

# Paparuda White Paper

*A cloud, every day, forever*

A project by Maxime Berthou, developed by Parallel.art

Authors

Maxime Berthou, Alex Czetwertynski , Nicolas Wierinck

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# Abstract

« If climate change is the shark, then water is the teeth » James P. Bruce

The word Paparuda refers to a *pagan rain ritual*, performed in the lands now known as Romania and Bulgaria, calling for rain in times of drought.

Water has not always been a scarce resource, but today - and even more so tomorrow - its value as [a commodity](#) will increase, and water-rich countries and regions will be sitting on the liquid gold of future generations. But water scarcity is not a necessity, it's more of a factor of geo-political jockeying, and nowhere is this more visible than in what floats above our heads: clouds.

The Paparuda project is the brainchild of french artist [Maxime Berthou](#). On June 7th, 2011 he launched a series of balloons containing silver iodine to force clouds that were traversing the US-Canada border to rain before reaching the US. This geo-engineering performance led him to take stock of the lack of legal status currently enjoyed by clouds. Since then, he has been researching ways of putting clouds squarely on the complex legal, juridical, political, and social chess board of water resources, and considering them as a key part of our hydro-future.

Fast forward to 2022, the advent of cryptocurrencies, NFTs and DAOs finally provide a set of economic, creative, and organizational tools that allow Berthou's vision to be fulfilled.

The project rests on three key verticals: NFTs (a cloud a day forever), a DAO (PaparudAO), and a token (Make It Rain - RAIN). These three pillars and their common articulation is described in detail below.

## Preamble: Water in the 21st Century

Water has always been a somewhat « public » resource. Just like air, it has not become a privatized entity, by and large. Water is also a complex « [hyperobject](#) » (to borrow Timothy Morton's idiom), that can take many forms beyond its actual material states. For example, it would be hard to compare a river in New Zealand endowed with legal rights to territorial sea waters to public utility water coming out of a faucet to the mountain spring ending in a stream running through private and public land. In other words, water exists on many planes, legal, geo-political, economical, practical, religious, poetic, and more.

The Paparuda project places itself at the intersection of all these incarnations of water, but if anything it places itself in the closest proximity to water as a means of survival, a critical resource for humanity, and, in our current [capitalocene](#), as a commodity. As an art project that is by definition socially *engaged*, Paparuda is able to translate issues between spheres, making economic issues poetic, and social justice issues economical. It is an art project in the broad sense of the term, an engagement with our time, and its most critical issues, in ways that elevate the discourse beyond parties, vested interests, and cronyism.

One might be inclined to critique a project that is dedicated to the welfare of the planet for being fully built on a “cryptoeconomy”, engaging with practices that have often been criticized as scammy, Ponzi schemes, and unregulated neo-liberalism of the worst kind. It is worth arguing that if cryptoeconomics aim “to reduce social trust assumptions by creating systems where we introduce explicit economic incentives for good behavior and economic penalties for bad behavior.” (Vitalik Buterin 2018), then this “parallel economy” allows us to create multiple incentive tiers for “good behavior”. In other words, one can satisfy the need to be a good steward of our planet, a caring member of humanity, and be interested simultaneously in ensuring one’s economic interests are tended to.

## 0/Three interconnected parts

In the following paragraphs, we will describe how an infinite series of Cloud NFTs, a cryptocurrency called RAIN, and the PaparuDAO interact. As an introductory statement, we want to quickly introduce the connection between these three cornerstones of the Paparuda project.

