

Collective Intelligence for Greener Tomorrow

Green Earth Social Impact Alliance

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PAPER | 2022

An abstract geometric pattern composed of numerous overlapping, semi-transparent polygons in various shades of blue and teal. The shapes are irregular and angular, creating a complex, layered effect that fills the lower half of the page. The colors range from light, airy blues to deeper, more saturated teals and blues.

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PROLOGUE

Abstract

The birth of a blockchain-based virtual asset called 'Bitcoin' makes it possible to fund projects based on innovative and disruptive ideas that were not supported and have been overlooked by the traditional financial market. Through 'decentralized' and 'distributed' decision-making processes in the blockchain world, group collective intelligence is gathered to now poised to dream of unlocking the possibility of more socially contributing projects toward a better world for the next generation. It is called "social impact investment," not just a buzzword.

Global Impact Investment Report in 2021 describes social impact investment as a priority shift toward the good of society in selecting investment opportunities, NOT preceding the investment return for the good of society. In fact, contrary to the common misconception that social impact investment is solely for the good of society, many social impact projects are yielding higher than acceptable returns. However, in many countries, including S. Korea, the general public misbelieves a small local cooperative project hiring elders in a coffee hut is the only form of social impact investment, which has hindered the growth of the social impact investment industry.

On an upbeat note, the tide is shifting with the rise of the millennial generation. One of the distinctive traits of millennials is that even though they do not shy away from expressing their individuality, they firmly uphold an active appetite for the common good of society. This trait is manifested in how millennials choose their investments: They do not just want to grow their money: Many millennials want to achieve social and environmental goals through their investments.



According to CNN Money, the overwhelming majority of millennials surveyed, 93%, believe that a company's social and environmental impact is key to their investing decisions. This result sharply contrasts with the baby boomer's response of 51%. "Impact investing is hitting the mainstream," says Jackie VanderBrug, investment strategist at U.S. Trust, a division of Bank of America (BAC). "We are hitting a tipping point."

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Green Social Wave(GSW) endeavors to share the actual value of social impact among millennials. We propose the Green Earth Social Impact Alliance(GESIA), through which we will cooperatively promote impact investment opportunities in the green technology industry, especially in the countries where social impact investment is not well regarded, starting with S. Korea. To uphold the fairness and transparency of this social alliance, the GESIA will operate on a digital platform, GESIA Platform, that will embrace blockchain's philosophy of decentralization and incorporate its recent technological developments. We will introduce convenient and transparent services for individuals to invest in the voluntary carbon offset credit market and green technology companies and showcase sound and solid returns of social impact investment.



1. Background of GESIA Platform

GESIA Platform is NOT just a science lab-level blockchain project: It aims to overcome the limitation of existing not-for-profit environmental movements by incorporating social impact investment philosophy and fostering new cultural trends toward the common good of society. Blockchain technology has adapted to form GESIA Chain, ensuring a more transparent and sustainable ecosystem, where participants will create network effects and share the created returns and social value fairly. The following points are considered when selecting the opportunities on which the GESIA Platform will first focus.

1.1. Green Technologies

The green technology industry strives to provide more environment-friendly ways and means throughout the life cycle of goods and services. It is not limited to simply switching to alternative energy sources but includes a technology enabling energy consumption reduction by harnessing the energy management system research, agricultural reengineering, material science, hydrogen power, and other related technologies. Moreover, many of these new green technologies are aggressively aiming to restore the earth by recapturing greenhouse gas, reforestation, re-soiling, etc.

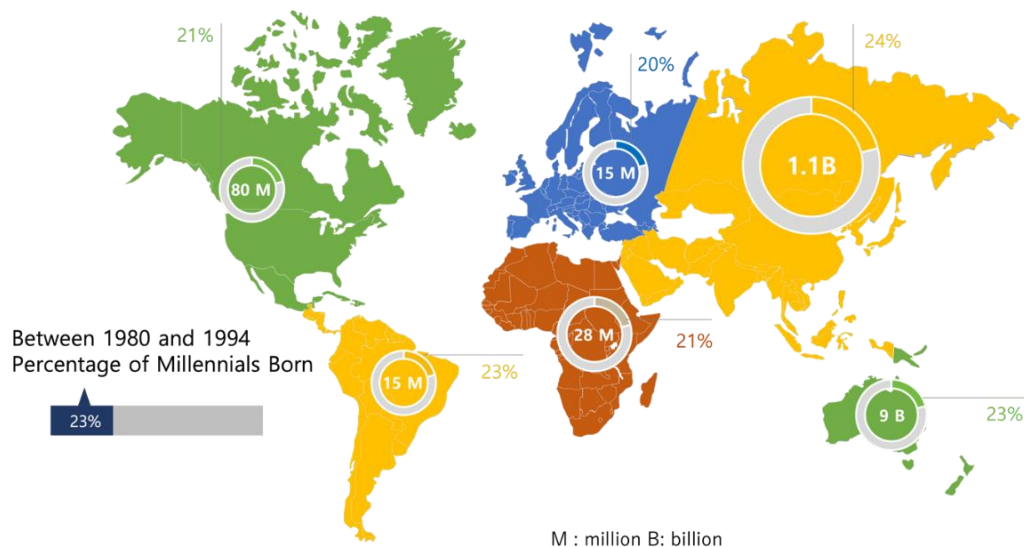
The market for green technology is still at the infant stage but attracting the interest of investors as the issue of natural resources depletion and climate change is escalating. As of 2020, the global green technology market is recording USD 120B with a CAGR of 21.9% and is expected to reach USD 900B by 2030. On November 15th, 2021, the US president on carbon pollution reduction projects, including eco-friendly electricity transmission systems, Joe Biden passed 'The infrastructure Investment and Jobs Act, consisting of a historic investment of US 550 billion in new spending, mostly electric vehicle charging infrastructure, and cleaner public transportation, which will revolutionize the green technology industry as a whole.

The hyper-growth trend of green technology is greatly indebted to the heightened personal and corporate awareness of the seriousness of global climate change. For example, for fulfilling environmental responsibility, more and more companies are looking into alternative energy sources even at the cost of additional expenditure. Consumers are becoming mindful of the carbon footprint of the goods they consume. The shift of government regulations countering environmental crises also adds pressure on the entities to adopt greener technology sooner than later.

However, many green technology companies struggle to reach economy of scale due to the high cost associated with research and development, thus unable to provide an acceptable price for the consumers; the companies would procure carbon emission rights from other companies instead. In other words, many green technology companies have great ideas, products, and services, but their market entry is delayed since they do not provide sufficient cost benefits to companies that want to adopt them. As such, society needs to look into a wiser solution to support the faster deployment of green technology by lowering cost barriers.

1.2. New Mainstream - Millennials

The millennial generation is estimated at 1.8 billion, accounting for the largest share of the generation cohort. In the case of Korea, it constitutes 32%, far exceeding the global average of 23%.



Woori Financial Research Institute's research on millennials explains what this generation is paying attention to through the keyword 'R.E.S.T.A.R.T.' The research revealed that millennials are highly self-motivated and fun-loving in daily activities while maintaining a keen interest in social

development and environmental improvement even at the cost of many inconveniences. This generation, who grew up in a globalized and interconnected environment compared to the previous generation, is very familiar with digital technologies such as Web 3.0 and shares a deep interest in fairness and social justice.

R: Renewable Energy

E: Expenditure of C.R.E.W

S: Small-Big Ants

T: Touchless-tact

A: Autonomous Work Culture

R: Rescue IT System

T: Technology with Humanism

While growing up with the digital world and social media, millennials' obsession with the transparency and integrity of society may have formed naturally. They go to great lengths to strike a balance between their online persona and their real-life self and to find the truth in a flood of false news and misinformation. As they were entering adulthood, they were significantly impacted by the financial crisis of 2008 and the uncertainty of the COVID-19 Pandemic. These issues may have fortified their view toward transparency and integrity of society.

In selecting any goods and services, they demand that the products or brands they consume reflect their values and are quick to respond to their preferences. The marketing campaign of Dove is an excellent example of how brands reflect millennials' values and preferences, where ordinary people of different ethnic backgrounds appear in advertisements. Millennials' reaction to Chipotle, which uses more health-oriented natural ingredients in food and beverages, and Tesla, which is making efforts to preserve the environment through recycled energy, demonstrate what products or brands can expect when they embrace millennials' values and preferences.

Furthermore, millennials with this mindset want to know precisely whether a company is fulfilling its social responsibilities and what kind of social contribution activities it carries out if it claims to fulfill its responsibilities. In other words, when a company declares that it will be carbon neutral by 2025, they want to know if that can be achieved and how it is progressing. These unique characteristics of millennials are distinctly different from previous generations, and if a new culture that reflects their values becomes mainstream in the future, society is expected to evolve in a healthier direction.

1.3. Social Impact Investment

Social impact investment has proliferated over the past ten years. In the 2010 Global Impact Investing Network (GIIN) annual report, 75% of investment institutions that responded considered social impact investment was still in the early stages. They were willing to fund about 4 billion or 4.8 trillion won in social impact investment opportunities. In sharp contrast, according to the 2020 report, 69% of investment institutions think social impact investment is now entering maturity, and in 2021 alone, they had a new investment plan of about 48 billion dollars or 57.6 trillion won. The total size of the Social impact investment market is estimated to be approximately USD 715 billion, or more than KRW 858 trillion.

Globally, investors have made it clear that profit is not their only goal, and they want to show that they contribute to society through investment. An asset manager once said that 86% of its clients prefer and choose social impact investments because of global environmental issues. This is a historic opportunity not to be missed. If only 10% of the \$269 trillion of wealth owned by institutions and individuals is channeled toward investments that help improve society and the environment, the UN's 'Sustainable Development Goals,' including a carbon-neutral future, will be achieved.

In addition, according to global consulting firm Accenture, within 30 years in North America alone, about \$30 trillion in wealth will move from baby boomers to Generation X and millennials. As mentioned above, millennial investors prefer investment strategies that emphasize social and environmental impact, and for this purpose, they actively analyze investment opportunities. In a recent Barclays Investment Bank survey, the most crucial factor to consider when investing in the social and environmental impact of the investment project includes health, education, and climate change. As millennials become a mainstream society, the investment paradigm shift may be accelerated.

A healthy change has already begun in which the criteria for the choice of investors, including millennials, and the UN's Sustainable Development Goals are aligned. Many believe social impact investment will become the mainstream of the investment industry. The investment industry must discover socially responsible companies that meet these standards, connect them to investors, and provide transparent and truthful information about these companies.

