



WHITE PAPER

**CRYPTO-TOKEN BACKED BY
CERTIFIED EMERALDS**

v.01.03.2018



GEMERA WHITE PAPER

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Abstract

GEMERA is a global project that issues crypto-tokens backed by Colombian emeralds which are insured and stored in a security vault in Hong Kong.

The crypto-token is called GEMERA, its symbol is GEMA, and it is supported by blockchain technology.

Every emerald is certified by recognized gem laboratories and has a value in GEMERAs according to its weight and quality.

GEMERAs can be used as a store of value and can be transferred among digital wallets. The token holder can convert GEMERAs into other crypto-tokens, cryptocurrencies or fiat currencies, and also has the option to redeem the tokens for emeralds.

The GEMERA Project has developed a transparent process which guarantees the safety and traceability of the emeralds throughout the value chain.



1. Purpose

GEMERA's main purpose is to directly connect the emerald producers and the end customers, through the benefits granted by the blockchain technology, providing in that manner a more democratic, transparent and accessible way to invest in these gemstones.

As GEMERA works hand in hand with emerald producers, it binds only with those companies with good environmental practices in the extraction of emeralds and with corporate social responsibility standards that seek for the integrity of their workers, as well as other stakeholders, and the improvement of their quality of life.

By creating a direct connection between investors and emeralds through the tokens, GEMERA Project also contributes to the strength of the Colombian emerald industry and helps communities nearby achieve sustainable development.

2. Benefits

- **GEMERA tokens can be redeemed for emeralds**

The GEMERA holder can select emeralds from the marketplace at market.gemera.io, where pictures, a 360° video, characteristics, certification, and the GEMERA price of every gemstone is available. The emeralds will be sent to the holder's country of residence by secured mail or can be collected directly in Hong Kong.

- **Store of value**

The emeralds are stored in a safety vault in a trustworthy safe deposit box company in Hong Kong. This vault has a transparent security storage protocol which guarantees the safety of the asset. Due to their scarcity and uniqueness, the value of Colombian emeralds typically increases over time, making them an excellent asset for investment.

- **Trade GEMERAs in exchanges**

GEMERA can be converted into fiat or cryptocurrencies in exchanges.

- **Transfer GEMERAs among wallets**

GEMERA tokens can be transferred instantly to other compatible wallets.



3. About Emeralds

Emeralds are excellent as a store of value due to their beauty, scarcity, and rarity. The most famous emeralds come from Colombia, because of the unique characteristics that make them desired and valuable all over the world.

The following are some facts about Colombian emeralds:

- Emeralds produced in Colombia are well known internationally for their beauty and quality.
- Colombian emeralds stand out for their perfect saturation, unique shine, and vivid color.
- For more than five centuries, Colombia has been the world's biggest producer of emeralds.
- Colombian emeralds have reached almost every part of the world. The main purchasers in 2016 were the United States, Hong Kong, Thailand, India, Israel, Italy, Switzerland, Germany, and Japan, among others.
- Colombian emeralds were formed from hydrothermal deposits; that is, seabeds that are now mountains. This gives them unique characteristics that define their value.
- The environmental footprint of emerald mining is lower in comparison to other types of mining because it is a manual process, and no mercury or cyanide is necessary for it.

4. GEMERA Token

GEMERAs are created through Proof of Assets (PoA), which means tokens will be issued depending on the availability of emeralds. There is not a maximum of GEMERA tokens issued.

4.1. Blockchain Technology

GEMERA tokens are supported by the Ethereum blockchain and use a standard ERC 20 smart contract.

Token name: GEMERA	Token symbol: GEMA	Decimal places: 18	Limit of issued tokens: no limit
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According to www.ethereum.org , "Ethereum is a decentralized platform that runs smart contracts: applications that run exactly as programmed without any possibility of downtime, censorship, fraud



or third-party interference. These apps run on a custom built blockchain, an enormously powerful shared global infrastructure that can move value around and represent the ownership of property."

Ethereum is one of the most used, established, safe and proven platforms for smart contracts. For these reasons, the GEMERA Project chose this technology to support the GEMERA tokens.

4.2. GEMERA Token Distribution

Every time a significant batch of emeralds is stored in a security vault in Hong Kong, a token distribution to acquire GEMERA tokens is open during a period of time, which is made available at www.gemera.io.