- Cloud NFTs act as the key digital asset that is sold on a bespoke marketplace. They are bought in currency x (still to be determined), which enters the treasury of the DAO. A portion of each sale fuels the liquidity pools of the RAIN token, while the rest is used for the PaparuDAO activities. Each NFT is given a specific value in « water » (the amount of rain a given cloud can produce, derived from the scientific data used to model the Cloud NFT), which correlates to a value X in RAIN tokens, itself indexed on the value of water. An NFT holder has immediate access to the DAO. But they are given the choice to make their cloud « rain » (aka *burn* the NFT) and receive RAIN tokens in correlation to the price of water of their now defunct cloud. Only a certain quantity of RAIN allows for continued membership of the DAO.
- The PaparuDAO is the creator and guardian of all funds (coming from NFT sales as well as the RAIN treasury), and the home of the Paparuda community. The DAO’s goal is to manage the funds and allocate them to meaningful projects related to water management, projects that will be selected based on community votes. However, the main short-term goals of the DAO are to establish legal status for clouds, an « International Cloud day », and put clouds in UNESCO World Heritage. It will also allocate funds to meaningful art, geoengineering, and yet unforeseen projects and research related to water as a resource and a commodity.
- The « MAKE IT RAIN » (RAIN) token is a utility token that is created by the PaparuDAO. See below for a more detailed outline of the tokenomics. In short, a fixed quantity of RAIN tokens will be emitted, capped at a value that is correlated to the total supply of atmospheric water in the world (a known and stable quantity, between land and atmosphere). Tokens will be distributed across team, community, and DAO, and the economics of the “Currency” will help develop larger projects as their value increases.

# 1/CLOUD NFTS - « A cloud, every day, forever »

Following the model established by the [Nouns project](#), we will be creating a new cloud every day, forever.

## NFT Creation

Every day, a new Cloud is created. Each cloud will be generated from actual scientific cloud data, converting this data into a 3d volume that can be rendered using photorealistic rendering pipelines. Thus, each cloud is unique, in size, in shape, in lighting conditions. What unites all the singular clouds is that they are all modeled as water-carrying clouds specifically. A set of traits (see [here](#)) will be implemented in each cloud, informed by the traits of real-world clouds, and will help collectors understand how the clouds they collect are connected to others in the ongoing cloud creation process.

The final output is a single image, but as the project continues to develop, a 3D version will be airdropped to collectors so that they can view their clouds in AR. We hope to start creating community moments where all community members will be able to create a cloudy, water-heavy sky through their individual clouds combined.

## NFT Sales

The NFTs will be sold on the Paparuda website, via a custom auction mechanism, mimicking the NOUNS approach, i.e an auction mechanism. The sale is open for x amount of time, and buyers bid on the cloud until a winner has been declared. The sale starts at a price of 0, but each cloud is evaluated pre-sale to establish its theoretical price in water. In other words, if this cloud were to exist, how much water would it carry, and as such, what would be its value on the water commodity market? This critical piece of information immediately attributes a value to the cloud as this value can also be represented in RAIN tokens.

For example: a small cloud represents 37 cubic meters, but a storm Cumulonimbus can carry up to 51 000 cubic meters of water. The value in RAIN of each Cloud NFT can vary widely.

## To HODL or not to HODL

As an owner of a cloud NFT, one benefits from holding the cloud as an asset. Holding entitles the owner direct access to the PaparuDAO, which means governance rights, fund allocation, project proposal, and a vote on each project being submitted for funding (see below for more detail on the DAO mechanics). However one might also decide to not hold. In this case, two options are available: sell or “Make it Rain”.

Selling is self-explanatory and is the equivalent to the sale of any smart contract token, including the transfer of one's access to the DAO. Royalties on secondary market sales are allocated to the PaparuDAO.

A second option is to “burn” the asset, which we call “Make it Rain”. In essence, this releases the “water” from the cloud and transforms it into RAIN tokens. Here the NFT owner essentially exchanges the cloud for its “water value” (as established when the cloud was created) to the equivalent value in RAIN tokens. As we will discuss further, RAIN tokens exist in direct correlation to the amount of freshwater available in the world.

By exchanging the NFT against tokens, a new type of support of the Paparuda ecosystem is enacted, because holding RAIN is also a way to increase the value of RAIN itself, thus elevating the value of the DAO's treasury and increasing its ability to leverage RAIN as an asset to be used to resolve water management crises.