1.4. Voluntary Carbon Offset Credit Market

The Kyoto Protocol of 1997 and the Paris Agreement of 2015 defined international carbon emission targets that each participating country should define and manage its carbon emission targets. Companies in these countries are now looking for ways to reduce their carbon footprint to best operate within the assigned emission target. The carbon market, which makes priced units of carbon emissions a commodity and allows them to be traded, is now being introduced as a temporary measure. The carbon markets are currently divided into two categories: the carbon emission rights and the carbon offset credits markets, which offer a market-based solution to the pressing sustainability problem of the planet.

Although carbon emission rights and carbon offset credits are related concepts, in a precise sense, they have different meanings. Carbon emission rights move vertically, with companies being assigned and obtaining carbon emission rights from the government. Any unused or saved carbon emission rights can be traded in the market. On the other hand, carbon offset credits move horizontally through business-to-business transactions. When a company engages in activities to remove carbon from the atmosphere, it can create corresponding offset credits, and other companies can purchase these offset credits to reduce their carbon footprint.

CO₂ 1 ton = CO₂e 1 unit

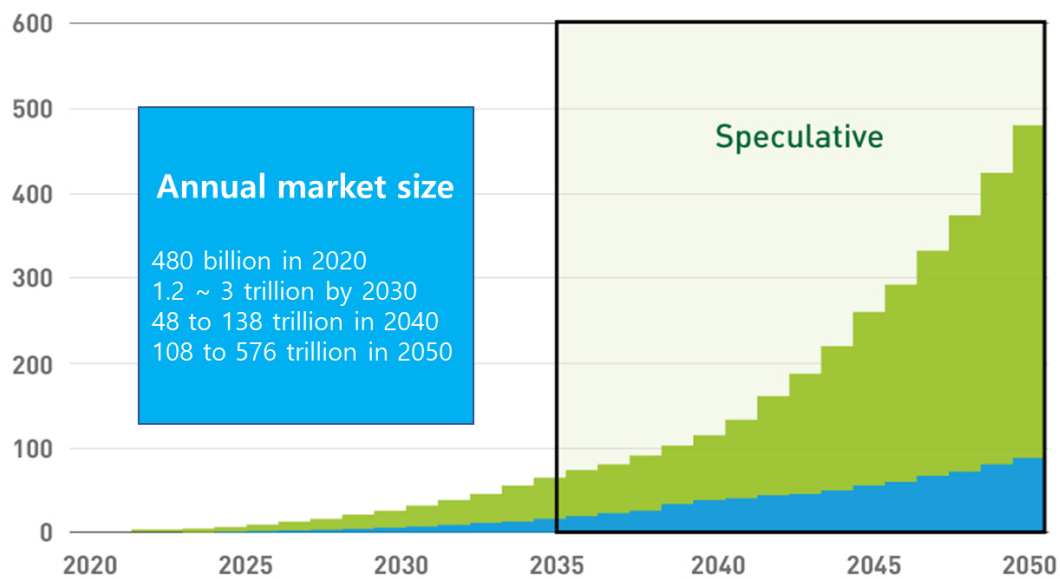


As a follow-up to the UN Environment Conference in Glasgow, Article 6 of the Paris Climate Agreement, officially passed on November 13, 2021, provides the basis for innovation in the private sector's voluntary carbon offset credit market. Article 6 is the last 29 articles under the 2015 Paris Climate Agreement. It defines the mechanism for carbon offset credits that each government will approve to achieve carbon emission reduction targets under the carbon credit management system that each country has decided on its own.

Paragraph 6.4 designates the UN as a final authorizer for projects that will receive carbon offset credits recognized in the respective country's carbon emission management system. The decision

will enhance the credibility of the Carbon Offset Credits Trading System, enabling more carbon reduction projects and increasing the demand for carbon offset credits in the future. Section 6.4 (Sustainable Development Mechanism, SDM) also heralds a significant change in how the private sector and the government achieve emissions targets and makes us expect a quantum leap in the voluntary carbon offset credits market.

Carbon Offset Credit Market Size



2. Introducing the Services of the GESIA

The GESIA Platform will start with two services, 'social contribution services' and 'social impact investment services,' allowing participants to generate sufficient profits while contributing to society. The services are designed carefully to motivate the voluntary participation of people incorporating blockchain's network effects and various fun elements.



Social Contribution Services

GESIAChain
Social Impact Platform



Social Impact Investment

2.1. Social Contribution Service

2.1.1. Mileage Donation System

Not only companies but also individuals are also emitting a vast amount of carbon in their daily life. Nevertheless, there are many obstacles to managing individual carbon emissions at the government level. The reality is that individual carbon emission management can only depend on the goodwill of the individual. For example, when one travels, the usage of transportation such as

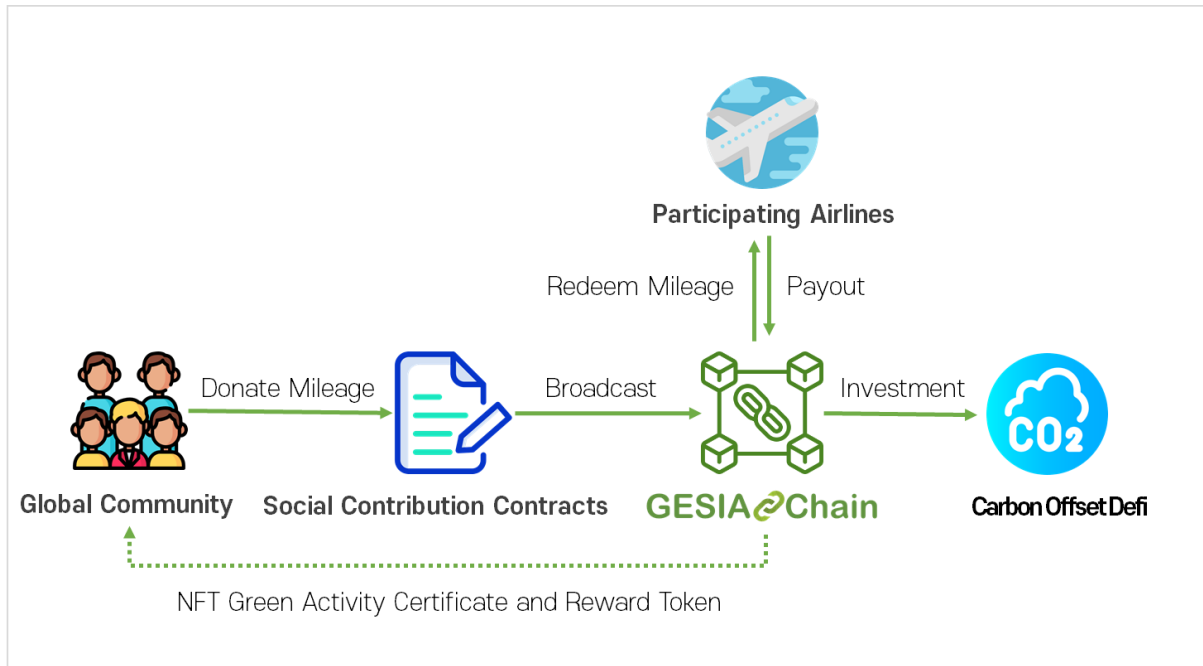
an airplane or the stay at a hotel are activities that an individual emits carbon. Companies that are in travel services provide points or mileage as part of customer relationship management programs to promote repeated consumer visits. The accrued points or mileage can also be interpreted as evidence that an individual is rewarded for their carbon-emitting activities.

Many companies have been attempting to provide points and mileage exchange services for consumers to maximize the usage of earned points and mileage. Currently, the points are recorded and managed as liabilities or deferred assets in the issuing companies' ledger and are not tokenized and paid out for individuals to hold. Each exchange service provider must link to issuing companies' ledger that an integrated mileage exchange service has very limited expandability. Therefore, consumers have minimal ways to spend accumulated points or mileage, and the utilization value of the points or mileage remains low. Worse yet, many consumers do not know how many points they have accrued, and the points expire on the expiry date without the customer's full knowledge.

There is also a carbon mileage system operated by the government and local governments. Carbon mileage is paid to individuals through carbon reduction activities, but little is known. The limited budget and low compensation limit are causing a low adoption rate and poor mileage usage. Mileage provided by private waste recycling companies as a reward for collecting recycled waste such as PET bottles, cans, and wastepaper shows no different results. Individuals are not sufficiently incentivized to participate, nor can they quantitatively feel their contribution to carbon reduction by looking at the accumulated mileage on the service provider's app.

With these in mind, the GESIA platform would like to provide an integrated service that allows individuals to convert various mileage accumulated through carbon-emitting activities to carbon offset credits and erase an individual's carbon footprint. Through collaboration with companies or institutions that issue mileage, consumers can easily procure carbon offset credit or invest in projects that generate carbon offsets with the value corresponding to the mileage. This new ecosystem allows consumers to offset the carbon they generate with the mileage they were rewarded for respective consumption. Businesses will enjoy the opportunity to enhance their image and improve their financial statements by lowering debt accrued through mileage.

For example, if a participant who has earned mileage by using an airplane decides to convert it, it is registered in the social contribution smart contract of the GESIA chain. The GESIA chain confirms this information, issues reward tokens to participants, and simultaneously requests the airlines to exchange the mileage donated by the participants. At this time, participating airlines can pay in tokens used in the GESIA Platform, and the GESIA Platform will use the tokens to procure carbon offset credit or invests in projects that generate carbon offsets as per the election of members.

