deliver scalable, blockchain-verified ESG impact through coastal restoration and regenerative finance.

David Winter

An engineering veteran with 30+ years of global experience in Oil & Gas, Rail, and Infrastructure. He brings expertise in project risk analysis and assurance to ensure Garden Fleet's ESG operations are safe, efficient, and accountable. Utilizing the PHC (Project Health Control) system, he provides stakeholders with clear monetary oversight and performance tracking.

Tahira Amir Khan

Technologist (20+ yrs), trained Mathematician, MBA and award-winning Author, she has advised the Singapore & Qatar Gov on e-governance frameworks. As the former President of Mobile Alliance Singapore, an initiative supported by IE Singapore, she now focuses on building sustainable value-based EcoSocieties.

Advisors & Consultants

Aruneshwar Gupta

Senior Advocate of the Supreme Court of India, Aruneshwar brings 40+ years of legal leadership across India, the U.S., and Singapore. He has led major legal reforms, authored over 500 judgments, and now champions online dispute resolution

Dr. Arini Verwer

International education consultant with expertise in early childhood development, mental health, and community resilience. She leads Garden Fleet's EcoSociety initiatives.

Kari Honkanen

Software veteran whose innovations at Facebook, Yahoo, and VMware have reached hundreds of millions. Now a fintech leader in the UK, he focuses on AI-driven solutions, building on early work in Bayesian networks.

Prof. Jyotirmoy Goswami

Veteran educator and sustainability advocate. He brings grassroots leadership, permaculture expertise, and policy-level insight to support Garden Fleet's regenerative goals.

8.2 Decentralized Autonomous Organization (DAO)

The **Garden Fleet (GF) DAO** governs the ecosystem, ensuring transparency, sustainability, and stakeholder participation. Governance is structured to balance decentralized decision-making with operational efficiency, ensuring that funds, project approvals, and impact verification remain aligned with environmental objectives.

- **GF DAO** – The governing body where token holders propose and vote on initiatives.
- **Steering Committee** – A multi-sig council composed of environmental scientists, blockchain experts, and fleet operators who execute DAO-approved proposals.
- **DAO Treasury** – The treasury holds funds allocated for expansion, sustainability efforts, and community-led initiatives.
- **On-Chain Proposals** – All funding requests, fleet expansions, and ESG partnerships are voted upon transparently.

8.3 Steering Committee

The Steering Committee is a specialized governance body responsible for overseeing legal, financial, and operational compliance within the Garden Fleet (GF) ecosystem. While the DAO governs decentralized decision-making and fund allocations, the Steering Committee ensures that GF operates within legal frameworks and contractual obligations as a social enterprise.

The Steering Committee acts as the bridge between blockchain governance and real-world legal, financial, and operational requirements. It handles:

- Legal Entity Management – Ensuring compliance with national and international regulations.
- Contracting & Subcontracting – Managing agreements with governments, private sector clients, and service providers.
- Financial Oversight & Accounting – Maintaining transparency in fund allocations and revenue reporting.
- Regulatory Compliance – Adhering to sustainability laws, ESG standards, and tax requirements.
- Business Operations – Overseeing fleet logistics, procurement, and service execution.

The Steering Committee operates independently of the DAO but is accountable to token holders and required to publish financial reports and legal filings on a quarterly basis.

8.4 Legal Incorporation

GF is incorporated as a **Social Enterprise** Delaware corporation under the name Garden Fleet PBC, Inc. Ensuring that profits are reinvested into environmental restoration rather than distributed as dividends.

- **Entity Type:** Social Enterprise (SEC-registered)
- **Business Model:** Revenue from ESG contracts, cleanup services, and blockchain-based impact funding
- **Legal Compliance:** ESG reporting requirements, corporate tax filings, and adherence to sustainability laws

As a social enterprise, all profits generated by Garden Fleet will be reinvested into operations and allocated to the Fleet Operations Reserve as USDT. These funds will support the continuous expansion of the fleet, fair compensation for personnel, equipment upgrades, and the development of advanced recycling solutions. This reinvestment strategy ensures the long-term sustainability of the project while maximizing its environmental and social impact.

9. Media & Public Outreach

Garden Fleet leverages transparent, engaging multimedia content to demonstrate measurable ESG impact and maintain public accountability. Our Media and Communications Plan ensures stakeholders, partners, investors, and the public remain continuously informed and engaged.

