

Name of Organization: NGO Arca Tierra

Address of the organization: Av. Vicuña Mackenna Poniente #7255 OF 707 Edificio Bella Vista, Comuna La Florida, Región Metropolitana de Santiago Chile

Postal Address: Av. Vicuña Mackenna Poniente #6239 Dpto #1503 Edificio Mirador Azul, Comuna La Florida, Región Metropolitana de Santiago Chile

Type of organization: NGO Non-profit non-governmental organization

Email: info@ongarcatierra.org

Website: www.ongarcatierra.org

Contact Person: Patricia Rincón Operations Coordinator

Phone: +56979065754

Title and Objective of the Proposed Project: Project of Integral Solutions of a Multipurpose and Multifunctional Water Infrastructure for the Solution to the Water Scarcity of the State of California, United States.

The objective of the proposal is to solve the scarcity of water in the state of California of the United States, recovering ecosystems and integrating nature into urban areas, through a water infrastructure of state-of-the-art desalination plants with low environmental impact that work with renewable energies as a water battery with reversible pumping systems and hydraulics for the distribution of fresh water of different sizes according to its flow, integrating different renewable energies of the region for storage and distribution, therefore, it will also serve for the supply to the electricity distribution network, in this way it will be supplied of water to the different human activities, to the maintenance of green areas and for the replenishment of depleted aquifers in the region. The water infrastructure will have surface and underground flows connected to the different natural water sources for the efficient management of water dynamics, which avoids scarcity without waste, since the water consumed would be treated by microalgae photobioreactors and by the Natural Biological System (NBS) constituted by a system of plants, grits and gravel, which would be connected to these water networks and those waters that return to the sea will have the appropriate levels of salts and minerals for the maintenance of the oceans and generation of blue energy. This project is scalable, it can be started in the most critical areas, but based on a regional design, to unite the parts of the multipurpose and multifunctional water infrastructure as it is built and put into operation. We invite you to watch our video [How to Create Sustainable Development in Desert and Coastal Areas?](#) From our series [Against Climate Change](#).

Discussion of the objectives, the method of approach, the amount of effort to be made, the proposed duration of the activity and the expected results:

In order to achieve the aforementioned objectives aimed at solving water scarcity in a sustainable way, that is, integrating different successful technologies demonstrated in the world, but improved by integrating them into a single water infrastructure that will supply water for different purposes, for different purposes human activities, recovery and maintenance of depleted aquifers, ecosystems and green areas in cities, multifunctional because it will not only supply water, it will also serve for the generation, storage and distribution of electricity from renewable sources,

significantly reducing CO2 emissions, the combination of wastewater treatment and the maintenance of salinity levels of the seas in a profitable way through the generation of blue energy will make this part of the process and that the whole system works in a sustainable and profitable way for its continuity over time. The generation of water and electricity will serve for the maintenance of this water infrastructure at low cost and basic services can be offered at low prices with profitability, generation and distribution in abundance will make them more accessible and economical. The recovery of ecosystems and natural biological systems will be fundamental for the maintenance of the water sources of the system, this will make the salvation of nature and increase of green areas in cities a vital investment, improve air quality and make possible the installation of photobioreactors of microalgae, which in addition to treating wastewater absorb CO2 and emit oxygen, to contribute to the solution of climate change that consists of reducing and absorbing CO2, microalgae waste can be reused for the manufacture of biofuels, in general view it will work as a biofactory, without polluting waste or CO2 emissions and can be continuously improved to the water infrastructure with the technologies that are under development and the proposals of the NGO Arca Tierra explained in our video [How to Create Sustainable Development in Desert Areas?](#)

This project is scalable and can begin to build and put into operation in the most critical coastal areas, but based on a regional design, to join the parts of the multipurpose and multifunctional water infrastructure as it is built and put into operation. In areas far from the coasts where the water infrastructure would take time to arrive, atmospheric water systems can be installed temporarily and once the water battery arrives in the area, they can be used as a backup system or for the improvement of thermal comfort, atmospheric water systems would be installed in the water canopy. Vertical Gardens of great height, these gardens in addition to supplying water, would generate photovoltaic energy and will serve for the production of food by aquaponics and others for the planting of rod grass vegetation, endemic wild flowers that became extinct and once recovered the vegetal layer with these plants and bees that can be repopulated with beekeeping, as promoted by the UNESCO program "Women for Bees", sponsored by Angelina Jolie, trees extinct by desertification can be planted to normalize the water cycle in the region, as they recover, they must be declared areas of key natural reserves for the event of rains, the way to protect natural reserves with sustainable development we explain it in our video ["How to Help Solve Climate Change"](#) of our series Against Climate Change.