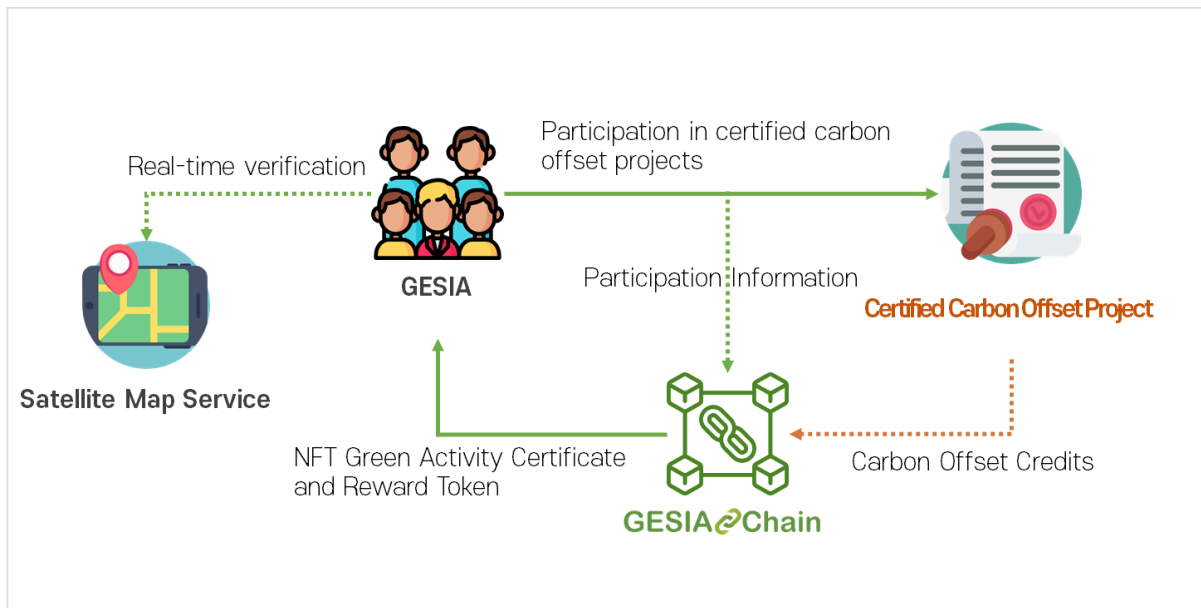


[Example of Mileage Exchange System]

2.1.2. NFT Green Activity Certificate

For the first time among local government bodies in S. Korea, Daegu Metropolitan City secured 2.8 million tons of carbon credits in 2021 through the 'Landfill Gas Resource Conversion Project' registered as the Clean Development Mechanism (CDM) project of the UN Climate Change Convention. It generated about 40.8 billion won in non-tax revenue. In addition, they recently secured an additional 12.7 billion won in non-tax income by selling through external business carbon reduction certification (KOC, Korea's official carbon offset credit) conversion that can be freely traded to other entities.

The case of Daegu Metropolitan City is an excellent example that participating in projects that have obtained external business carbon reduction certification provides a lucrative business opportunity in the low-carbon economy era. The GESIA Platform intends to provide information that allows members to participate in many of these projects. In addition, we intend to share with the members the profits from carbon offset credit generating activities, either from direct participation or social impact investment.



[NFT Green Activity Certificate Example]

For example, GESIA members can propose to restore damages from the historic wildfire in Yangyang, S. Korea, in 2022, and such a proposal will be conveyed to GESIA members. GSW will then organize an offline campaign and register them as certified carbon offset credit generating projects with the relevant authority.

When GESIA members participate, an NFT Green Activity certificate is issued to the participating members through the blockchain's Proof of Attendance Protocol. At this time, the geographic information of the area where the project is conducted is attached to the NFT certificate so that participants can observe changes in the area with continuous interest. In addition, a certain amount of tokens are provided as a reward for such participation based on the value of the project's carbon offset credit.

Another way to get the NFT Green Activity Certificate is to voluntarily participate in a campaign to reduce the carbon generated through daily activities by purchasing carbon offset credits. For example, the travel industry significantly contributes to climate change and accounts for 8% of global carbon emissions. On a one-way flight from San Francisco to Paris, each traveler emits about 1.25 tonnes of carbon, equivalent to a quarter of the average annual carbon emissions per person. Of course, conscious travelers also minimize their carbon footprint by reusing washed towels and blankets at their accommodation or by renting an electric car. However, no matter how demanding travelers try, they cannot avoid a certain amount of carbon footprint.

Instead, individuals can purchase carbon offset credits and use them to erase their carbon footprint from their travel. A growing number of travel agencies, airlines, car rental companies, and more are providing tools to calculate how much carbon footprint their customers are leaving with them. They may also provide a service to purchase carbon offsets through connected carbon offset credit traders. However, there is a lack of integrated services through which one can simultaneously see the carbon footprint and procure carbon offset credits.

Calculate Your Travel Carbon Footprint
Use our carbon footprint calculator to calculate your travel emissions and purchase carbon offsets.

Trip Details

☒ Flight ☐ Car ☐ Boat

☒ One Trip ☐ Multiple Trips ☐ Charter

Round trip 1 Economy

Newyork → Seoul ICN

CALCULATE

Your Carbon Footprint

3.52
Metric tons of CO₂

Flight Footprint
Flight: one trip 3.52 MT x

Total Metric Tons	3.52 MT
Cost to Offset	\$ 43.51

OFFSET NOW

[Carbon Offset Credits Calculation and Purchasing Examples]

GSW is proposing the aforementioned integrated system to various companies and service providers in S. Korea and making good progress. When participating companies and service providers elect to provide services so that participants can erase their carbon footprint with carbon offset credit, the GESIA platform will provide Restful APIs and supports that allow easy integration without much initial investment or time.

2.2. Social Impact Investment Service

The GESIA platform is designed to serve as a window through which more people can access investment opportunities that contribute to society. The social contribution service in the preceding section is an activity to gather interest and motivate voluntary participation in the GESIA platform.

The social impact investment service is a service that provides information for members to invest in green technology projects that generate sustainable and stable profits. The GESIA platform will build blockchain-based services in the voluntary carbon offset market and the green technology investment fields. The underlying asset is tokenized, so these investments can start with a small amount, enabling fragmented investment.

In addition, we will provide the correct audit information on investment opportunities through the blockchain Oracle service, where various professionals can submit their investment opinions and share the profits generated through social impact investments with GESIA members so that the GESIA platform can continue to grow.

2.2.1. Carbon Offset Credit Trade

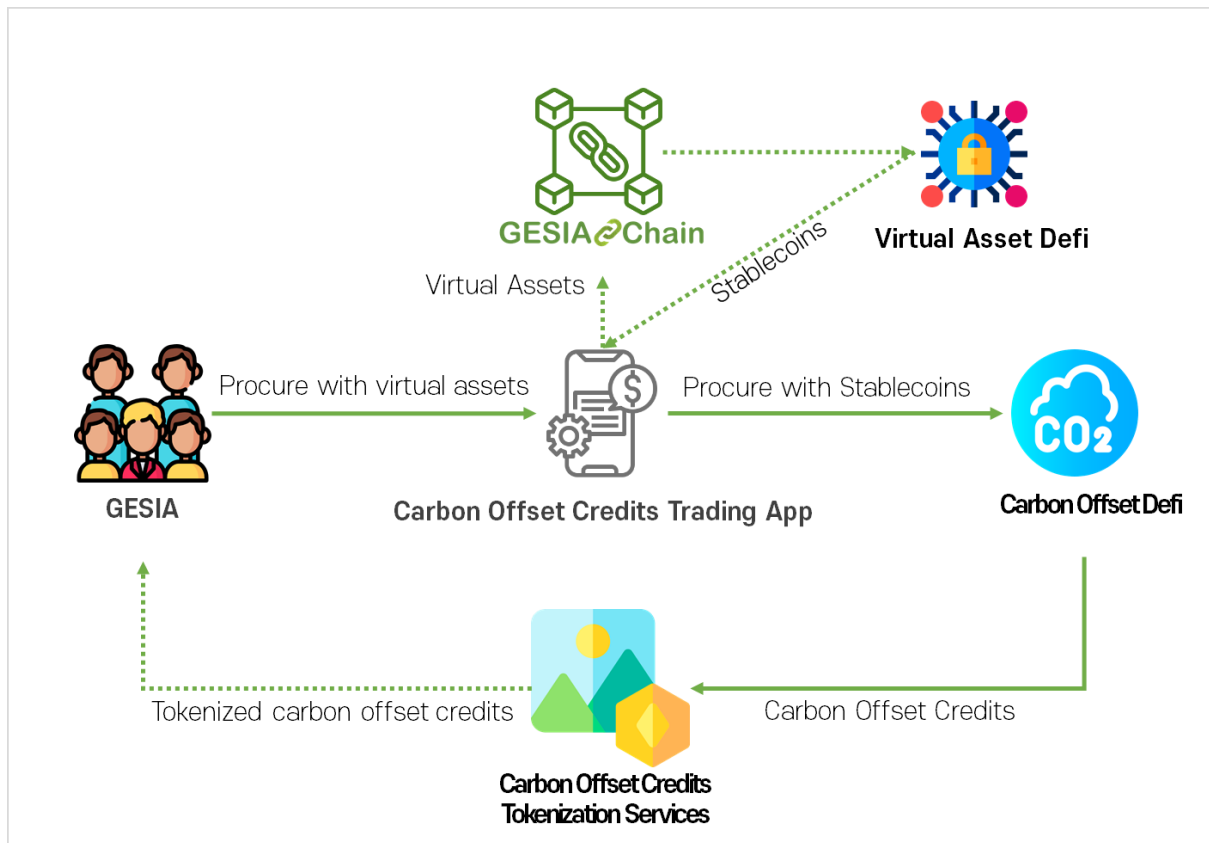
The voluntary carbon offset market was first introduced to provide financial support for efforts to reduce greenhouse gas emissions. It started as simply a new attempt to respond to environmental changes in the early days. Over time, the voluntary carbon offset credit market has been recognized as a mature and effective channel of greenhouse gas recapturing activities that are objectively verifiable and provide significant funding for projects that reduce greenhouse gases on a global scale.

The voluntary carbon offset credit market supports achieving more aggressive environmental goals over the company's efforts to reduce greenhouse gas emissions. By 2019, 688 million tons of carbon had been offset through the voluntary carbon offset credit market. This is a greenhouse gas reduction effect equivalent to the disappearance of 130 million vehicles annually.

Bloomberg's report, Long-Term Carbon Offset Outlook 2022, predicts that the price of a ton of carbon offsets credit will range from as low as \$47 to as high as \$120 by 2050. This refers to a price increase of approximately 50 times or more, which is worth paying attention to from the investment perspective. As the certification process for carbon offset credit is defined in the recent Paris climate agreement, grades will be assigned according to the source from which carbon offset credits are generated in the future, and a price difference will occur depending on the grade. If carbon offsets generated from carbon removal, storage, or sequestration activities are extended to carbon-neutral targets, the supply of carbon offset credits will see a shortage to meet market demand, eventually leading to price increases.

The GESIA platform will connect with an authorized carbon offset exchange so that members can

quickly and conveniently participate in the carbon offset market, which is expected to have a high growth potential. Through the GESIA platform, investors will be able to invest in carbon offset credits with various virtual assets and receive tokenized carbon offset credits so that investors will have access to the blockchain-based secondary market. All records of these transactions will be recorded on the blockchain and will always be managed transparently.