Garden Podcast

The podcast regularly shares impact stories through interviews with crew members, community leaders, and partners directly involved in coastal cleanup and mangrove reforestation projects. It provides educational insights from ESG experts and environmental scientists, covering essential topics such as impact verification methods and corporate sustainability practices.

The podcast strengthens community relationships and investor confidence, promoting long-term trust and meaningful partnerships.

Projected Podcast Costs

Costs	Allocations
Media Studio Setup	$20,000
Podcasting & Video Gear	$15,000
Digital Marketing	$20,000
Misc Costs	$15,000
Total	**$70,000**

8. Roadmap (2022-2030)

1

2022 Q1

Foundational Field Research & Stakeholder Engagement

Personally traveled to Palawan to conduct site visits, build trust with local communities, and initiate dialogue with key local government officials—laying the groundwork for a regionally grounded, community-informed pilot.

2

2023 Q2

On-Site Organizing in Palawan

Began informal coordination efforts with early supporters, including initial scouting of potential fleet deployment zones and port locations.

3

2024

Concept Development & Technical Papers

Drafted the Garden Fleet White Paper and Yellow Paper, defining the operational model, tokenomics, and ESG integration strategy.

4

2025 Q1

Formal Launch: Incorporation & Team Formation

Incorporated Garden Fleet PBC, Inc., established governance frameworks, and formed initial strategic partnerships across technology, education, and project oversight.

5

2025 Q3

Pre-Seed Capital Drive

Launched targeted outreach to secure pre-seed funding for pilot deployment in Palawan and program development.

6

2026 Q1

Construction Begins - Palawan Groundwork Continues

Initiated construction of the mobile CubeSpawn recycling facility, alongside recruitment and training of the first operational fleet teams.

7

2030+

Global Scale-Up

Expand to additional high-impact regions including India, Nigeria, and Chile, leveraging lessons from the Palawan pilot to replicate success across the Global South.

10. Partnerships

Garden Fleet is committed to fostering collaborative partnerships with NGOs, public entities, and educational institutions.

10.1 Partnership with Order Efficiency

Garden Fleet (GF) has formed a strategic partnership with Order Efficiency Ltd (OE), incorporating OE's advanced **Project Health Control (PHC)** system. OE supports GF as a sponsor, driven by its strong corporate social responsibility and commitment to environmental and social governance (ESG).

PHC is a comprehensive project management methodology developed by **Order Efficiency Ltd**, designed to monitor, assess, and optimize project performance in real-time. Utilizing key project management metrics and real-time analytics, PHC ensures projects remain aligned with stakeholder expectations, ESG objectives, and regulatory compliance.

- **Real-time Project Oversight:**
  Order Efficiency Ltd PHC's analytics allow GF to continuously monitor fleet operations, coastal cleanups, mangrove planting initiatives, and overall project health, ensuring operational effectiveness and ESG compliance.
- **Risk Mitigation & Early Intervention:**
  PHC identifies project risks early, allowing timely interventions that maintain fleet productivity, environmental objectives, and financial efficiency.
- **Transparency & ESG Reporting:**
  GF utilizes PHC's detailed tracking and reporting capabilities to demonstrate transparent ESG metrics, satisfying regulatory requirements and stakeholder expectations.

As a sponsor, OE supports GF by **pledging 10% of its annualized profits toward social responsibility** initiatives. This funding enables direct financial and resource assistance, including fleet expansion, port infrastructure development, acquisition of safety equipment, and the production of media content such as podcasts and documentaries. OE further enhances GF operations through technology integration and specialized training, ensuring GF personnel effectively utilize PHC tools to achieve peak efficiency, sustainability, and compliance.

Workforce Development:

Garden Fleet (GF) collaborates with Order Efficiency Ltd (OE) and its Project Health Control Consortium (PHCC) to build a professional workforce, positioning GF for future international growth. PHCC provides specialized training in project analytics, risk management, ESG compliance, and operational efficiency through OE's Project Health Control (PHC) methodology.

GF personnel benefit from ongoing professional development, certifications like PMP, and training aligned with global ESG standards. Additionally, PHCC fosters mentorship, peer learning, and continuous innovation, ensuring GF's workforce remains skilled, adaptable, and strategically equipped for global environmental initiatives beyond Palawan.

