



# Innovative Finance Inclusion

## Single.Earth – CO2 footprint compensation (tokens for sustainability)

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**Author: Dr. Aleksandra Kekkonen**

**Affiliation: Estonian Business School**

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## Abstract

# SINGLE.EARTH

Single.Earth is a GreenTech company with significant VC (Venture Capital) funding for scientific research and innovation development in nature-based solutions. The company mission is to integrate the protection of natural resources into the modern economy, making it a new standard of sustainability. The team combines ecological sciences, big data analysis, machine learning, blockchain, and geospatial engineering to assess the entire Earth for its ecosystem services and give nature's features a digital value in MERIT tokens. In addition to carbon, the company aims to introduce biodiversity into the equation.

## Keywords

FinTech, GreenTech, Information Technology, Environmental Services, Tokens, Blockchain.





# 1 The Organization

Single.Earth is a tokenization platform that enables forests, wetlands, and other planetary resources to generate profit for landowners by selling them as carbon and biodiversity credits, instead of raw materials.

It helps solve the climate crisis by building a digital twin of nature that reveals how much any area of ecological significance in the world absorbs CO2 and retains biodiversity, allowing tokens to be used to trade as an investment instrument, compensate for CO2 footprint, or contribute to climate goals. Single.Earth was established Tallinn, Estonia, in 2019 as “a fintech startup tokenizing the world's nature to make it the new gold”<sup>1</sup>.

The company is a digital platform for landowners that connects them with businesses that will pay them to preserve trees to balance out their own carbon footprints and become “carbon neutral”.

<https://www.forbes.com/sites/johnkoetsier/2021/01/30/the-stock-exchange-of-nature-a-startup-is-tokenizing-the-planet-to-save-it/>



## 2 MERIT Token

Single.Earth plans to build a ‘digital twin’ of nature that reveals how much any area of ecological significance in the world absorbs CO2 and retains biodiversity. Using environmental data such as satellite imagery, it aims to build global carbon models on which to base its token marketplace, generating profits through carbon compensations, ‘mining’ a new MERIT token for every 100 kg of CO2 sequestered in a specific forest or biodiverse area (fig.1).

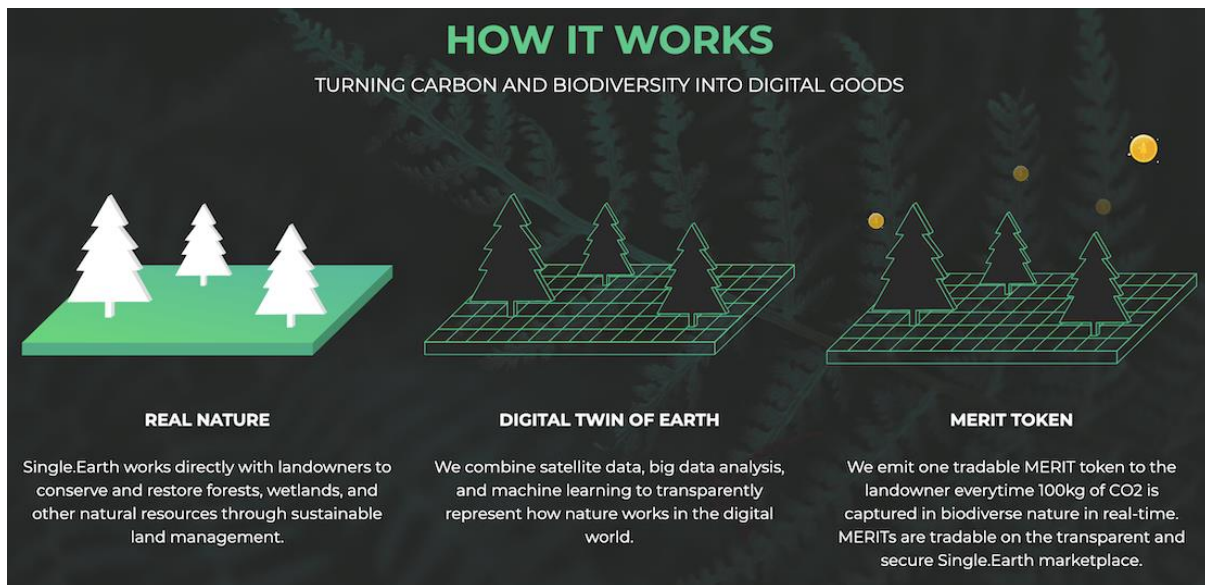


Figure 1. How it works (source <https://www.single.earth/> )

MERIT is a virtual currency (a token) developed and issued by Single.Earth. It represents – and protects – the work nature does to sustain life by removing carbon and hosting biodiversity. MERIT tokens are issued to landowners for maintaining and increasing their land's ecological value and carbon capture.