In addition to their virtual assets, members can use the tokens they received while contributing to the GESIA platform and the ecosystem coins of the GESIA chain purchased in the virtual asset exchanges for carbon offset credits trading. In addition, the profits generated in providing services will be pooled to purchase carbon offset credits to increase the value of the entire ecosystem.

2.2.2. Green Technology Decentralized Autonomous Organization

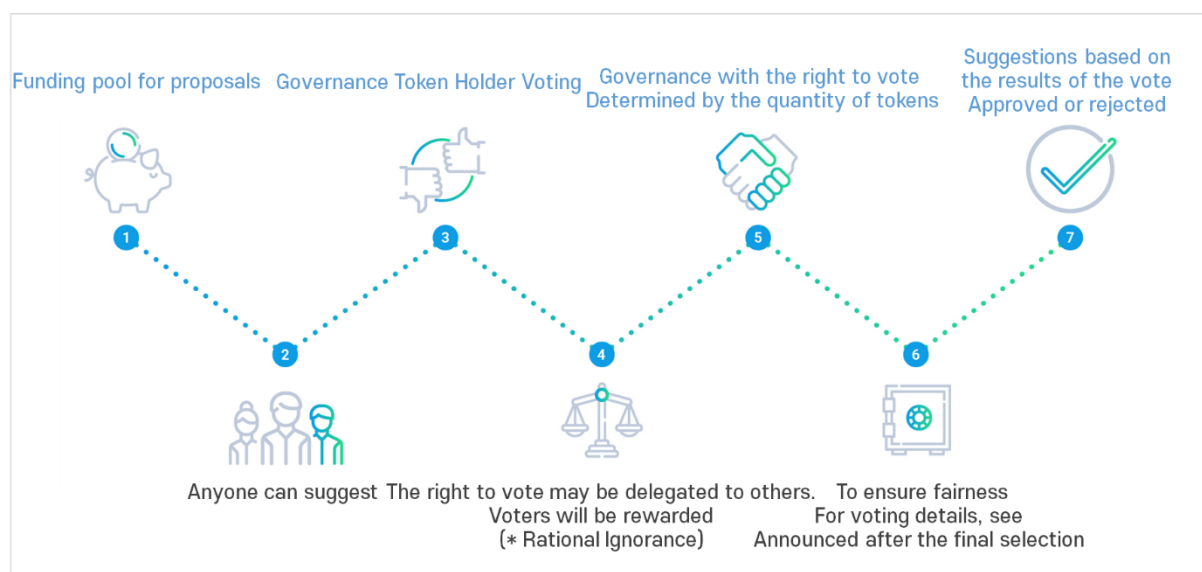
The GESIA platform is not just a trading brokerage platform but a community of millennials who think deeply about the future of society. The GESIA platform will be built on a blockchain protocol

that allows all participants to discover new green technologies quickly, share them with the community, make investment decisions collectively if so voted, and form a Decentralized Autonomous Organization (DAO) for the investment execution and management.

DAO is a decentralized autonomous enterprise, an organization without centralized leadership or hierarchies, where all decisions are made through democratic voting. DAO is considered the most appropriate investment structure in the Web 3.0 era, with its highest regard for individual sovereignty. The investment process will also evolve so that any participants can identify investment opportunities, propose to each other, form an investment pool, and collectively agree on an investment.

A DAO's main characteristics are transparency, open participation, and democratic decision-making. Each token holder has the right to vote according to the number of tokens they hold, which process is governed by the rules or bylaws (Smart Protocols) defined in the smart contract. A democratic vote of members may also change these bylaws. Among these DAOs, 'Funding DAO' is a type of decentralized autonomous enterprise that focuses on investment activities to create wealth with the funds from participating members.

The GESIA platform will provide the necessary services for these decentralized autonomous organizations to operate safely and efficiently. We will ensure that both the person making the proposal and the person voting for it receive a particular reward token. The opinions and evaluations of various external experts are also connected to the blockchain oracle service, and specific rewards are given to experts who provide these opinions and evaluations. This reward system incentivizes more participants and experts to participate in the ecosystem actively.



[Decentralized Autonomous Organization Investment Process]

The project receiving the investment and the DAO will form an intelligent contract so that the investment fund will be disbursed only when an event with predefined conditions is met. This phased disbursement will solve complex problems for existing venture investors, crowdfunding, and ICO (Initial Coin Offering).

The Fund for Investment is not owned or managed by any company or individual. It is deposited in a smart contract called a DAO and is only spent according to the withdrawal proposal of the project receiving the investment. At this time, the token holders of the DAO will review the withdrawal proposal, confirm the project's progress, and then approve it.

This procedure alone will reduce the investment risk of demotivation and the moral hazard of project operators, which is a serious issue with many ICOs or crowdfunding. If most holders of decentralized autonomous tokens determine that the project is not proceeding as promised, the investment may be withdrawn. This possibility of withdrawing investment can increase the likelihood of project success by keeping the project operator focused.

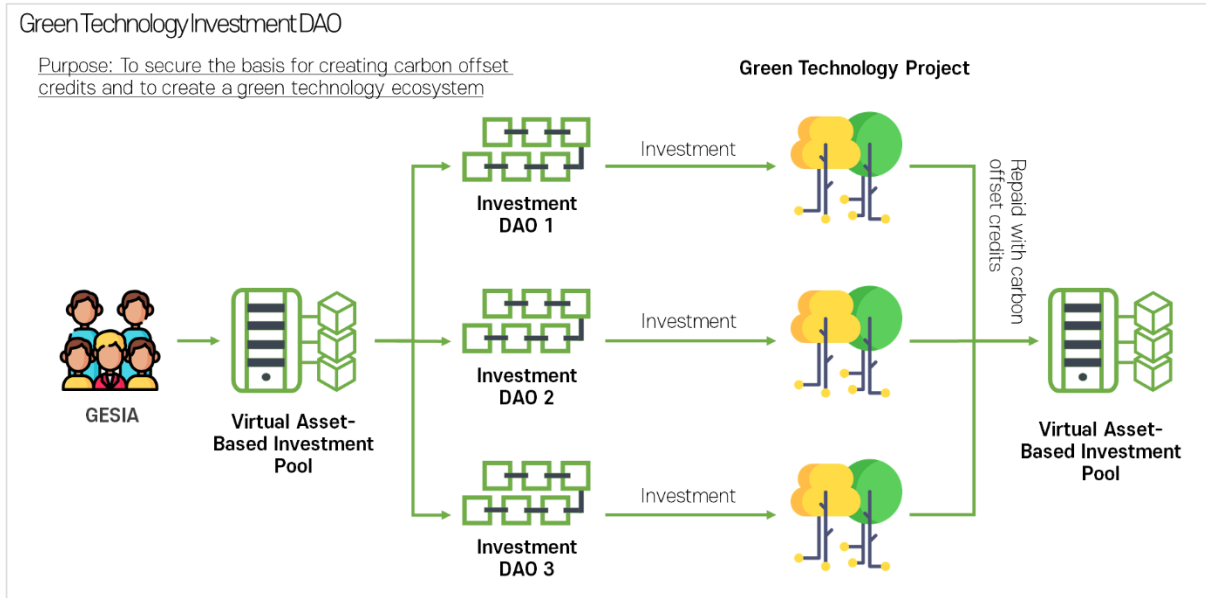


The critical point is that the GESIA platform never solicits investment from members or directly engages in the investment activity itself. The GESIA platform provides participants with valuable tools to verify information, which the social and environmental values of the projects meet global standards. The verification of such information is also provided in a decentralized manner through the blockchain oracle service. The GESIA platform will strive to remove any shortfalls and risk factors in the traditional centralized investment and verification process using blockchain technology.

The funding DAO provides many benefits for project operators as well. Many benefits include a decentralized decision-making structure harnessing collective intelligence, transparency in business relationships, more convenient communication, and complete independence. Connecting with the ecosystem that provides these services will provide even greater value in securing potential customers. Investment-type DAOs are modularized so that the governance structure or function is set accordingly to the characteristics of each project.

Green Technology Investment DAO

Purpose: To secure the basis for creating carbon offset credits and to create a green technology ecosystem

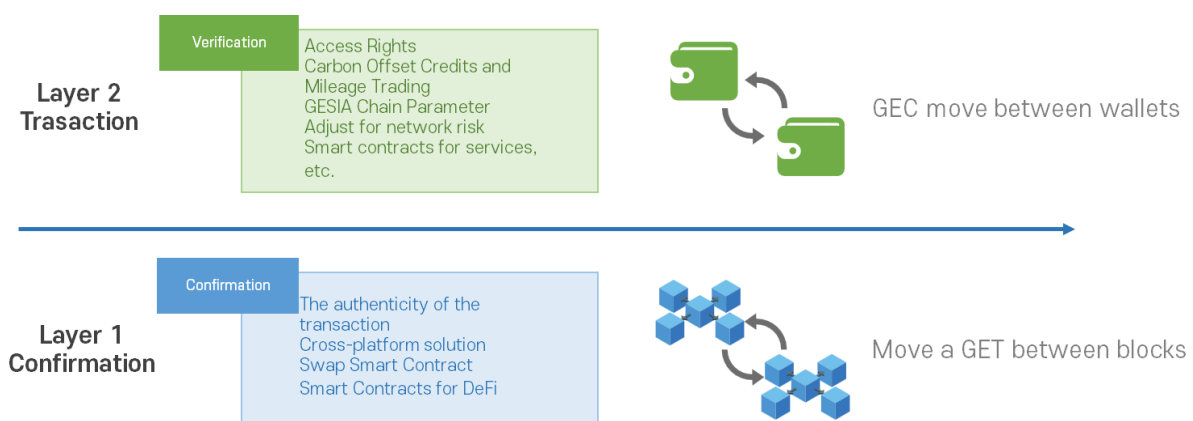


[Green Technology Investment DAO]

3. GESIA Chain

While Bitcoin and Ethereum are public blockchains that require a high carbon footprint by design, GESIA Chain has a hybrid architecture to reduce the carbon footprint of the blockchain. GESIA Chain works as a sidechain with lightning protocol to ensure high transaction processing speed and is limitedly anchored on the public blockchain to maintain network compatibility and stability. As the main anchoring chain, GESIA Chain intends to fork Bitcoin, which has verified security and stability for an extended time.