The networks of surface water sources of the water infrastructure will serve to improve thermal comfort and mitigate forest fires, because for the well-being and health of the population and to avoid forest fires it is important to reduce high temperatures in the region, which makes it necessary to develop district energy systems for economic and sustainable cooling systems for the improvement of residential thermal comfort and urban, which will be feasible through the provision of water, our proposal of district energy systems is exposed in our video [How to Make Your City Sustainable?](#) From our series against climate change, which consists in summary of power plants that generate clean water, electricity and biogas from photobioreactors and solar panels of microalgae. In the design of the water battery made up of surface rivers, it should be considered that they also serve to protect populated areas from forest fires, bordering the area with deep channels that prevent the passage of flames in case they happen. In addition to this, it is essential to install industrial nebulizers to reduce temperatures in regions affected by heat waves and that form improved fire prevention and control systems in areas of high risk of forest fires, these systems are

fully explained on our website in the section of Plans for [Natural](#) Disasters through a video, basically what we propose is a fire control system composed of: 1) Satellite System 2) Environmental Cooling Tower System and 3) Fire Monitoring and Control Drones and improved fire extinguishing techniques through water dispersion pumps and if they are large through sand pumps.

The execution of this project of integral solutions is fundamental, because it applies effective solutions to drought and its consequences, global warming advances with desertification and water scarcity, and the state of California was declared in emergency due to drought at the end of its second driest hydrological year ever recorded, with almost 88% of California in a situation of extreme drought, at the end of September 2021, the storage of reservoirs reached 60% of its total capacity, an average well below the usual, for some areas of the state the only source of water is groundwater, which is also being depleted, a NASA satellite study specifies that more than half of the main underground aquifers in the world are being depleted. At an alarming rate, NASA and the University of California conducted a study warning of the dizzying rate at which aquifers in the southwestern United States are depleted, Stephanie Castle, the study's lead author and a water resources specialist at the University of California, Irvine, called the magnitude of aquifer depletion "shocking." This is alarming, without this project human consumption, the scarcity of rains and the increase in temperatures will make it impossible for them to recover, their depletion not only affects the provision of water, the risk of salinization, increase of harmful substances that can be in the subsoil naturally or by the action of the human being and that increase their concentration when the water drops in quantity, has other and more serious consequences, the overexploitation of underground aquifers generates subsidence and in the worst case the collapse of soils, but the worst of all is that it unbalances the masses of the planet, that is, the distribution of the weight of the Earth, which unbalances the Earth's axis and can negatively impact in the generation of the magnetic field that makes life on Earth possible, so we emphasize the importance of carrying out this project, which connects aquifer networks and natural and artificial water sources, for the efficient management of water dynamics, in order to guarantee optimal levels of water sources, electricity and water supply in a sustainable and abundant way without waste or pollution, improvement of thermal comfort, reversal of desertification for the normalization of the water cycle that will favor the occurrence of rains and the mitigation of natural disasters.

For the above, the Project of Integral Solutions of a Multipurpose and Multifunctional Water Infrastructure for the Solution to Water Scarcity of the State of California, United States, will address the problem and consequences of drought through:

1. Desalination plants of last generation that operate and generate renewable energies.
2. Battery consisting of a rivers network (offshore and underground) and hydroelectric plants with hydroelectric and reversible pumping systems for the generation, storage and distribution of renewable energies and water.
3. Systems of wastewater treatment by photobioreactors of microalgae and Natural Biological Systems (NBS), connected the treated waters to the battery of water and to the generation of blue energy.
4. Reduction of the environmental impact of desalination plants and conservation of the seas through blue power plants that will make it profitable and feasible to guarantee the appropriate levels of salts and minerals when the water flows back into the sea.