The MERIT tokens are then used to trade, compensate for a CO2 footprint, or contribute to climate goals (as the token is ‘used up’ and cannot be traded anymore). Companies, organizations, and eventually individuals will be able purchase these tokens and own fractional amounts of natural resources, rewarded with carbon and biodiversity offsets. The company says the market for carbon credits is estimated to be worth more than \$50 billion by 2030<sup>2</sup>.

While MERIT tokens are used to contribute to nature conservation and theoretically compensate for one's footprint, **the company does not claim to be a carbon credit**. Unlike

2 [Single.Earth to link carbon credits to crypto token market, raises \\$7.9M from EQT Ventures](#) <sup>2</sup>



carbon offset credits, MERIT tokens represent a financial contribution to nature preservation, and they do not grant permission to offset greenhouse gas emissions or biodiversity loss elsewhere.

Because of the traceability of blockchain and its link to a tradable token, payment to landowners would be immediate.

The mechanism works according to following steps:

1. Owners enter their land into the Single.Earth marketplace
2. Single.Earth sends biologists out to assess the ecological value of the land
3. Single.Earth tokenizes the property
4. Investors buy those tokens, getting carbon offset credits
5. Those investors now legally own a percentage of that land
6. The tokens generate profits through carbon offsets, but can also increase or decrease in value over time and be traded like any other commodity
7. Single.Earth monitors the land via satellite, air quality sensors, and more to ensure the value of the investment is maintained

## 2.1 Success points

Single.Earth raised a first fund of \$3.9 million from the founders of European software unicorn Pipedrive<sup>3</sup>, a CRM startup<sup>4</sup>. Single.Earth raised a total of \$7.9 million in funding over two rounds. Their latest funding was raised on Jul 6, 2021, from a Seed round<sup>5</sup>.

Single.Earth is funded by 3 investors. Icebreaker.vc<sup>6</sup> and EQT Ventures<sup>7</sup> are the most recent investors.

3 <https://www.pipedrive.com/en/blog/crm-for-startups> <sup>3</sup>

4 CRM for startups is software that caters to the particular needs of companies in the early stages of growth.<sup>4</sup>

5 [Single.Earth to link carbon credits to crypto token market, raises \\$7.9M from EQT Ventures](#) <sup>5</sup>

6 Icebreaker.vc is a venture capital firm and community on a mission to help build strong tech companies. <sup>6</sup>  
<https://www.icebreaker.vc/>

7 EQT Ventures is the venture capital arm of the Swedish company EQT Partners. In May 2016, EQT Ventures <sup>7</sup> announced its first EUR 566m fund. The fund makes minority equity investments in tech companies with growth potential in Europe and the US ranging between EUR 3 million and EUR 75 million.  
<https://eqtventures.com/>



## 2.2 Awards and recognition

- Mastercard Lighthouse FINITIV program<sup>8</sup> selected Single.Earth among 14 other startups for its Fall 2021 class<sup>9</sup>.
- Forbes publication<sup>10</sup>: The Stock Exchange Of Nature? A Startup Is Tokenizing The Planet To Save It
- Reuters publication<sup>11</sup>: Estonian firm seeks finance from forests.
- Single.Earth has been chosen as one of the shortlisted innovators by the World Economic Forum in the Trillion Trees challenge<sup>12</sup> and as one of the Tech with Heart projects by Atlas of the Future<sup>13</sup>.

## 3 References

### 3.1 Links to website(s) and social media

[Single.Earth website](#)

[Single.Earth Facebook](#)

[Single.Earth Instagram](#)

8 FINITIV is a free program designed to catalyze symbiotic partnerships between fintechs, Mastercard, and <sup>8</sup> Tier 1 Nordic partners. Each five-month the program hosts workshops for 15+ fintechs, and brings banks, investors, advisors and fintechs together to explore partnerships via open innovation.