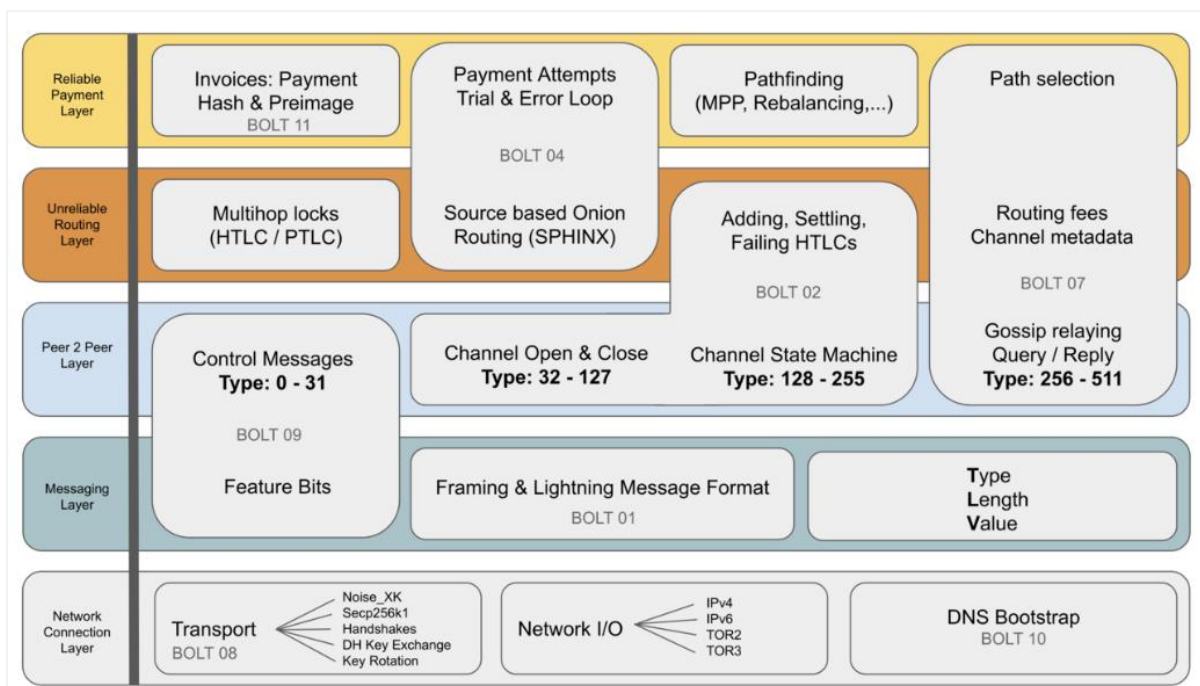
A lightning protocol is a 'Layer 2' payment protocol layered on top of a blockchain-based cryptocurrency. At this time, the Proof of Work consensus algorithm, which consumes excessive energy, is changed to a Proof of Authority-based consensus algorithm so that the network consumes much less energy and transaction fee than a leading public network. Validators participating in the proof of authority are randomly selected from among those participating in the oracle service of the GESIA Chain. The selection process is repeated at regular intervals to solve the centralization dilemma of the proof of authority.



The GESIA Chain will be configured to be compatible with the upper public networks layer. There will be two virtual assets to foster the ecosystem.

1. Green Earth community Token (GET): ERC-20-based token on the public network
2. Green Earth Coin (GEC): Native ecosystem coin on the lightning protocol

More people will be able to join the GESIA through acquiring GET on the public networks, while GEC will be used in various projects within the ecosystem on the Lightning protocol. GEC is a stablecoin whose value is fixed at the issuance, and GEC is issued when GET is deposited in a smart contract formed on the public network. The deposit event information and the price of the deposited GET are fixed through external DeFi. In the opposite case, the smart contract receives this information if the GEC is burned. It then proceeds with the liquidation procedure of deposited GET according to the given conditions.



[Example of Lightning Protocol configuration]

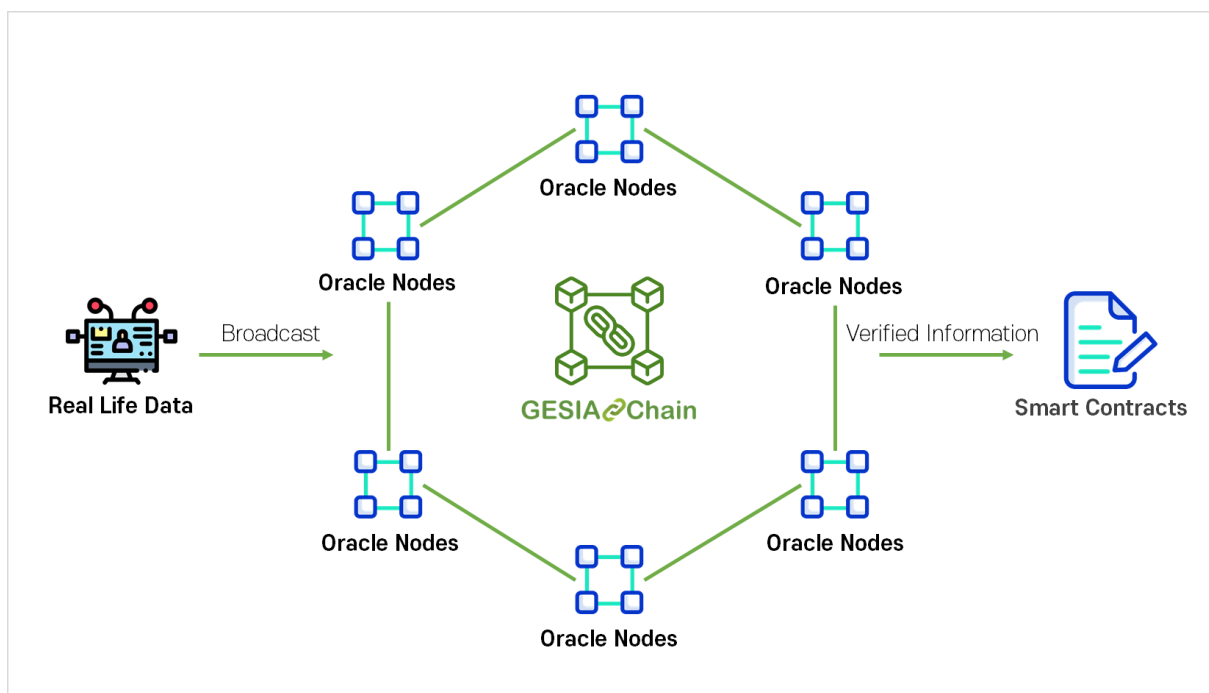
3.1. Hybrid Smart Contracts and Oracle Services

To enable exchange between GET issued on the upper public network and the GESIA chain's native GEC, a Hash Time Lock (HTLC) function, a type of smart contract, is used. A hash time lock is a combination of a time lock that delays the execution of a contract for a certain amount of time and a hash lock that executes/ ends a contract only when a specific hash value (end of another transaction) is presented. HTLC overcomes the disadvantage of not seeing what is on different

blockchains and enables more reliable exchanges because it can have the same effect as being connected to each other's protocol without seeing each other. This is also called atomic swap, a virtual asset exchange technology between blockchains.

Various smart contracts are also utilized within the GESIA Chain, and conditions for smart contracts can be established based on various external information in real life. A service that provides such external information in real life to a smart contract is called a blockchain oracle service: A smart contract that combines on-chain code and off-chain information is called a hybrid smart contract.

GESIA Chain delivers verified information to members through blockchain oracle services and provides them when making various decisions. For example, when forming an investment-type DAO and executing an investment, the investment fund is disbursed upon the company's request. When requested, such request is broadcasted to blockchain oracle service, and two or more experts verify whether it conforms to the investment plan promised. Then the verified results against the planned investment conditions are fed into DAO contracts, and the investor can execute the investment through the final voting process. In this case, the expert who provides verification information can act as a node of the GESIA Chain and receive compensation accordingly.



[GESIA Oracle Service Example]

Some of the data or information which can be verified through the GESIA Oracle service include the followings.

3.1.1. Market information for carbon offset credits trading

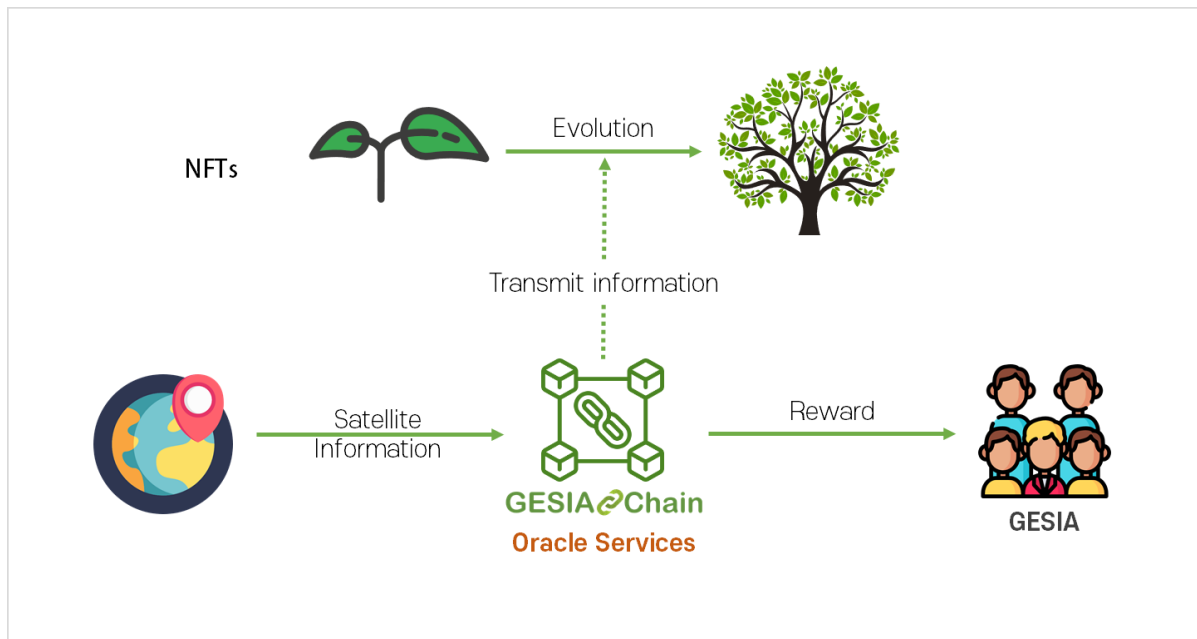
Currently, the hybrid smart contract model forms the basis of the decentralized finance industry to implement traditional financial products in a decentralized manner. Many decentralized financial services bring, verify, and deliver integrated information in real life through the Oracle network when users make or receive loans, savings, and asset transactions. These data show that smart contracts are executed and settled on the blockchain. Carbon offset credits also can capitalize on GESIA oracle service in assessing a fair market value of carbon offset credits and in realizing arbitrage transactions. It can also be applied to the liquidation procedure upon the price change of carbon offset credits staked in a smart contract.