5. District Energy Systems for the Improvement of Thermal Comfort, based on photovoltaic panels and microalgae photobioreactors, which generate electricity, biofuels and clean water.
6. Industrial nebulizers for the improvement of thermal comfort in urban areas.
7. Prevention and control of forest fires with river networks to protect inhabited areas and forest areas a sophisticated and efficient fire prevention and control system.
8. Improvement of the management of water dynamics for the recharge of aquifers that will avoid their depletion and lower environmental temperatures.
9. Atmospheric water systems and vertical gardens to produce food with water saving through aquaponics and for the planting of species that help reverse desertification.
10. Beekeeping for bee repopulation in areas recovering from desertification.
11. Recuperation of ecosystems, reversing decertified areas and integration of nature to cities in an aesthetic and functional way for the conservation of butterflies and bees through living sculptures of flowers. Vegetation and natural biological systems will be necessary throughout the course of the rivers of the water battery, for the maintenance of water quality at low cost.

These integral solutions are described and explained in our video [How to Create Sustainable Development in Desert Areas?](#)

The realization of this project will be an investment because it will solve the problem and consequences of drought in a profitable and sustainable way as a biofactory, which will improve the quality of life with sustainable development and contribute to the solution of climate change through the reduction and absorption of CO2 emissions.

Project Management and how to execute the Project:

These objectives frame a general design layout, definition of technologies and necessary resources, to define them with greater specifics it is necessary to carry out different stages of engineering, which merits defining the leadership of the project, the way to organize and execute the engineering stages to make it a reality. a Multipurpose and Multifunctional Water Infrastructure for the Solution to Water Scarcity of the State of California, United States.

Leadership of the project will be led by the Environmental Protection Agency (EPA), an executive agency independent of the U.S. federal government, which is governed by a Bipartisan Infrastructure Act, which makes historic investments in clean water for communities, protects public health, climate resilience, creates jobs across the country and fosters a more equitable future. EPA will lead the executive committee composed of designated representatives of the governor's office and mayors of the state of California and related ministries, and related domestic and foreign companies considering the energy upgrade California partner® which brings together public and private organizations related to renewable energy supported by an alliance of the California Public Utilities Commission, the California Energy Commission, utilities, regional energy networks, local governments, Community Choice Aggregation, businesses and non-profit organizations to help communities in the fulfillment of the objectives of state and local climate and energy actions, national and international universities, guilds, Foundations and related national and

international NGOs, among which it is very important to consider the Energy Sustainability Agency, civil representatives of the neighborhood councils, youth organizations, such as students the International Association, Associations of Artists and Botanists and any other public or private organization committed to sustainable development in democracy and respect for human rights without discrimination related to this project considered by the EPA.

The NGO Arca Tierra will act as an "Open Innovation Intermediary", that is, it will assist the EPA in coordinating the parts of the public, private and civil sector for its execution in the different stages of the project, guiding in the design and how to execute it in its different stages for the use of the best current technologies, ways of improvement and innovation, organization and project management; for the provision of this non-profit advisory service, it will request the coverage of an annual budget so that the NGO can cover its administrative and operational expenses, to be able to dedicate 5 hours a day for 5 days a week to the advice of this project for a period of one year, a contract that can be renewed once completed as the activities planned to reach the stage of engineering in detail, the renewal and conditions will be at the discretion of both parties, the NGO Arca Tierra is not responsible if in this period of time those involved have not specified the last stage of engineering.

The activities to be carried out in the period of 1 year from January 2021 are:

- Convene the project implementation committee, in conjunction with EPA-designated authorities
- Organize 11 work teams so that separately, but in a coordinated way, they execute the 11 solutions to the drought and its consequences integrated into the project, described above.
- Detailed layout, architectural and engineering designs in detail of the 11 solutions integrated into the project.
- Economic analysis for the issuance of detailed budgets, considering the layout.
- Detail in a report the project in the best way according to designs and economic analysis, one or more options for the development of the project, containing, Gantt chart, the planning of the project execution schedule.
- Prepare proposals for the financing of the project, according to formats of national and international financing entities, for this type of project there are many national and international funds that subsidize this type of works for sustainable development to which mostly only government entities can access.
- Start of the first sections of the water infrastructure on critical coasts and in areas far from the sea where access to atmospheric water is only possible.