<https://mclighthouse.com/women-led-and-sustainable-startups-stand-out-among-the-strong-lineup-for-this-autumns-edition-of-mastercard-lighthouse-finitiv/>

9 <https://www.single.earth/blog/lighthouse-announcement/>

10 <https://www.forbes.com/sites/johnkoetsier/2021/01/30/the-stock-exchange-of-nature-a-startup-is-tokenizing-the-planet-to-save-it/?sh=46a385dc5aba>

11 <sup>11</sup>

[https://www.reuters.com/video/watch/idOVDVVKWH7?fbclid=IwAR23\\_Ro\\_kAC\\_3t25J4cYEN4nCm4rKdD3A6it\\_uGSD1qVXQ9ShGEykFhdoSM](https://www.reuters.com/video/watch/idOVDVVKWH7?fbclid=IwAR23_Ro_kAC_3t25J4cYEN4nCm4rKdD3A6it_uGSD1qVXQ9ShGEykFhdoSM)

12 UpLink Trillion Trees is sourcing innovative solutions to conserve, restore and grow a trillion trees and is <sup>12</sup> calling on ecopreneurs to step up and share their approach to accelerate the UN Decade on Ecosystem Restoration. The World Economic Forum's Trillion Tree Platform, aimed to help the global movement to conserve, restore and grow 1 trillion trees by 2030. <https://uplink.weforum.org/uplink/s/uplink-issue/a002o0000vOf09AAC/trillion-trees>

13 Atlas of the Future is a website that highlights projects that are real, innovative, with long-term vision <sup>13</sup> and committed to lasting positive impact, no matter which field they belong. Their mission is to 'Democratise the Future', meaning that everyone benefits from the improvements that Society is achieving through technology, politics, art, science and other fields. <https://atlasofthefuture.org/project/single-earth/>



[Single.Earth LinkedIn](#)

### 3.2 Relevant publications

*You think money grows on trees? Estonian firm seeks finance from forests*

<https://www.reuters.com/article/us-estonia-tech-nature/you-think-money-grows-on-trees-estonian-firm-seeks-finance-from-forests-idUSKBN29K17N>

*We are excited to welcome Single.Earth into the Icebreaker family!*

<https://medium.com/icebreakercv/we-are-excited-to-welcome-single-earth-into-the-icebreaker-family-4c133dc9c0c2>

## Discussion Questions

1. Read the following article and discuss the type of Single.Earth tokens.

Oliveira, Luis & Zavolokina, Liudmila & Bauer, Ingrid & Schwabe, Gerhard. (2018). To Token or not to Token: Tools for Understanding Blockchain Tokens.

[https://www.researchgate.net/publication/328162731\\_To\\_Token\\_or\\_not\\_to\\_Token\\_Tools\\_for\\_Understanding\\_Blockchain\\_Tokens](https://www.researchgate.net/publication/328162731_To_Token_or_not_to_Token_Tools_for_Understanding_Blockchain_Tokens)

2. Why the proposed tokens do not harm the planet, as Bitcoin<sup>14</sup>?
3. Discuss if the company and their business model can really contribute to sustainability? Name pros and cons. Find strong and weak sides of the idea. What else except forest could be used to sequester CO2?

<sup>14</sup> 14 Teaching note commentary: old, so-called proof of work (PoW) technologies like Bitcoin, which have very high energy consumption. MERIT is built using the Solana, which is carbon neutral as of 2021. Solana uses a PoS (proof of stake) proofing mechanism instead of PoW. With Solana, the power use per transaction is 10 million times smaller than for Bitcoin and [16 times smaller](#) than its closest rival technology. It can be even compared to your usual [Google search](#). Blockchain technology is the perfect solution for the challenges of transparency and trust hanging over voluntary carbon markets.



## Appendix

### Appendix1: TEDx presentation

#### **How making money will save the planet | Merit Valdsalu | TEDxTallinn**

The baseline for nature protection changes fast - our children will protect what they know exists. But it is already much less than in our childhood. How can we start valuing nature for more than just raw materials? Can a new financial system help us solving this problem? Merit Valdsalu is the CEO and co-founder of Single.Earth, a startup tokenizing the world's nature to integrate nature protection into the economy. As an ex-Pipedrive employee, she's passionate about scalable cutting-edge technology, which she today combines with her love for the environment at Single.Earth to save the world from an ecological collapse. This talk was given at a TEDx event using the TED conference format but independently organized by a local community.

<https://www.youtube.com/watch?v=ZRuhheJKdGU&feature=youtu.be>





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