3.1.2. Satellite Geographic Information Data

Cornell University's Initiative for Cryptocurrencies and Contracts (IC3) promotes environmental betterment through reforestation. The GESIA platform rewards members with dynamic NFT reflecting the progress based on the satellite geospatial information to reward those who contributed. In this project, the oracle network fetches satellite imagery and provides information about the area of tree growth to the hybrid smart contract. The smart contract then provides transparent and fair rewards to those who contributed according to predefined conditions.

3.1.3. Dynamic NFTs

The first-generation NFT (Non-Fungible Token), like the existing digital picture, did not have any purpose other than to display the contents of the picture in a static form. Second-generation NFTs enable dynamic changes to these NFTs through hybrid smart contracts. When any change occurs in real life and is verified through the oracle network, these events are transmitted to the hybrid smart contract, and the NFT can be automatically updated. For example, NFT received through reforestation can evolve following the growth of the forest. In other words, NFT, which is used to record a moment, can evolve into a means to record a continuum of history.



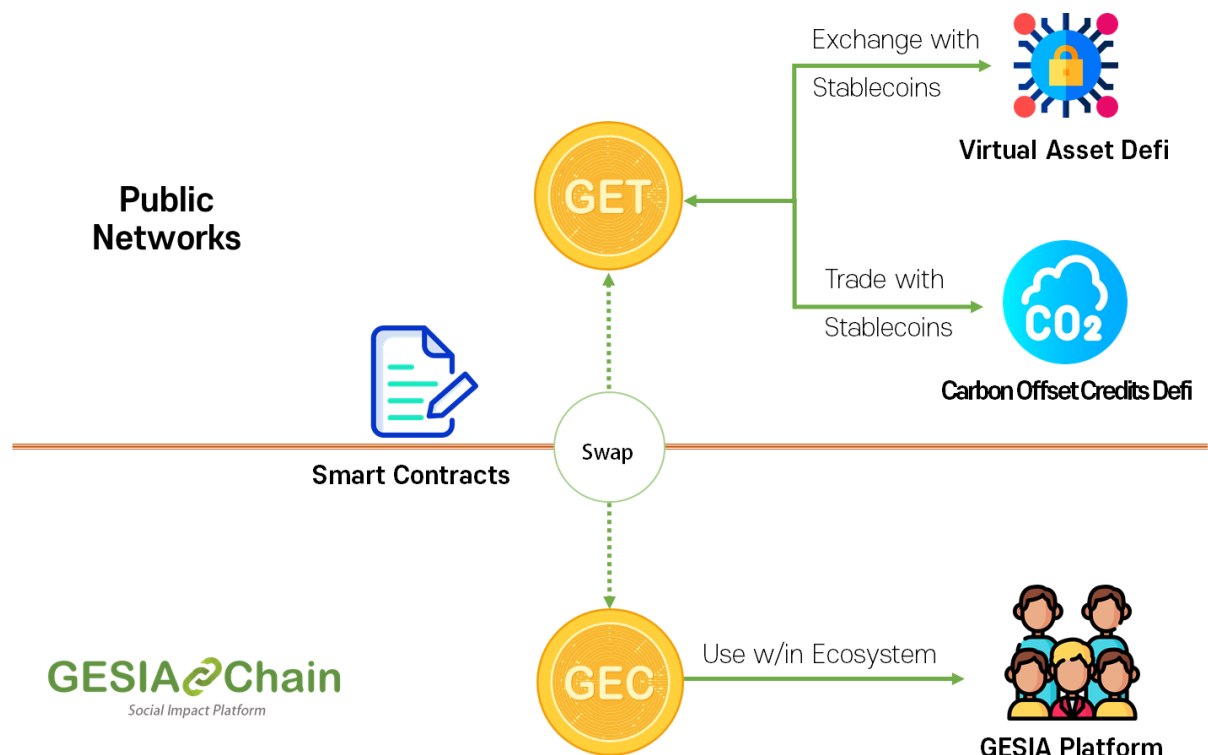
[Example of Dynamic NFT]

TOKEN ECONOMY

4. Token Economy

Anyone who wishes to participate GESIA Platform may procure the ERC-20 standard token, GET, which will be listed on several virtual asset exchanges and decentralized exchanges for easier access by members. The primary role of this token is to function as a channel to participate in the GESIA ecosystem. This token can be exchanged with third-party stable tokens, which have the same value as fiat currency, required for purchasing carbon offset credits and for external transactions such as green technology investment DAO.

GSW plans to issue a total of 5 billion tokens. Of which, 1.5 billion will be reserved for swap activities between GET and GEC, the key currency for the operation of the GESIA chain, so that 1.5 billion tokens will not affect the actual circulation volume.



At this time, GEC exchanged for GET is issued only when GET is staked in a smart contract on the public network. GET will be released from the smart contract, either paid to the initial depositor or retired to the illiquidity pool, depending on how GEC was used.

However, if all the initially allocated floating flow is exhausted and there is a proposal for the expansion of the ecosystem, a certain portion of GET in the reserved pool can be released through the voting of GESIA platform members. In this case, it may affect the circulating volume, as there is an increase in the value of the ecosystem, so the negative effect of the increase in volume can be negated.

Platform name	Green Earth Social Impact Alliance(GESIA)
Cryptocurrency name	Green Earth Community Token
Symbol	GET
Total issuance	5,000,000,000
Reserved for Swap Transaction	1,500,000,000
Non-liquid volume/Total Issue volume	30%

4.1. Distribution of GET

- Initial Liquidity of Ecosystem

A total of 700 million of the total of 5 billion tokens to be issued, or of the 3.5 billion potentially circulating tokens excluding 1.5 billion reserved tokens, will be initially supplied to the ecosystem directly. Seven hundred million tokens are 550 million owned by early investors and 150 million directly from the liquidity supply pool. After that, the remainder of the liquidity supply pool, 1.35 billion, will be gradually proposed to be issued in conjunction with the ecosystem expansion rate and significant business changes, and the final supply will be decided through a vote by GEC owners.

- Allocations for Founders/Teams/Advisors

This is the amount paid to the founding members, development team, and advisors who have contributed to the GESIA project. The allocated tokens will have a lock-up period of 6 months, and then the tokens will gradually be released for ten months at a rate of 10% per month.

- Partnership

For the furtherance of the GESIA project, the 'Green Earth Community Foundation' will be established to solicit professors, researchers, government liaisons, influencers, etc. Through the foundation, GESIA plans to research policy development for environmental movements and the certification system of carbon offset credits. One hundred fifty million tokens will be allocated to fund its establishment, and the amount will also be locked-up for six months. Locked-up tokens will be gradually released for ten months at a rate of 10% per month afterward.

-Marketing

This is the amount allocated to external entities such as legal, accounting, tax, and management consulting that provided services for the GESIA project.

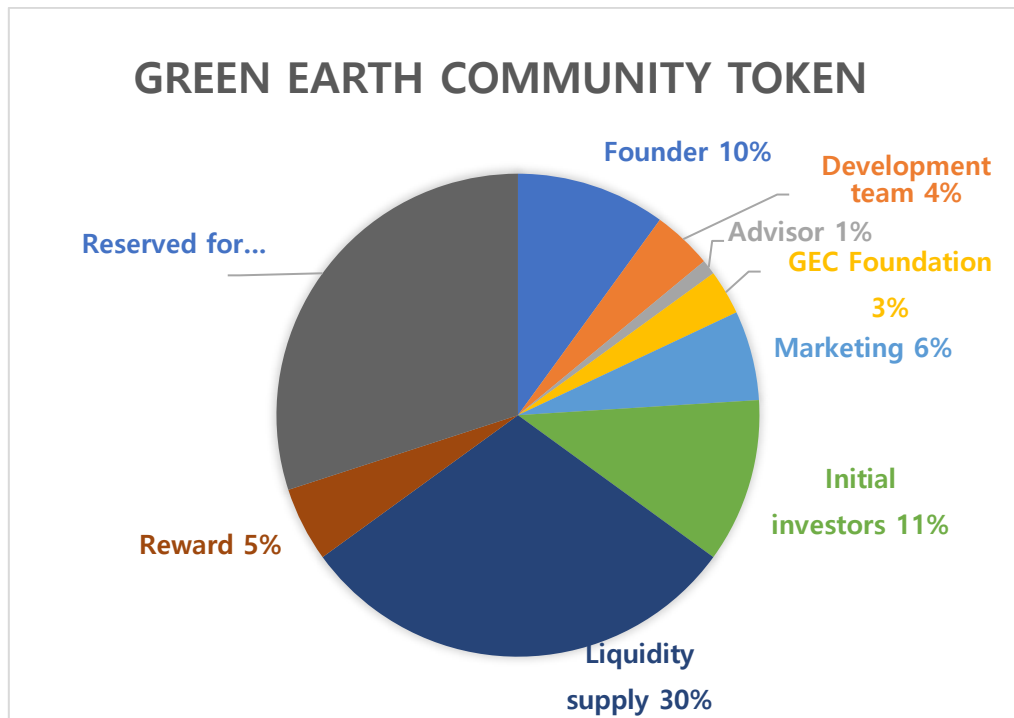
- Early investors

It is the amount allocated to investors who have invested funds for the initial development of the GESIA project. Investors' tokens will also serve as initial liquidity of the GESIA ecosystem so that they may freely liquidate their positions at their will.