## NFT Fund Distribution

For each NFT, a portion of the proceeds will be distributed to the creators of the project, as authorship rights and compensation. The distribution will be split between Maxime Berthou, Parallel, and [insert artist developing Cloud pipeline]

## Art NFT x Utility NFT

It is important to note that cloud NFTs are both art and utility. In other words, the cloud images generated every day will be imbued with aesthetic qualities that will make them desirable. We have no qualms with any buyer wanting to own an NFT but not wanting any part in the DAO. It is however an inherent quality of the NFT to be a “key” to meaningful action within the climate crisis. Acting both as a rare asset (only one cloud will ever exist within the same trait combination matrix) and a governance token, the Cloud NFTs are a voice as much as they are a possession.

## 2/PAPARUDAO

*“What may have the most impact on the future isn't decentralized digital technology alone, but the governance patterns it culturally normalizes. Patterns could be defined as events, methods, or ways of being that recur. They reciprocate their environment. They are something that a world shapes and that shapes a world in turn, like intervals of sloping sand dunes formed from wind currents.”* From the Zodiac Wiki [Patterns page](#)

The PaparuDAO is an Impact DAO, a Grand DAO, and an Arts DAO all rolled into one, where community discussions occur within a token gated community dedicated to managing financial resources to advance water management and art as a force for common good. In time, a DAO constitution will be created to describe all goals, methodologies, and governance mechanisms involved in the running of the DAO. For the purpose of this white paper, a series of important points that pertain to the overall Paparuda project are outlined below.

The DAO exists for a few key reasons

- Community building around art projects focused on water management,
- The establishment of a legal status for clouds
- Financial support to communities in hydric stress, as well as soft-geoengineering when needed.
- And the support and development of art projects, exhibitions, research, and events related to the above list of topics.

To fund the above (non-exhaustive) list of topics, the DAO will maintain a treasury. This treasury will be comprised of a mix of RAIN tokens, stablecoins, and the cryptocurrency of the blockchain partner we will be launching on.

The DAO will employ a series of community managers, project leads, social media and marketing managers, producers, and any other staff necessary for both the optimal operation of the DAO, but also the execution of the projects selected by the community.

Governance will be organized via voting mechanisms using tools such as Snapshot.

## Proposals

Proposing projects for the DAO to act upon will follow a set of guidelines as outlined below. It can only be assumed that members of the DAO will feel very engaged and passionate about the topics they want to act upon, and thus certain methodologies will be put in place to filter proposals before they are put up for a vote. There is also a limit to the number of projects the DAO can support.

- 50% of the monthly budget is dedicated to projects proposed by the DAO advisory board and project founders. The entire community votes on proposals.
- 50% of the monthly budget is dedicated to projects proposed by the DAO community. Each project is reviewed by the advisory board and then put to a community-wide vote.
- If a project is put forth by either the advisory board or the community and it requires 100% of the monthly budget (or is even wider in scope and financial needs), a vote is held to approve the decision to move forward.

*Protocol :*

Each project must be submitted according to a protocol (to be determined) so as to avoid poorly developed ideas or simply proposals that are not relevant to the mission of the DAO.

Concrete project examples per category

*Legal :*

- Establishing a legal status for clouds so that they can belong to everyone, and grinding to the halt the process of commodification of the commons. This requires legal research (a large part of which has already been done by the Paparuda team), lobbying efforts, travel, and potential legal fees.

*Art :*

- A film about the *Paparuda* project, from the early days in 2011 to the full deployment of the DAO, NFTs, and RAIN, as well as the various projects accomplished by the endeavor.

*Educational :*

- Research funding in water management, economic questions related to water, etc.
- Financing for conferences, teaching, and seminars to inform the wider public about the issues at hand.

*Field Actions:*

- Cleaning of dirty aquifers and waterways.
- Forest sanctuarisation (soft geo-engineering)
- Reforestation

*Indemnification:*

- Indemnification of populations under hydric stress (farmers, communities without consistent water supplies, etc)

It is worth mentioning that the DAO organization is both open (anyone can propose, comment, or discuss any proposal, regardless of role within the DAO) and imbued with considerable responsibility. The power to leverage economic tools made possible through Web3 architectures is unique to our time and will continue to be an evolving experiment in social structures established for the greater good.