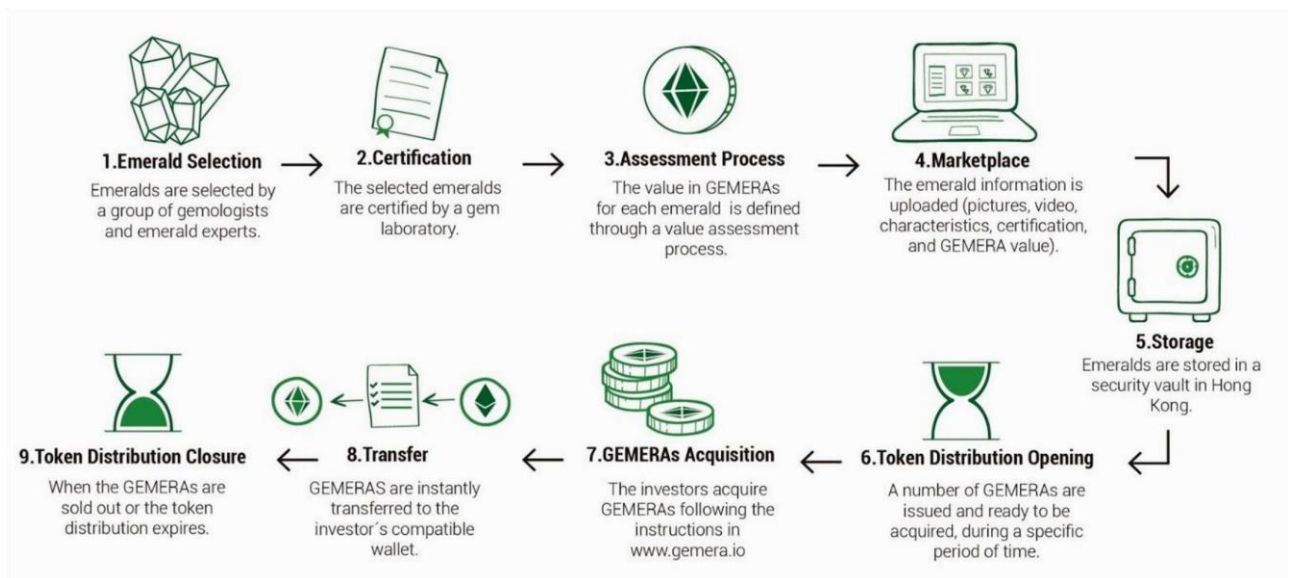


Figure 1. Token Distribution Process Flow

4.3. Uses of GEMERA Tokens

- GEMERAs can be converted into fiat or cryptocurrencies in exchanges*
- GEMERAs can be transferred instantly to other compatible wallets
- GEMERAs can be redeemed for physical emeralds

*This option is not available in the early stage of the GEMERA Project, and its success depends on the integration with exchanges.



4.4. Marketplace

A marketplace in the GEMERA Project website (market.gemera.io) is available for GEMERA holders who want to redeem their tokens into real emeralds. Every stone is accompanied with precise information: name, characteristics, price in GEMERAs, certification, as well as photographs from different angles, and a 360° video.

The total value of the emeralds in the marketplace will always be equal or higher than the number of GEMERAs issued in the blockchain.

4.5. Redemption

The redemption of GEMERAs for emeralds will be available once a year, and it is composed of the following steps:

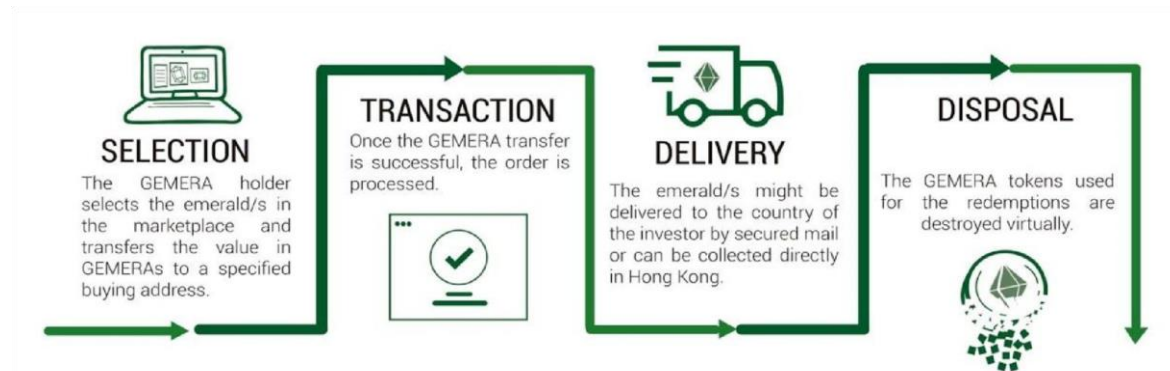


Figure 2. Redemption Process Flow

4.6. Property, transfer, and exchange

GEMERA tokens can be converted into fiat or cryptocurrencies in exchanges* or be transferred instantly to other compatible wallets. *This option is not available in the early stage of the GEMERA Project, and its success depends on the integration with exchanges.