10.2 Partnership with CubeSpawn for waste Recycling

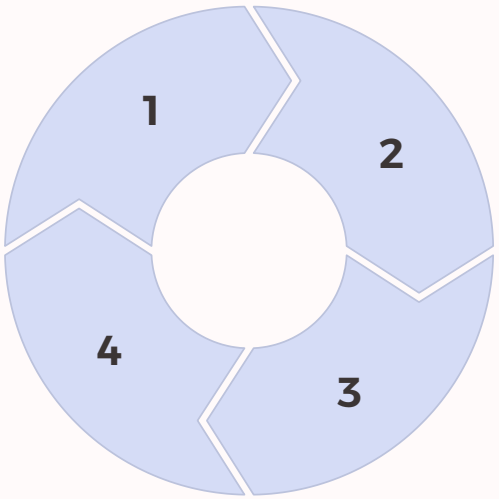
Garden Fleet (GF) partners with **CubeSpawn** to convert recovered ocean plastic into durable, low-cost building materials. These materials will be provided at cost to at-risk communities in Palawan, where homes built from weak materials are often destroyed by storms, leading to loss of life. This initiative reduces plastic waste while strengthening community resilience. **CubeSpawn's modular system is fully transportable, allowing the entire recycling setup to be relocated to new areas of operation.** This design significantly reduces infrastructure costs by eliminating the need to build new facilities in each deployment zone.

Trash Collection

Waste is removed from the ocean and coastlines through the **Ocean Guardian** program.

Recycling

Recycled materials are made available at-cost for sustainable infrastructure, ensuring waste finds a productive second life.



Sorting & Processing

Plastic waste is categorized and prepared for repurposing, ensuring efficient material conversion.

CubeSpawn Integration

Sorted plastic is processed through **CubeSpawn's** modular manufacturing system, transforming it into building materials.

Our recycling and remediation strategies employ responsible, scientifically backed methods to process collected plastic waste, ensuring that our recycling efforts prevent secondary pollution, microplastic release, and toxic emissions.

Our waste remediation framework integrates precise sorting, advanced thermal treatments, and multi-stage filtration technologies to maximize material recovery

Multi-Stage Sorting	Plastic waste is sorted by polymer type (PET, HDPE, LDPE, PP, etc.), contaminants are filtered out, and materials are shredded for efficient thermal conversion and reuse.
Multi-Chamber Secondary Burning	Utilizes high-efficiency **pyrolytic combustion** in a **closed-environment chamber** to ensure complete molecular breakdown, preventing microplastic release while capturing heat energy.
Oxygen Deprives Gasification	Plastics are converted into **synthetic gas (syngas)** through gasification, a process that operates under **low-oxygen, high-temperature conditions** to break down materials without direct incineration emissions.
Filtration, Capture, & Precipitation	Filtration, gas capture, and precipitation work together to eliminate harmful byproducts. Particulate **filtration** removes residual solids, **gas scrubbing** neutralizes airborne contaminants, and **precipitation** stabilizes remaining compounds for safe

By implementing these **remediation and recycling strategies**, Garden Fleet, in partnership with CubeSpawn, ensures that plastic waste is **permanently removed from the environment**

CubeSpawn System Scope

Design and deploy a fully self-contained, solar-powered plastic waste processing and remanufacturing system using a four-container modular architecture. Powered by photovoltaic and heliostat-driven thermal inputs, the system supports local waste reduction, resource recovery, and infrastructure manufacturing.

Key System Components

A comprehensive overview of the core elements.

- Four 20-ft containers
- Heliostat Mirrors: Targeting the thermal receiver for a rotary melt process and central salt loop
- 20 kW Solar PV system with battery storage and integrated power distribution
- Fully off-grid capable with extensibility for future add-ons and to manage operations cost.

Processing Streams

A breakdown of material transformation.

Tier	Type	Processing Method	Final Output
1	Severely degraded or toxic plastics (e.g., PVC)	Pyrolysis or gasification	Safe disposal or inert carbon
2	Partially degraded plastics	Chemical treatment + molding	Waste bins, collection containers
3	Clean plastics	Washing + pelletization	Green/reclaimed plastic pellets
4	Organic Waste	Compost/Disposal	Soil Amendments

Container Roles

Specific responsibilities by container.