## Voting

In an effort to avoid the power of a vote being tied to DAO members with more RAIN tokens than others, votes will be in a 1-to-1 relationship with NFTs rather than RAIN. Only one NFT can be held per wallet, and one NFT is issued daily. For any actor to attempt to take advantage of the voting process, multiple wallets would have to be created, successfully win multiple actions, and subsequently, do so for days on end. If such an actor decided to put this plan into motion, mechanisms would be put in place to prevent any vote to subvert the purpose of the DAO. These mechanisms will be outlined in detail in the DAO's founding constitution.

## The Advisory Board

To ensure that the DAO's projects are considered from as many angles as possible (legal, scientific, artistic, feasibility, financial, etc.) our advisory board will be constituted by experts in a variety of domains. Their role is both to propose and analyze proposals. They will be remunerated by the DAO, and responsible for the vetting of all DAO activities.

As they are critical members of the community and an essential part of the mission, new members will have to be agreed upon by the existing board, and leaving members will have to be replaced in short order.

(For a list of current board members see Annex 1 below.)



## 3/RAIN TOKENOMICS

*This is a brief outline of the RAIN tokenomics. A more detailed overview will be released closer to the genesis date. PLEASE NOTE THAT RAIN TOKENS WILL NOT BE CREATED UNTIL THE PAPARUDA PROJECT HAS PROVEN ITS ABILITY TO GENERATE IMPACT THROUGH MEANINGFUL COMMUNITY BUILDING.*

RAIN tokens are more than speculative assets. They represent an investment in the Paparuda project, and in consequence, in a new type of economy where art, water management, ecology, and finance exist in a circular relationship, feeding each other to stay whole and do the maximum amount of good without operating within the existing structures of non-profits, NGOs, art galleries and ESG investment portfolios.

### Token Supply

The token supply of RAIN is fixed at 135,097,113 tokens (One hundred and thirty-five million, ninety-seven thousand one hundred and thirteen). There are as many RAIN tokens as there is fresh water in the earth's atmosphere. This is a fixed number, often expressed in a unit called "Acre Feet" (1 Acre Feet = 1233.48 cubic meters). This "pegging" of the RAIN token supply to the atmospheric water supply allows maintaining a non-arbitrary de-inflationary status to the coin without giving it fake scarcity.

### Token Value

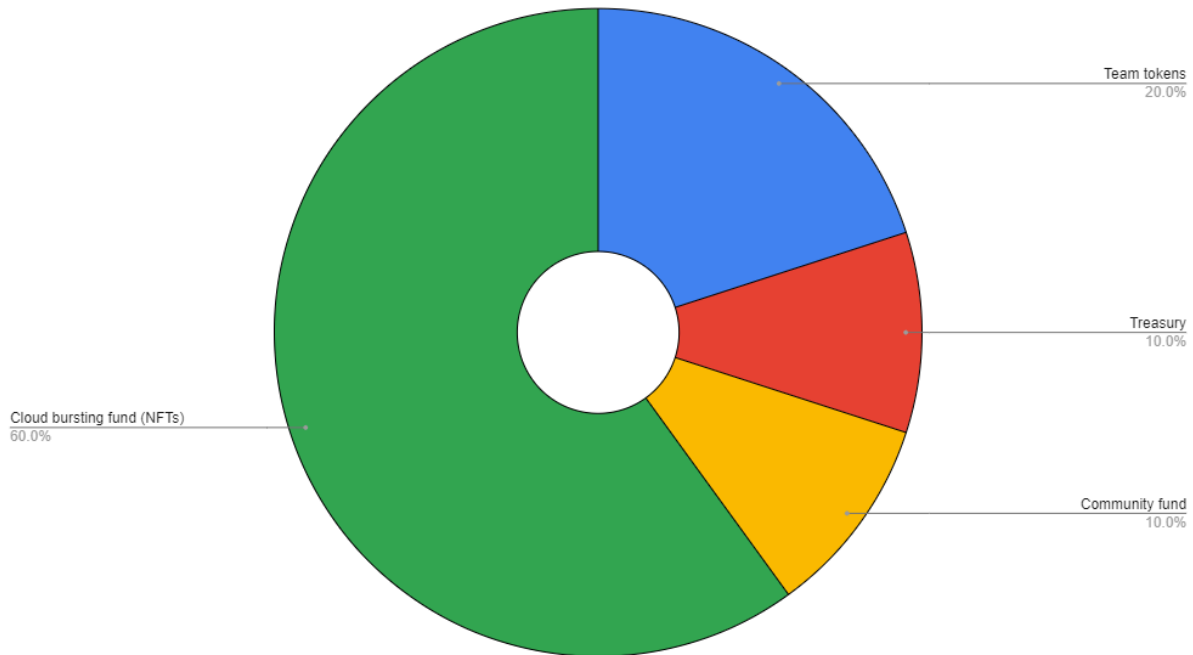
The value of a single RAIN token (and hence the market cap) will be determined by the price, on the commodity market, of one cubic meter of water. This number will be determined in sync with the Genesis minting of the full token supply. One RAIN will then be tied to the price of one cubic meter of water at that time, after which its value will fluctuate following market forces.