The next stages for the implementation of the project would then be continued.

The way to organize for the execution of the project would be to involve all the important sectors, so that the organization can function efficiently, we will develop an organizational chart to integrate in the direction the executing committee and its corresponding delegates that I designated the committee to be in charge (I / C Incharge) of the 11 working groups. An external authority, whether public or private, must designate at the time when resources are allocated, to carry out comptroller work, in this work of monitoring and disseminating the progress of the project, journalists must be

involved, so it is also important to integrate the association of journalists into the committee, in the section of guilds. While it is true that a country has control systems, journalists committed to the truth will open channels of information and monitoring of all stages of the project to maintain interest in its realization, they will report irregular situations, such as the diversion of resources or the delay in the fulfillment of objectives so that the failures are immediately corrected, as well as show the successes of the project, to keep the population involved taking responsibility until the full fulfillment of this and the subsequent stages of the project. When the project is executed, other factors of society can be integrated, in which it is worth highlighting security, in the face of the acts of vandalism promoted by the communists of the Sao Paulo Forum, violence and terrorist acts against public and private property that they have committed in Latin America and in the United States, which are part of a destabilizing and incendiary public agenda (scorched earth war tactic) against nations. The criminal system of communism in the Forum of Sao Paulo ordered these acts of war, terrorism and cyber aggression driven by detected bots of criminal states that openly support international narco terrorism and organized crime of Russia, China, Cuba and Venezuela, unfortunately Latin America and the United States suffer since 2019 of billionaire losses in infrastructure, because one of the main objectives of the scorched earth war tactic is to weaken their economies and infrastructures are their target of attack, that is why security and justice are so necessary to arrest those who commit these criminal acts against the assets of all states. If justice victimizes vandalism and terrorism and criminalizes security officials who do their duty under the law, they should also be subject to investigation and justice. The victimization of terrorism and the criminalization of victims is a global strategy driven by China and Russia, so that crime thrives and security recedes, to see more details of these facts, we invite you to read our article [Look Up at the Horsemen of the Apocalypse.](#)

In the same way, we urge the United States to preserve their democracy, their system of impartial justice, free and transparent elections, otherwise the same fate awaits them that is suffered in Venezuela, Cuba, Nicaragua, Bolivia, Afghanistan their sovereignty are in the hands of Russia, China and narco terrorists. , they will be directed by the threads of Russia and China, they will divide the territory and its resources until they devour them to the bones, and in bones even their children will leave them with high rates of malnutrition, hunger and poverty (holodomor), the territorial division will be governed through terrorist groups and organized crime, the governorships and mayors will only be worthless figures, to disguise a "democracy", which would make this and any other project impossible. The urban terrorism cells of Russia and China have already destroyed undense state infrastructures, if they allow them to lose their democracy and sovereignty they will lose everything just as we Venezuelans lost, we were the richest country in Latin America and that is why they kidnapped us, so, for the continuity of this project and so that the NGO Arca Tierra can function in the United States it will be essential that democracy be preserved, because for the success of this and any other project democracy with citizen responsibility, security and justice are fundamental.

Considering a democratic scenario, with security and justice, it will be possible to consolidate human rights through a participatory democracy with citizen responsibility, integrating the neighborhood councils, which would be the best informed to express the needs to be covered by this project, in the construction of each section of the water infrastructure local labor must be hired, of the municipality where the project is executed, starting on the critical coasts and in areas far from the