- Reward Tokens

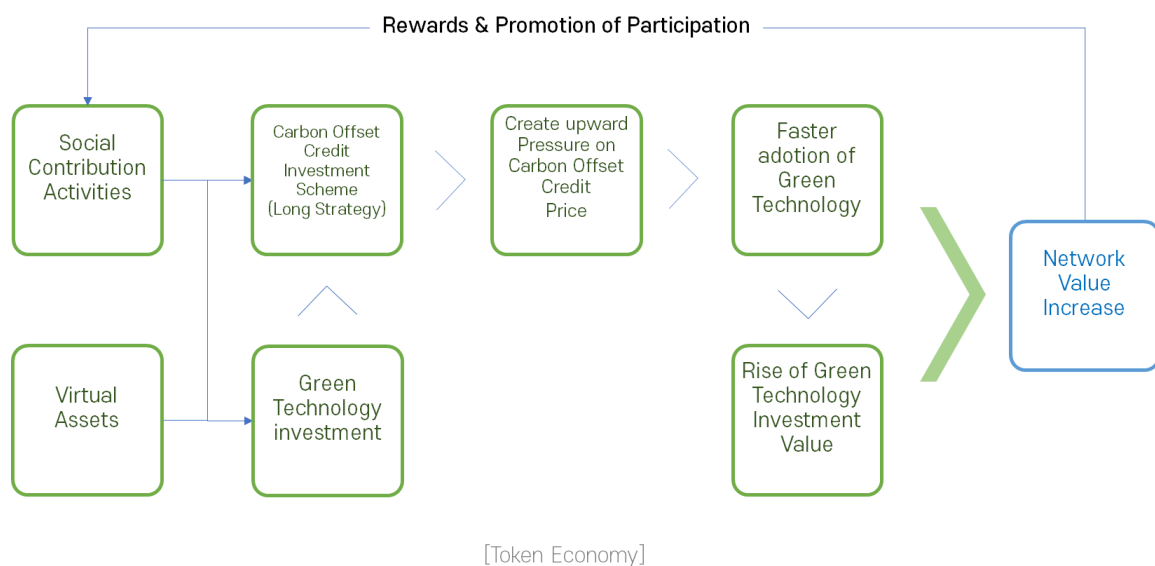
Two hundred fifty million will be allocated to promote and accelerate the participation of nodes that provide initial oracle services to expand the GESIA ecosystem.

Item		Distribution Ratio	Issued quantity
Founder & Team	Founder	10%	500,000,000
	Development Team	4%	200,000,000
	Advisor	1%	50,000,000
Partnership	GEC Foundation	3%	150,000,000
Marketing Expenses		6%	300,000,000
Ecosystem Supply Quantity	Early Investor	11%	550,000,000
	Liquidity Supply	30%	1,500,000,000
	Reward	5%	250,000,000
	Reserved for Swap	30%	1,500,000,000
Total		100%	5,000,000,000



4.2. Reward Program

The value of ERC-20-based GET issued is linked to expanding the network value of the entire ecosystem. To foster the growth of this ecosystem's value, GESIA Chain rewards those who have contributed to the ecosystem with various smart contract usage fees and transaction fees. Reward programs will be carefully designed to incentivize more community members to participate.



As mentioned in the service of the GESIA platform, an intermediary service that allows participants to participate in the carbon offset market actively is suggested. It aims to provide decentralized financial services so green technology companies can commercialize their technologies faster. Like the long-term-oriented synthetic investment strategy, as the GESIA platform continuously procures carbon offset credits to pressurize the upward movement of the price of carbon offset credits, the cost burden of companies to purchase carbon offset credits will be higher. The upward movement of the price of carbon offset credit will, in turn, make the cost of companies purchasing carbon offset credits higher than the cost of investing in green technology so that there will be more incentive to implement green technologies. Thus, the GESIA member's investment in green technology companies will yield appropriate returns.

4.2.1. The continuous reward for the entire ecosystem

The distinctive feature of the GESIA platform is that GETs in circulation are staked and locked in smart contracts to use various services built on the GESIA Chain. GESIA members can use social contribution services and social impact investment services using GEC and will be rewarded with GEC for their contribution to the ecosystem. In other words, even if the ecosystem expands and the number of participants increases, GET's total issuance is fixed. Therefore, as more GEC is used in the ecosystem, the total volume of GET in circulation will be reduced so that the benefits of ecosystem expansion will be returned to GET holders.

Even when GET reserved for swap transactions is released into the circulating volume, it is to purchase carbon offset credits or invest in green technology, which raises the value of the entire ecosystem. In other words, an increase in circulation is proportional to an increase in the value of the entire ecosystem network.

4.2.2. Rewards for participants in the verification process

GESIA Chain adopts the Proof of Authority of the validators as its consensus algorithm, while addressing the centralization criticism of the PoA consensus algorithm by building a systemic and autonomous verifier selection process. Any expert participating in the oracle service of the GESIA chain can become a preliminary candidate for validators (For example, 1000 investment advisors).

Among the preliminary candidates for validators, experts who maintain a certain amount of activity in the ecosystem are randomly selected every 24 hours as validator candidates (For example, 100 experts).

Afterward, a final validator and verifiers are randomly selected from among the validator candidates. When a block is added to the blockchain through final verification and confirmation, a fee is collected within the GESIA chain as a reward. Any residual GEC, which is not subject to settlement, will be paid to the final validator.

4.2.3. Rewards for proposals and votes

The GESIA platform is open to proposals that can contribute to the expansion of ecosystems, and any ecosystem participant can propose. When a proposal considered necessary to expand the ecosystem is proposed, it will be notified to those participating in the GESIA platform. Holders of GEC can cast votes per the number of tokens they own. At this time, GET owners who wish to participate in the voting can participate by exchanging GET for GEC. At this time, voting rights can be delegated to others, and those who participate in voting will receive a reward. All details of the voting process are kept private until the voting results are announced. The result determines whether the proposal is approved or not. The proposer will receive a separate reward if the proposal is approved.

4.3. Roadmap

The GESIA platform allows participants to access their services through their wallets. We want to support the open API bank service composed of the suit of Restful APIs so that various companies can more easily integrate the services we provide into their own services.

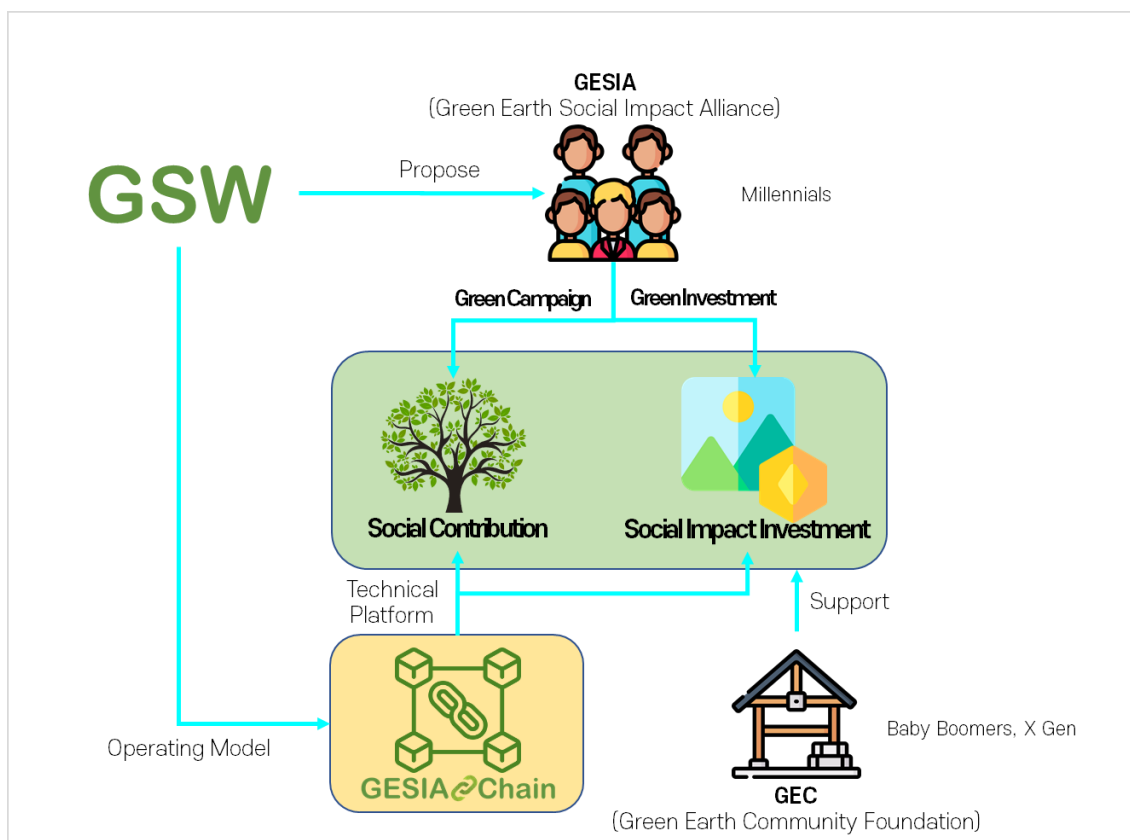
	On-Chain	Off-Chain	Business
2022 4Q	Carbon Offset Credits Architecture		Establish GEC Foundation
2023 1Q	Wrapped Carbon Offset Credits	Provide mileage and Carbon Offset Credit exchange service to at least one travel company	Carbon Offset Credits Trade POC
2023 2Q	Lightning Chain and Swap/NFT Services	Integrated Web service	NFT Green Certificate POC
2023 3Q	Investment DAO Platform	Link external investment information/evaluation information service	Investment Brokerage POC
2023 4Q	Blockchain Oracle	Recruit External Expert	
2024 1Q	Carbon Offset Tokenization	Collect Enterprise-grade API Bank	Information Service POC
2024 2Q		Verification of the system integrity	
2024 4Q			Main Service

GESIA MEMBERS

5. Members

The company that will be responsible for the initial development of the GESIA platform and business is Green Social Wave Company Limited(GSW). GSW was first conceptualized by Ellis Ahn, a fashion model, influencer, and millennial herself, with renowned and respected professors who have advised her on the current status of environmental movements of companies and blockchain experts who also share the vision of Ellis. Soon after, many seasoned people in various sectors joined GSW to improve society.

Separately, the Green Earth Community Foundation, which consists of opinion leaders from academia, politics, related organizations, business, etc., will be established for research and policy development necessary for the growth of this project.