*As an illustration, if the current price of an Acre foot (1233,48 cubic meters) of water was \$3300 today, a RAIN token would be worth \$2.67. However a decision will be made by the founding team to price the RAIN token at a potential of \$0.0267 to underscore the overvaluation of water in our current economy, and that "overvaluation factor" will help determine to what extent the price of water is out of sync with its existence as a common good.*

## Token Distribution

The initial token distribution will be set as outlined below :

Token Distribution



- The founding team is allocated 20%, of which portions might be sold to seed investors in the project.
- The treasury will hold 10%, which will be used to fund projects and run the DAO
- The community fund will hold 10%, which will be used to grow awareness around the project, engage with supporters, running campaigns, etc.
- The Cloud Bursting Fund is the pool of tokens attributed to NFT holders deciding to “burn” or “rain” their cloud NFTs. 10% of the value of each NFT in RAIN is put back into the Cloud Bursting Fund so that it might regenerate.

These funds will be able to balance each other on a regular basis, via a community vote. If for example, we notice that the majority of Cloud NFT owners are holders, we may move funds from the Cloud Bursting Fund to the treasury.

These rules will be determined by the founding team and set into the DAO guidelines.

## Liquidity

To allow the RAIN tokens to be exchanged on the open market, the founding team will commit to creating appropriately sized liquidity pools on at least the principal Decentralized Exchanges (Uniswap, Curve, Balancer,..). As the project grows, sums will be allocated to listing RAIN on centralized exchanges (Coinbase, Binance).

## CONCLUSION

As we put in place the architecture of a circular *cryptoeconomy* that is fueled by art, community, and a sense of stewardship, it becomes a replicable template that can be adapted to a variety of common goods (waves, sand, air, etc). The goal of this first project is to set the groundwork for this type of endeavor, successfully operate it and fine-tune it, and replicate it as a battle-tested approach to developing deep, incentive-driven, art forward, community-operated projects that, in the end, care mostly about giving back to the planet and its inhabitants. Our ambition is to propose new virtuous economic models that provide alternative approaches to global issues.

# ANNEX 1: Advisory Board

## Maxime Berthou

<https://linktr.ee/maximeberthou>

Catalan artist born in 1981. He graduated from the Ecole Supérieure d'Art in Aix-en-Provence before joining the post-graduate course at the Fresnoy Studio National des Arts Contemporains in Tourcoing and then taking a pre-doctoral course at the Arts Décoratifs in Paris.

His artistic practice consists mainly of making [film essays](#) based on performative gestures. However, he sometimes explores other forms of narrative to transcribe his performances: storytelling, documentary theater, literary essays, and photography. Whatever the form is chosen, the intention remains the same: to share complex or unspeakable artistic issues through simple and accessible stories.