5. Other Aspects

5.1 Storage and Insurance

The emeralds are stored in a safety vault of a safe deposit box company in Hong Kong, and insured by trusted providers. The GEMERA Project also has a rigorous protocol for introducing new



emeralds to the safety vault or withdrawing the ones to be redeemed. This is to guarantee its stakeholders the transparency of the process and the safety of the gems.

5.2. Audit

To reinforce the transparency of the process, a yearly audit takes place by a trusted company, which carries out the following process:

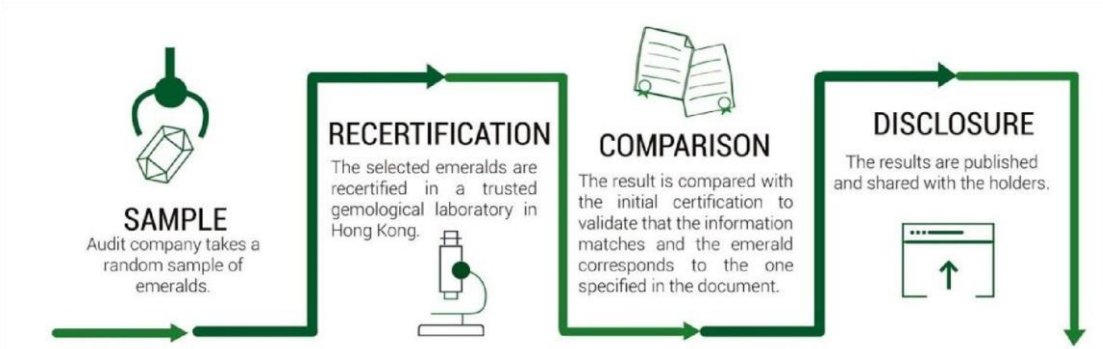


Figure 3. Audit Process Flow

5.3. Operating Expenses

A yearly fee is assigned to cover the costs of storage, insurance, operational and administrative processes, as well as legal affairs. This fee is obtained through the release of some new tokens (1%) every year. Thus, to keep the consistency between the Blockchain and the marketplace (market.gemera.io), the GEMERA value of each emerald will be increased up to 1% per year, in the marketplace.

5.4. Governance

The GEMERA Project decision-making process is carried out among the members of the project, always considering the benefit of its stakeholders.

6. GEMERA Setting Value Process

Carrying out an evaluation of emeralds quality is not an easy job since there are different factors to take into account when giving value to every stone; for instance, it is possible to find emeralds of the same carat and cut with a large difference in price.

That is why an analysis, as well as a clear and transparent methodology, is necessary to determine the quality of the emeralds and therefore their price in GEMERA tokens. To accomplish this, the



Project designed a model along with a team of specialists in fine Colombian emeralds and followed the parameters of the Gemological Institute of America (GIA) for some of the characteristics of these gemstones.

6.1. Quality Parameters

To analyze the quality of an emerald, the GEMERA Project takes into account the color, clarity, enhancement and cut parameters, which are habitually used by gemologists and gemstone traders to determine the value of emeralds. Their support has been paramount in designing the present model.

Below, the description of each one of these parameters and how the GEMERA Project links them in its model for setting the price of the emeralds:

- **Color**

It is considered the most important feature in the price estimation of emeralds, and it is divided into three categories: hue, tone, and saturation, according to the GIA.

The GEMERA Project considers the tone of the emeralds, classified in intense, medium and light to make a first quality classification. This is a subjective process.

- **Clarity**

Emeralds usually have certain spots within, that affect their clarity and transparency. These spots are known as inclusions. They are divided into three types: crystals, fluids (prints left during the formation of the stone) and fissures. These inclusions are very common and natural, and they are found even in high-quality emeralds, so they are accepted in the jewelry industry;

99% of emeralds have them. Actually, when an emerald is not included, it might mean the stone is not authentic. However, the fewer inclusions an emerald has, it is considered cleaner, so its price rises.

