

GreenVault

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“Gold gets dug out of the ground in Africa, or someplace. Then we melt it down, dig another hole, bury it again and pay people to stand around guarding it.”

- Warren Buffett, 1998

Mining is among the most toxic industries in the world and yet, conservation efforts have largely failed to make a meaningful impact¹. For this reason, impact investors, who manage \$500B, are unable to gain exposure to gold. GreenVault solves this problem by tokenizing unmined gold. Modern technology can prove how much gold is in a mine, so why waste resources and destroy nature? GreenVault audits and verifies the content of a mine and then issues “ORE” tokens to conserve it. Thus, ORE is a currency backed by the conservation of gold-mines.

1. Background

For 7,000 years, traditional gold mining has been the only way to derive value from gold deposits². Since gold does not rust or decay, nearly all of the gold that has been mined is still possessed today, and currently it remains largely in bank vaults. Most gold deposits have been mined over history, and so mining techniques have become increasingly invasive and destructive, especially with the use of modern chemicals.

³The mining sector as a whole is the top producer of toxic waste. It is also one of the greatest destroyers of biodiversity and is responsible for 10% of global greenhouse gas emissions. And that’s just from legal mining. Illegal mining is unrecorded, unregulated, and is monumentally more destructive. In Africa and South America, illegal mining projects frequently enslave children to use as laborers and subject them to toxic working conditions that dramatically decrease their life expectancy. Nonetheless, gold produced in these regions still finds its way into Western markets. Reducing the impact of gold mining is a high priority for environmental groups. However, they have failed to meaningfully improve the mining industry.

GreenVault, a newly-formed Decentralized Autonomous Organization (DAO), focuses on environmentally-friendly and profitable solutions to the problems of mining. GreenVault’s core members consist of mining executives, geologists, conservationists, financial experts, and cutting-edge blockchain engineers, all with decades of experience. All of them aim to create an alternative to the destructive gold mining model with a new environmentally conscious cryptocurrency.

GreenVault has unearthed the potential of mining without mining by measuring the content of specific gold deposits to a high accuracy. GreenVault specializes in measuring placer gold deposits which form two-thirds of the world's known gold deposits. Placer mining is the practice of separating heavily eroded minerals like gold from sand or gravel⁴. With the gold content of a mine established, its value can be determined. By conserving and tokenizing the gold deposits, GreenVault removes the need to extract in

¹ https://www.epa.gov/sites/default/files/2014-01/documents/5-industry_2012_tri_na_overview_document.pdf

² Rae, Alexander, “Exploration and Development of Placer Gold Projects”

³ <https://www.tandfonline.com/doi/full/10.1080/20430795.2021.1974242>

⁴ <https://www.nps.gov/yuch/learn/historyculture/placer-mining.htm>

order to access the gold's value. GreenVault's Trust will legally protect the land through local governments, conservation organizations, and non-profit organizations. Preserving our environment has never been more imperative. A dramatic shift in the mining industry will lay the foundation for a new era of gold currency where conservation can be more profitable than traditional mining.

2. Contemporary Gold Industry

2.1 Gold in Bank Vaults

There is no need for more gold to go into bank vaults. There are more than an estimated 205,238 tonnes of gold sitting in bank vaults, government reserves, and personal collections. The weight of the gold sitting in the reserves of the world's central banks alone—is an estimated 34,592 tonnes of gold, according to the World Gold Council in 2021⁵. Try to picture 25,000 cars sitting in a bank vault. The largest known bank vault is the New York Federal Reserve in New York City, and accounts for 25% of the world's vaulted gold. The Bank of England contains another 20% of the world's vaulted gold.

Gold Above the Ground (approximate figures at the end of 2021)⁶

Jewelry	94,464 tonnes	46%
Bars & Coins (including gold backed ETFs)	45,456 tonnes	22%
Central Banks	34,592 tonnes	17%
Other	30,726 tonnes	15%

2.2 Tangible Gold

Tangible gold is a separate market. The top use for traditionally mined gold is jewelry, and industry (specially electronics) which is around 46% of the gold market, according to the World Gold Council.⁷ Tangible gold, such as gold bars, is helpful in places where people don't have access to financial markets or do not trust their capital markets. While there remains a use for tangible gold, GreenVault will focus on the market for stored gold, making it accessible through digitally traded vehicles.

2.3 Mineable Gold

Gold Below the Ground is estimated at 54,000 tonnes.

⁵ <https://www.gold.org/goldhub/data/above-ground-stocks>

⁶ <https://www.gold.org/goldhub/data/above-ground-stocks>

⁷ <https://www.gold.org/>

Gold mine production is responsible for 75% of the gold supplied each year, according to the World Gold Council.⁸ GreenVault plans to reach out to regions beyond North America to secure areas in Canada, Australia, South America and Africa, for expanding its acquired land areas.