- Container A – Intake & Sorting: Material shredding, sensor-driven classification
- Container B – Degraded Plastic Recovery: Plastic blocks for stock to re-use for molded bins
- Container C – Controls and Technical operations: the computers, electronic controls and IT portion
- Container D – Pelletization & Utilities: Clean plastic processing + salt loop plumbing + batteries

$675,000 - $1,500,000

Budget Summary

Total Estimated Cost

1. **Future Roadmap (Optional Extensions)**
   Expansions and future plans.
2. **Drone Add-On**
   Add aquatic drone integration for coastal/intertidal cleanup
3. **Satellite Integration**
   Expand satellite processing units based on containerized model for additional sites.
4. **Community Integration**
   Integrate with community infrastructure programs (e.g., water purification, algae-based shoreline restoration)
5. **Scaling to Remote Areas**
   Develop remote replication kits for scaling impact

Add-on and Purpose

Add-on	Purpose
Aquatic Drones	Net retrieval, floating plastic harvesting, small autonomous scoopers
Floating Debris Traps	Passive plastic interceptors near shorelines
Mobile Satellite Units	Lightweight containerized offshoots manufactured from main site
CubeSpawn Core Node	Full modular fabrication hub for local expansion or export-ready kits
Biomass or algae integration	Expand processingadmin-user scope toward fuel/feedstock cycles or shoreline restoration

Technical Specifications

- Dump hopper – incoming materials
- Pre-sorting and cleaning tables remove organic materials and biofouling from recoverable plastic – process water recovery and cleaning
- Container A – Intake & Sorting: Material shredding, sensor-driven classification
- Container B – Rotary Forge : Plastic blocks for stock to re-use for molded bins
- Container C – Controls and Technical operations: the computers, electronic controls and IT portion
- Container D – Pelletization & Utilities: Clean plastic processing + salt loop plumbing + batteries
- Thermal loop - provides process heat for plastic melting and forming
- Heliostats provide process heat for Melt/Reform/Pellet extrusion Rough Visualization

Power & Thermal Architecture

Energy infrastructure explained.

- Solar Power: 20 kW PV system with lithium or lead-carbon batteries
- Thermal: heliostats (Reclaim melt process, Salt Loop,)
- Salt Loop: Centralized molten salt tank for thermal buffering

Deliverables

What the project provides.

- Fully assembled, tested, and documented container system
- Training for local operators
- Remote monitoring and support tools (first 6–12 months)
- Maintenance manual and control documentation

The CubeSpawn platform is a mobile, modular recycling system designed to convert recovered ocean plastics into usable materials without generating harmful byproducts such as microplastics or toxic fumes. Its transportable design significantly lowers infrastructure costs by eliminating the need to construct new recycling facilities at each deployment site. Instead, the system moves with the Garden Fleet operations, ensuring continuous processing capabilities across different coastal regions.

10.3 Partnership with Through The Golden Door

Garden Fleet (GF) is committed to not only restoring coastal ecosystems but also fostering a vibrant community around its operational hub in Palawan. In alignment with this vision and in collaboration with Through The Golden Door (TTGD) to create an immersive experience for stakeholders, investors, and environmental advocates who wish to witness the fleet's impact firsthand.

At the core of this partnership is the creation of a **regenerative community** around GF's port operations, designed to provide a sustainable foundation for both local residents and visiting ESG stakeholders. Key components include:

- **Eco-friendly housing & sustainable agriculture** – Ensuring GF's workforce and volunteers have green living spaces and access to locally grown food.
- **Waste-to-Wealth programs** – Converting recovered plastics into valuable materials to support a circular economy.
- **Educational & mental health facilities** – Providing resources and services for local families to promote long-term community well-being.
- **Accommodations for ESG investors, corporate partners, and eco-tourists** – Allowing guests to witness and participate in GF's ocean cleanup and mangrove reforestation activities.
- **Conferences, governance meetings, and sustainability workshops** – Hosting events focused on ESG leadership, impact investing, and regenerative finance.
- **Eco-tourism experiences** – Offering hands-on participation in beach cleanups, mangrove planting, and other sustainability-focused activities.