The GEMERA Project considers the Clarity Type III of the GIA. The stones analyzed in this category are almost always included and show eye-visible inclusions. They are classified according to the following clarity grades:

- Eye-Clean: appears clean to the unaided eye.
- Slightly Included: noticeable inclusions apparent to the unaided eye.
- Moderately Included: obvious inclusions very apparent to the unaided eye.
- Heavily Included: prominent inclusions that have a negative effect on appearance and durability.
- Severely Included: prominent inclusions that have a severe effect on appearance, durability, or both.



- **Enhancement**

Emeralds undergo an enhancement process with essential oils, resins or wax in fissures and cavities to improve the clarity of the stone.

Fissures are defined as small fractures within the stone that do not compromise the beauty of emeralds significantly. However, when a stone has a large number of fissures, it is common for it to be treated to reduce their visibility and therefore enhance the beauty and durability of the gem.

Cavities, on the other hand, are wide fractures present on the surface of some emeralds, which can affect the durability of the stone significantly. These cavities always have to be treated.

In that order, the price of an emerald changes depending on the amount of enhancement and whether it is applied to fissures or cavities (in cases where the analyzed gemstones have them).

To assess the enhancement level, the GEMERA Project is based on the category scale designed by the [Laboratory Manual Harmonisation Committee \(LMHC\)](#), which gathers the best laboratories in the world and whose purpose is to “create a general philosophy for proper nomenclature and disclosure for laboratories as well to initiate and suggest ‘preferable’ language to be used in the trade,” and the [World Jewelry Confederation \(CIBJO\)](#), whose mission is “to represent the interest of all individuals, organisations and companies earning their livelihoods from jewelry, gemstones and precious metals, and to encourage harmonisation, promote international cooperation in the jewelry industry, and to consider issues which concern the trade worldwide”.

The following is the proposed quantification:

Table 1. Quantification and Identification of Enhancement

Status	No fissure present in stone	No or insignificant filler in fissures	Quantification and identification of filler in fissures		
Report alphanumeric			F1 - Minor	F2 - Moderate	F3 - Significant
Report text	None	Insignificant indications of clarity enhancement	Indications of minor clarity enhancement.	Indications of moderate clarity enhancement.	Indications of significant clarity enhancement

Table 2. Emerald Quantification and Identification of Filled Cavities

Any emerald that shows indications of having been modified through the filling of extensive fractures and/or cavities are classified in the following manner:

Condition	Quantification and identification of filler in fractures/cavities		
Report alphanumeric	C1 - Minor	C2 - Moderate	C3 - Significant
Report text	A minor amount of resin/wax in cavities	Moderate amount of resin/wax in cavities	A significant amount of resin/wax in cavities

As cavities require a major enhancement process, the emeralds with these conditions will receive a reduction in the estimated price, as can be seen in the [Emeralds Value Assessment Process](#).

- **Cut**

This refers to the various forms the emerald is cut into, based on its original characteristics and the desired piece of jewelry that is to be made. The cut gives the shape to the stone, such as round, princess, cushion, emerald, oval, radiant, asscher, marquise, heart or pear, among others. Emerald, cushion, and pear are the most appreciated shapes in the market, in the mentioned order.

Cabochon is the name of the gemstones with a round and convex form. Taking into account that these stones are polished and not cut into facets, they are less appreciated. The project will reduce a percentage of the stones price of this type.

- **Carat Weight**

Although the weight of an emerald might be decisive to set up a price, it is not the main factor that determines the quality of the gemstone. However, the larger an emerald is the higher is its price per carat.

Therefore GEMERA Project uses the carat weight to establish the price of the emeralds, according to the Tone Range, along with the Clarity and Enhancement Classification, as specified in the [Emeralds Value Assessment Process](#).

7. Conclusion

Blockchain technology is a revolutionary new way for people to make different sorts of transactions, in a secure, decentralized, and transparent way.



Through this technology, the GEMERA Project wants to offer to investors crypto-tokens that can be used as a store of value, and also the guarantee that the tokens are based on real emeralds which can be purchased by investors with their GEMERA tokens, during the redemption period. For this reason, GEMERA is one of the most trustworthy crypto-tokens on the market.

The GEMERA Project focuses on the transparency of the process throughout its value chain: the selection of the emeralds, the certification every stone must have, the storage, how the emerald's quality and its value in GEMERA tokens are determined, and how the holders can redeem them, among other aspects of equal importance.

The GEMERA Project is more than a token. GEMERA is more than emeralds. GEMERA is trust, value, and transparency.