Worldwide Mined gold	2,500 to 3,000 tonnes added annually
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3. The GreenVault Solution

3.1. Proof of Resource

GreenVault can prove the existence of gold without harming the ecosystem due to its partnership with mining experts who have over 35 years of experience in prospecting and verifying gold deposits. They utilize a unique technology to bring gold deposits into verifiable production, faster and cheaper than any traditional gold mining operation.⁹ This provides GreenVault with the unique ability to assess and acquire profitable gold mines at a very low price.¹⁰

There are several factors that contribute to the low cost of verification. GreenVault focuses on placer gold deposits that are formed and deposited by the flow of water. Alluvial gold deposits come from weather, erosion, and the transportation of gold and are known as “placer mines”. The heavier gold remains with alluvial deposits, while the lighter minerals are swept away by water in a stream or river.

Placer mines are what GreenVault seeks to estimate and vault, and thankfully they comprise two-thirds of the world’s gold mines.¹¹ GreenVault can determine the content of these types of mines to within a 15% margin of error by drilling a grid of 6-inch holes and sampling the dirt. Properly managed by GreenVault’s environmental geologists, small scale bulk sampling could then be used to determine production costs with minimal environmental impact.

In the initial verification procedure, samples are typically collected in 0.5-1.0 meter intervals from a given drill site and then sent to the on-site lab for processing. The drill geologists observe and log soil types, identifying features such as color, lithology, roundness, and clay content. The samples are then weighed and measured by volume and processed to a high-grade concentrate of heavy minerals including the gold. From this process, the gold content can be mapped out at each level of depth.

Since GreenVault only extracts enough material to verify their assessments, the costs of many of the traditional stages of mining are removed.¹² GreenVault will operate similarly to gold mining companies in their exploration and development phase to determine as accurately as possible the size of the gold deposits, its quality, and the plans for extraction. However, there will no longer be a need to pay for the operational, decommissioning and post-closure phases of a gold mine.

3.2 Preserving Ecological Services

GreenVault is making a commitment to preserve ecological services in the land areas it acquires for gold conservation. In creating safe and secure protection for the gold in the earth’s natural vault, it will enable

⁸ <https://www.gold.org/about-gold/gold-supply>

⁹ <https://raediasexplorations.com/>

¹⁰ Rae, Alexander “Exploration and Development of Placer Gold Projects”

¹¹ <https://pubs.usgs.gov/bul/1857g/report.pdf>

¹² <https://www.tandfonline.com/doi/full/10.1080/20430795.2021.1974242>

local communities to continue to benefit from the land. Keeping the gold in the ground will have the propensity to increase **wild areas, allow wildlife** to remain in their natural habitat, deter deforestation, and minimize the likelihood for diseases and contaminants such as mercury to spread from leftover mining waste. By storing gold in a natural vault, it will also be able to mitigate external costs such as regulating greenhouse gas emissions, water pollution, deforestation, and other damages to ecological systems.

a. Carbon Emissions and Greenhouse Gasses

GreenVault will be built on top of blockchains that use a Proof of Stake consensus algorithm, since these blockchains have almost no environmental impact. Instead of consuming electricity and computing power to verify transactions, they use financial stakes to guarantee legitimacy.¹³ GreenVault will not just be carbon neutral it will be carbon-negative. Gold miners, using traditional methods, are among the top emitters of greenhouse gasses in the mining sector. One ounce of gold produces an average of 0.8 tonnes of carbon dioxide. GreenVault's method of exploring unmined gold has near-zero carbon emissions, and its conservation efforts on acquired land are deeply carbon-negative. These efforts vary according to the ecosystem and community.

b. Water Usage

In traditional gold mining, processing ore demands high water usage. In legal mining, an average of 75,000 gallons of water can be required to extract an ounce of gold.¹⁴ Illegal mining can increase that to an average of 115,000 gallons of water. With GreenVault's approach, water consumption per ounce conserved goes to nearly zero.

c. Land Lease Extensions

Conserved gold provides an opportunity for the extended exploration of land leases. Their extension could lead to increased investment for the owners of the land if cash flows into their hands.

3.3 Transforming Weaknesses in Gold Mining

Traditionally mined gold tends to have low accountability and rampant illegal mining. InSight Crime¹⁵, a non-profit foundation dedicated to the threat of national and citizen security in Latin America and the Caribbean, wrote that traditional gold mining is "the fastest growing criminal economy." The consequences are far reaching, including the forced relocation of communities, and the spread of criminal activities like money laundering, human trafficking and drug smuggling. Mining also has strong social impacts. Communities around the world are affected by illegal mining in different ways, from forced migration¹⁶ to growing criminal economies that become places where sex trafficking, drugs and violence are common. Illegal gold mining also supplies armed

¹³ <https://www.coinbase.com/learn/crypto-basics/what-is-proof-of-work-or-proof-of-stake>

¹⁴ https://pubs.usgs.gov/of/2012/1085/pdf/ofr2012-1085_v1-1.pdf

¹⁵ <https://insightcrime.org/news/analysis/gamechangers-2019-illegal-mining-criminal-economy/>

¹⁶

https://aida-americas.org/en/preserving-bolivia-s-high-andean-lakes-sources-of-life?gclid=Cj0KCQiAzMGNBhCyARISANpUkzMqT1vpaPEjAghY4C1ehULmKsLk-wiy-vLw-U6mY49MmWExGWDOG7AaAkpjEALw_wcB

groups with gold, which represents 60% of the money used for fueling conflict. In some countries in Latin America, illegal gold represents up to 80% of the gold that is exploited

^{17 18}GreenVault anticipates that conserved gold will reduce illegal gold mining and give local communities economic access to their resources without the need for mining.