His work is part of practice-based research overlaying an artistic framework and a scientific one. Notably, laureates of the [Andy Warhol Foundation](#) and the [Villa Albertine](#) in 2021, his works have been presented in numerous solo and group exhibitions, cinemas and theaters worldwide such as Centre Pompidou Paris, New Orleans Jazz Museum, Telic Gallery Los Angeles, Matucana 100 Santiago de Chile, MSUM Ljubljana, Wrocław biennale.

## Fabienne Quilleré-Majzoub

<https://iode.univ-rennes1.fr/interlocuteurs/fabienne-majzoub-quillere>

Professor-Researcher, [IODE \(Institut de l'Ouest : Droit et Europe\)](#), CNRS UMR 6262, Université de Rennes 1.

She is the author of “*L'eau dans tous ses états juridiques : perspectives hydrauliques internationale*” (“*Water in all its legal states : international hydraulic perspectives*”) as well as many peer reviewed articles:

- *The Regulation of the Global Water Services Market, Revue de droit international et de droit comparé*
- *The Human Right to Water: A Legal Comparative Perspective at the International, Regional and Domestic Level, Revue de droit international et de droit comparé, Cambridge-Antwerp-Portland|Intersentia*
- *L'eau en droit international – Convergences et divergences dans les approches juridiques, Revue de droit international et de droit comparé*
- *Le droit international de l'eau douce au Moyen-Orient – entre souveraineté et coopération*
- *La légitime défense en droit international public*

**Christelle Barthe**

<https://www.aero.obs-mip.fr/>

Expert in cloud physics modeling. She is co-author of more than 40 articles in peer-reviewed journals. She directed the LEFE-IMAGO CELLS programs (development of the electrical diagram of Meso-NH and applications) and LIMA-TROPIC (aerosol-microphysics interactions in tropical cyclones). She was the PI for two of the four actions of the INTERREG5 ReNovRisk-C3 program during which she coordinated the development of a coupled ocean-wave-atmosphere system for modeling tropical cyclones. She is currently coordinating the ANR ICARE program (2022-2025) which aims to better understand how aerosol-microphysics-radiation-electricity interactions control the macroscopic properties of deep convection clouds.

**Mathieu Simonet**

[http://mathieusimonet.com/Mathieu\\_Simonet\\_-\\_Site\\_officiel\\_de\\_l'ecrivain.html](http://mathieusimonet.com/Mathieu_Simonet_-_Site_officiel_de_l'ecrivain.html)

Writer and former lawyer, he proposed the creation of an international cloud day. In his letter to the UN, written in particular with the collaboration of 600 children and adolescents, he also proposed to UNESCO that clouds enter the intangible world heritage.

# ANNEX 2: Water as Commodity

## WATER INDEX

- **The Dow Jones U.S. Water Index** is composed of approximately 29 stocks; it is a [barometer](#) consisting of many international and domestic companies that are affiliated with the water business and have a minimum [market capitalization](#) of \$150 million.
- **The ISE Clean Edge Water Index** was launched in December 2000, and this index represents water distribution, water filtration, flow technology, and other companies specializing in water-related solutions. It contains 35 stocks.
- **The S&P 1500 Water Utilities Index** \*\*is a sub-sector of the [Standard & Poor's](#) 1500 Utilities Index; this index comprises just two companies, American States Water (NYSE: [AWR](#)) and Aqua America (NYSE: [WTR](#)).
- **The S&P Global Water Index** is an index that began in 2001 that contains 50 companies worldwide; their water-related businesses fall into two areas: water [utilities](#) and [infrastructure](#) and water equipment and materials.
- The **World Water Index** (WOWAX) is a global [stock market index](#) established in February 2002 by [Société Générale](#) in cooperation with [SAM Group](#) and [Dow Jones Index/STOXX](#).<sup>[1]</sup> It contains the globally largest 20 corporations of the [water supply](#), [water infrastructure](#) and [water utilities/treatment](#) sector. The index' assortment of shares is rebalanced every quarter of a year, and revised every six months.