GEC (Green Earth Community)

Item	Name	Main Profil
Founder/ Chairman	Won-Woo Park	<p>C) Professor, College of Business Administration, Seoul National University(SNU)</p> <p>F) Associate Dean of Academic Affairs, College of Business Administration, SNU</p> <p>F) Associate Dean, Graduate School of Business, SNU</p> <p>F) Director, Institute of Labor Relations, SNU</p> <p>F) President of Korea Academy of Business Ethics</p> <p>F) Vice President, Korea Academy of Management</p> <p>F) Managing Director, Korean Academic Society of Business Administration.</p>
Founder/ Board Members	Dong-Jae Kim	<p>C) Professor, Graduate School of International Studies, Yonsei University</p> <p>C) Outside Director, Korean Air (Chair, ESG Committee)</p> <p>F) Non-executive Director, Korea Asset Management Corporation</p> <p>F) Professor, Department of Business Administration, the University of Illinois at Urbana-Champaign</p>
	Environmental Movement Expert	TBA
	Business Liasion	TBA
	Political Liasion	TBA

GSW(Green Social Wave)

Name	Charge	Main profile
Ellis Ahn	Founder/ CMO	<p>Columbia University, USA</p> <p>Social activist (Environmental Issues)</p> <p>Pop Artist (Exhibition held in Saatchi and Lotte)</p> <p>Fashion model</p>
Tae-Hoon Kim	Co-Founder/ CEO	<p>C) Green Social Wave Co-CEO</p> <p>C) CEO of Cyworld Jet</p> <p>C) CEO of Limitless Investment</p> <p>C) Chief Representative of Hancom Town(Metaverse)</p>

Doyle Ahn	Co-Founder/ CEO	<p>C) Green Social Wave Co-CEO</p> <p>C) On the Border Non-resident Director</p> <p>F) CEO of Taemujin Investment</p> <p>F) CEO of HS Startup Investment</p> <p>F) CEO of II Mare</p>
Joong-Geun Choi	CSO	<p>C) Vice-President, Co-Founder of ITISEN Group</p> <p>F) CEO of Open Communication,</p> <p>F) CEO of M31 Andromeda,</p> <p>F) CEO of The TIU</p>
Jeong-hee Park	CTO	<p>C) Head of Green Social Wave R&D</p> <p>C) Managing Director, Shinhan DS Co., Ltd. (SI Division)</p> <p>F) Computer Room Manager, Honam Petroleum Co., Ltd.</p> <p>F) Managing Director, Lotte Information & Communication Co., Ltd. (Overall Card Project)</p> <p>F) Senior Vice President (Head of SI Business Division), Hyundai Information Technology Co., Ltd. (Merged with Lotte Information and Communication)</p>
Simon Kim	Blockchain Architecture	<p>C) CEO of Blockchain-based travel wallet "Waffle"</p> <p>F) Chief architect of the CBDC platform at the Central Bank of The Bahamas</p>
Kwang-Hyun Kim	Blockchain Payment System	<p>C) CEO of Hive Lab</p> <p>- Worked for transportation companies such as Korea Expressway Corporation Hi-Pass, Seoul T-money, etc.</p> <p>- Developed Korea's first virtual asset payment system 'PayCrypto'</p> <p>C) Chairman of Blockchain Subcommittee of Korea Technology Society Foundation</p> <p>F) Co-founder/Internal Auditor Woowa Brothers (Baedal Minjok)</p>
Dae-hoon Lim	Project listing management	<p>C) BPMG CSO (Game Hub, K-Mint Wallet Division)</p> <p>F) Business Development Director, Way2bit (Bora coin planning)</p>

DISCLAIMER

6. DISCLAIMER

1. Legal Statement

(a) This white paper has been prepared for the purpose of providing information on the current general status of the Green Earth Social Impact Alliance platform (hereinafter referred to as the 'Platform'). Project information may change after the date of creation.

(b) Tokens issued by the Platform are applicable to payment tokens and utility tokens but not applicable to asset tokens or financial investment instruments under Capital Markets Act. Therefore, it is considered that Tokens issued by the Platform are not classified as security tokens under Korean law.

(c) Virtual assets or tokens issued by the Platform are not issued as securities, bonds, or collective investment products stipulated in domestic and foreign securities laws. Therefore, this white paper does not correspond to the prospectus for financial investment products such as securities stipulated in each country. In addition, virtual assets or tokens issued by the Platform do not guarantee participation in the revenue generated in relation to the Platform.

(d) This White Paper has not been reviewed or approved by supervisory authorities in domestic and foreign countries.

2. Precautions for the contents of the white paper

(a) The content of this white paper contains forward-looking information about the future of the project, and forward-looking information includes various potential risk factors and uncertainties.

(b) All unpredictable factors such as fluctuations in the global market and economic conditions, the emergence of competitive platforms, fluctuations in token prices, system errors and hacking, and loss of encryption keys are included.

(c) The contents of this white paper do not include full contents of the Platform, virtual assets or tokens issued by the Platform, and audit opinions on laws, accounting, and taxation for practitioners.

3. Disclaimer

The scope of the disclaimer for this white paper and the Platform will include but is not limited to:

1. This white paper is for informational purposes only and does not constitute an offer or solicitation to sell shares or securities on the Platform. Any such offer or solicitation would only be made by a confidential offering memorandum and in accordance with applicable securities and other laws.

None of the information or analyses presented are intended to form the basis for any investment decision, and no specific recommendations are intended. Accordingly, this white paper does not constitute investment advice or counsel, or solicitation for investment in any security. This white paper does not constitute or form part of, and should not be construed as, any offer for sale or subscription of, or any invitation to offer to buy or subscribe for, any securities, nor should it or any part of it form the basis of or be relied on in any connection with, any contract or commitment whatsoever. Any information included in this document, such as the Platform, should not be copied, modified, and distributed illegally without prior consent from the Green Social Wave(GSW; hereinafter referred to as the 'Company');

2. Please consult your professional financial, investment, and tax advisers before making any investment in Green Earth Community Token(hereinafter referred to as the 'GET Token'). This white paper does not provide investment or financial advice, and does not constitute any relations between the buyer and the seller;
- 3 GET Token are not an official or legally binding investment of any kind. Due to unforeseen circumstances, the objectives outlined in this white paper may be altered. Despite the fact that the Company intends to implement all the points outlined in this white paper, all persons and parties involved in the purchase of tokens do so at their own risk;
4. This white paper includes certain estimates with respect to the future performance of the Platform. Such estimates reflect various assumptions by the directors concerning the future performance of the Company. These assumptions may or may not prove to be correct. No representations are made as to the accuracy of such assumptions or the estimates based thereon;
5. Virtual assets, Blockchain technologies have been the subject of scrutiny by various regulatory bodies around the world. The functioning of the Platform could be impacted by one or more regulatory inquiries or actions, including but not limited to restrictions on the use of cryptocurrencies;
6. This white paper shall not legally bind the Company. The directors, officers, employees, and advisors of the Company shall neither warrant the accuracy and reliability of this white papers nor hold any responsibility thereof;
7. GET Token does not provide the right to receive profit, income, or other payments or revenues attributable to the acquisition, holding, management, disposal, or redemption. Any right, interest, ownership, or privileges on the Platform or any other property on the Company can expire in whole or in part;
8. The risk of loss in trading or holding virtual assets or tokens can be substantial. Therefore, you should carefully consider whether trading or holding virtual assets is suitable for you in light of your financial condition. Forks and changes in the relevant network may result in significant and sudden changes to the value and/or usability of Virtual assets or tokens. The Company is not responsible for such loss of value of Virtual assets or tokens and bears no responsibility for any loss incurred by you while using the Platform or in any direct or indirect connection to the

Platform;

9. GET Token is issued on the Ethereum blockchain ERC-20. In this regard, any failure or incorrect operation of the Ethereum Protocol may disrupt the transaction network in unexpected ways;
10. Technologies related to blockchain networks are the subject of supervision and control by various regulatory bodies across the globe. GET Token may become subject to their regulation policy, including restrictions on the use or ownership of GET Token, slow or limit the functionality or limit possibilities of GET Token redemption in the future;
11. Virtual assets including GET Token and other associated and related technologies are new and untested and may become outside of your or the Company's control. As such the Company shall be excused and non-liaible for the nonperformance by the Company including temporary interruption or permanent termination of your access to the Platform Services due to adverse changes in the market or related technology;
12. Hackers or other groups or organizations may attempt to interfere with your account or the Platform performance in any number of ways, including without limitation denial of service attacks, Sybil attacks, spoofing, smurfing, malware attacks, or consensus-based attacks;
13. There is a risk that the Platform may unintentionally include weaknesses or bugs in the source code interfering with the use of or causing the loss of token;
14. No person is bound to enter into any contract or binding legal commitment in relation to the sale and purchase of the GET Token or other form of payment is to be accepted on the basis of this white paper;
15. Any agreement between the distributor and you as a purchaser, and in relation to any sale and purchase, of the GET Token is to be governed by only a separate document setting out the terms and conditions (the "T&Cs") of such agreement. In the event of any inconsistencies between the T&Cs and this white paper, the former shall prevail;
16. You are not eligible and you will not be able to purchase any GET Token through its token sale if you are a citizen or resident (tax or otherwise) of any country or state where the purchase of GET Token or similar Virtual asset and tokens may be prohibited or the token sale is deemed to be not compliant with the applicable laws and regulations of your country. Citizens or residents of countries where coin sales are restricted may be subject to penalties for the purchase of coins;
17. The publication, distribution, or dissemination of this white paper does not imply that the applicable laws of any jurisdiction, regulatory requirements, or rules have complied. The Company and its respective past, present, and future employees, officers, directors, contractors, consultants, equity holders, suppliers, vendors, service providers, parent companies, subsidiaries, affiliates, agents, representatives, predecessors, successors and will not be liable for any damages of any kind, including, but not limited to, direct, consequential, incidental, special or indirect damages (including, but not limited to, lost profits, loss of revenue or third-party loss whether foreseeable or otherwise, trading losses or damages that result from use or loss of use of the website) in tort, contract or otherwise, arising out of or in connection with any acceptance of, or reliance on,

- the white paper or any part thereof by purchasers of GET Token;
18. The Company may amend, add, or delete any part of this white paper for any reason or at any time, and will make it public, as the case may be, on its website, blog, or otherwise, where any amendment, addition or deletion is made;
 19. The Company may at any time, refuse the request of token purchase where the participant, who wishes to involve in the token transactions in connection with this white paper, provides insufficient, inaccurate, or misleading identity information or the participant is suspected of being a restricted participant;
 20. There shall not be allowed any transactions of Virtual assets or tokens, with the fund attained from criminal gains such as drug dealing or for the purpose of money laundering or terrorism financing. Where any of the Restricted Participants purchase tokens or makes a purchase with the illegal and unauthorized fund and purpose, such transactions may be prohibited or restricted at any time and the purchase of such tokens may be canceled or invalidated;
 21. This white paper and related documents may be translated into other languages, and the white paper in English shall be given priority in the event of conflicting its interpretation;
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