11. Our Process in a Nutshell

Our operating process offers a structured, modular framework to address the intertwined crises of ocean plastic pollution and coastal erosion.

Phase 1: Collection
Fleet teams remove plastic waste from targeted coastal zones using low-cost transport vessels, tugboats, and Floating Transport Units (FTUs). By mobilizing trained local crews and community volunteers, this phase delivers immediate environmental remediation while creating dignified, green employment opportunities.

Phase 2: Forestation (Optional)
In locations impacted by shoreline erosion, mangrove reforestation is deployed to stabilize coastlines, prevent flooding, and restore native ecosystems. This phase is terrain-dependent and executed in collaboration with ecological experts and local stakeholders.

Phase 3: Processing
All collected plastic waste is transported to a CubeSpawn modular recycling facility for advanced sorting, cleaning, and conversion into low-cost construction materials. The modular nature of CubeSpawn allows the entire processing system to be relocated to future deployment areas, reducing infrastructure costs and maximizing scalability.

Phase 4: Reporting & Verification
Each operational milestone is documented through the PHC (Project Health Control) monitoring system and verified via blockchain. Garden Fleet's reporting process includes the issuance of **Impact NFTs** and a detailed quarterly ESG report documenting:

- **Plastic Removed** (in metric tons)
- **Mangroves Planted** (count and coverage area)
- **CO_2 Sequestered** (in metric tons, using IPCC-aligned estimates)
- **Beach Cleaned** (in meters)
- **Jobs Created** (in total man-hours worked)

These verifiable metrics are aligned with SDG and GRI standards, providing corporate partners, donors, and government stakeholders with transparent, audit-ready proof of environmental and social impact.

Compliance with UN Sustainable Development Goals

Garden Fleet's mission and operational model are directly aligned with key Sustainable Development Goals (SDGs) established by the United Nations.

6 - Clean Water and Sanitation	Removes coastal waste and reduces marine pollution
8 - Decent Work and Economic Growth	Creates green jobs in vulnerable coastal communities
11 - Sustainable Cities and Communities	Supports coastal resilience and eco-infrastructure
12 - Responsible Consumption and Production	Promotes recycling and circular economy practices via CubeSpawn
13 - Climate Action	Captures carbon through mangrove reforestation
14 - Life Below Water	Protects marine ecosystems by cleaning coastlines
15 - Life on Land	Restores coastal vegetation and stabilizes shorelines
17 - Partnerships for the Goals	Builds cross-sector partnerships for environmental impact

Compliance with the Global Reporting Initiative (GRI)

Garden Fleet's operations are designed in alignment with internationally recognized sustainability frameworks, including the Global Reporting Initiative (GRI) Standards. By incorporating GRI-aligned metrics into our project tracking and ESG reporting systems, we ensure that all environmental, social, and governance outcomes are measurable, transparent, and globally comparable.

GRI 301 - Materials	Tracks waste recovery and recycling rates
GRI 304 - Biodiversity	Enhances biodiversity through mangrove restoration
GRI 305 - Emissions	Reports carbon drawdown from reforestation
GRI 306 - Waste	Discloses marine waste types, volumes, and destinations
GRI 401 - Employment	Reports on inclusive and green job creation
GRI 403 - Occupational Health & Safety	Ensures safety protocols for crew and volunteers
GRI 413 - Local Communities	Engages local communities in restoration efforts
GRI 419 - Socioeconomic Compliance	Adheres to coastal, labor, and marine regulations

12. Conclusion

The Garden Fleet (GF) project stands at the intersection of sustainability, technology, and economic viability, offering a scalable, blockchain-powered solution for coastal restoration. By integrating Regenerative Finance (ReFi) incentives, decentralized governance, and ESG-aligned services, GF transforms environmental responsibility from an obligation into a profitable and measurable investment.

Through its token-powered fleet, GF directly addresses the dual crises of plastic pollution and coastal erosion, delivering tangible impact by removing marine waste, restoring shorelines with mangroves, and fostering community-driven stewardship. The integration of blockchain technology ensures absolute transparency, allowing businesses, governments, and investors to track their environmental contributions with verifiable proof.

Now is the time to act. Whether as an investor, corporate partner, or stakeholder in environmental stewardship.

Join us in reshaping coastal conservation—one fleet at a time.