4. GreenVault ORE

4.1 Digital Token Backed by an Asset

Blockchain technology will allow investors to trade the value of conserved gold mines via the digital token ORE. With GreenVault, the gold will continue as always to stay underground: it's just this time instead of going into a vault, the gold can remain in the earth where it belongs. We define "conserved gold" or "unmined gold" as gold that remains at its source in the earth and is not extracted. This paradigm shift could create a new era for gold, focusing on conservation.

4.2 Digital Token Valuation

Conserved gold will likely trade at a lower valuation than physical gold on the world's cryptocurrency exchanges because of the lack of expenses associated with extraction. By monetizing resources without the costly extraction, the token may be further subsidized by carbon and biodiversity credits. Market conditions can further increase the value of ORE, as gold consumption, inflation, and international conflict increases. Historically, gold performs well during times of inflation, according to the World Gold Council.¹⁹ When inflation rises, the price of consumer goods goes up, and the dollar loses value. Consequently, the value of gold, other commodities, and cryptocurrencies tend to increase because they have no dependency on a central bank and their resources are limited.²⁰

4.3 Benefits of a New Investor Option

Investors put \$47 billion into gold ETFs in the first 10 months of 2020, up 203% from the previous year, according to Reuters Johannesburg/Toronto.²¹ Investors will now have the option to invest in the digital token ORE, gain exposure to this asset class, add more diversity to their portfolios, and take advantage of the new blockchain technology while making an environmentally progressive choice. Gold-backed cryptocurrencies are up 60% in 2022, and have just reached a market capitalization of \$1B.

4.4 Market Size

The US, Canada, and Australia possess 300 million ounces of unmined placer gold eligible for GreenVault's acquisition. GreenVault aims to become a pre-eminent cryptocurrency for digitally-traded gold. The buyers of GreenVault ORE would be impact investors and crypto traders, whose respective

¹⁷ <https://insightcrime.org/news/analysis/gamechangers-2019-illegal-mining-criminal-economy/>

¹⁸ <https://aida-americas.org/en/blog/understanding-the-true-costs-of-mining-in-latin-america>

¹⁹ <https://www.gold.org/goldhub/research/gold-outlook-2022>

²⁰ White, Russell, "How Inflation Affects Gold Price" updated Jan. 2022

²¹ <https://www.reuters.com/article/us-mining-gold-emissions-idUKKBN2832ZN>

market sizes are \$500B and \$2T²². Impact investors have no way to gain exposure to gold except through ORE. If impact investors diversified 1% of their portfolio into ORE, the market cap would become \$5B. For reference, gold ETFs are valued at \$150B.

5. Tokenomics Overview

GreenVault's coin is called ORE, and there will be 4 billion coins initially minted. The initial allocation will be split in half, 50% will go to the GreenVault's Decentralized Autonomous Organization (DAO) treasury and 50% will go to early investors, partners, and an ICO (initial coin offering) / IDO (initial DEX offering) to the public. The treasury will be controlled by ORE coin holders and will be used to fund GreenVault's acquisitions and operations. The DAO treasury will ultimately consist of ORE tokens, tokenized conservation rights, stable coins (USDC), as well as tokenized biodiversity and carbon credits.

GreenVault does not intend for ORE to be a stablecoin—it has a fixed supply and each token will be denominated by greater and greater amounts of unmined gold. Inflation is only induced by community vote to acquire gold mines, and the community is incentivized to ensure the acquisition is worth more than the tokens sold to acquire it. In this way, the token consistently grows in value.

In 2022, GreenVault will be acquiring from the Manhattan Gulch mine 2 million ounces of indicated gold reserves as documented in their 43-101 disclosure forms²³. This will add value to the coin as early investors purchase ORE. Upon community vote, future acquisitions of gold mines will be funded by liquidating ORE, bio-credits, and carbon-credits from the treasury. Modeling the percentage of ORE which needs to be liquidated in order to fund future projects, GreenVault anticipates that this number will exponentially decrease after a few successful projects drive up the price of the ORE coin. This means the early holders will not face large dilution events.

6. Conclusion

In summary, GreenVault offers a gold investment that is fundamentally unique. GreenVault's vision is to make conservation profitable by vaulting millions and millions of ounces of gold while maintaining ecosystems and preserving the world's landscapes. In short, a paradigm shift for the gold mining industry. GreenVault will launch ORE, a verifiable digital asset traded using blockchain technology in the spring of 2022.

For more information please visit:

www.greenvault.finance

²² https://thegiin.org/assets/Sizing%20the%20Impact%20Investing%20Market_webfile.pdf
<https://mrmr.cim.org/media/1017/national-instrument-43-101.pdf>

²³ <https://mrmr.cim.org/media/1017/national-instrument-43-101.pdf>