sea where access to atmospheric water is only possible. The planning of the project implementation schedule should include the improvement of the qualification of local labor, the development of innovations and the training of the use of new technologies, for the unemployed and the updating of professionals, integrate public and private colleges and technical schools for this, to industrial lyceums thus offering education and employment especially for young people who cannot access university education, being also participants in university scholarship programs, to outstanding students in the execution of the project, to offer them a career in the technologies related to this program, youth need hope for a better future although I can not afford a university degree, many advocate for free education, but the truth is that 100% free education is unviable, in my country Venezuela when it still had democracy, the oil income left enough dividends to finance it, however, there were limited quotas to enter and high academic performance was required, the student paid something symbolic, if after entering he did not meet the academic standards he was expelled so that another student who did want to study really entered, in short, it was not totally free, the student earned his quota by studying disciplinedly and paid a symbolic value compared to the expensive tuition fees of private universities. Venezuelan public universities were among the best universities in the world, for their dedicated students and highly qualified professors, who from time to time took a sabbatical to train in any country of the world they chose, great professionals turned out and you still see part of that heritage even though today public universities were destroyed to instruct the hateful ideology of communism. In Venezuela it was not enough to graduate, you had to be an excellent professional, have a lot of specialties and speak at least two languages if you wanted to get a good job. So, there is no free education, you have to earn it. What should promote this project is equal opportunities to be able to be a professional or technician and have the opportunity to continue growing professionally. As progress is made on the water highway through the state of California, more and more young people will be able to train, the most outstanding and disciplined would be hired, that is, they will be chosen by meritocracy.

In the formation of the committee and in hiring it is essential to consider gender equity, both in salaries and in the appointment of management and management positions, to make women participate in the development of this project, in the United States there is no wage equity and there is no equity in hiring in management positions, in view of the fact that only 75% of men are in paid employment, compared to 65% of women, we demand that 60% of women be recruited in this project, as recruitment is one of our operating policies aimed at balancing the balance towards gender equity.

While it is true that most of the contracts will be national labor, it is also important to designate the hiring of migrants from the municipality, duly legal in the country and help those who qualify for their prompt legalization and integration, migration is synonymous with economic, cultural and social growth, the most developed cities in the world are multicultural and multiracial, to close the door to migration and its integration is to close the door to development, in fact I am a Venezuelan migrant, rather a displaced by violence that is very different from being a migrant, but whatever the reasons for leaving their countries of origin, I can assure you that the majority who go to the United States are willing to work. I am very grateful to have been received in Chile, when communism had not yet begun to attack this country, I will always thank you for having saved my life from the holodomor and the narco terrorist criminal state that keeps Venezuela kidnapped, in Chile I managed to register the NGO Arca Tierra to promote sustainable development at the level if I had not been allowed to join Chile legally, this project, these recommendations I would not have been able to make, I think I would not be alive to do so.

And since we touch on the issue of multiracial cities, we emphasize that they advance towards prosperity to the extent that human rights are respected without discrimination, that is, with equal opportunities to exercise human rights for all without discrimination based on race, creed, gender or sexual orientation, to close gaps the NGO Arca Tierra establishes in the management policies of its projects, that recruitment positions with meritocracy should be guaranteed to minorities, according to the margins of discrimination and demographic index of minorities, guiding the balance of the balance of equal rights in recruitment without discrimination, as explained in gender equity. In the history of the United States African Americans have suffered a lot of discrimination and over time have been closing gaps with respect for rights and awareness campaigns, but lately we have noticed that many alleged campaigns against discrimination what they do is open gaps of hatred between races, between social classes, they are more like hate campaigns of the cyberaggression accustomed by Russia and China with an information and opinion gap that they have been placing in the world and the United States has not exempted itself from it, we alert them to this fact and call them towards mutual respect and the consolidation of human rights with truth and justice.

Speaking of justice, the prison system is apparently designed to arrest mostly African Americans, there are more African Americans in prisons than in universities according to the BBC, in reporting these figures I am not calling for chaos, we note that investment should be made in access to education and work for African Americans and training in the construction and operation of water infrastructure would help that. On the other hand, the hiring of ex-convicts with parole or full release should be considered, who have demonstrated their desire to integrate into society as a good citizen, the prison population grows day by day in the United States and in the world, if ex-convicts are not integrated as citizens it is very likely that the crime will integrate them so that they return to be criminals of similar or worse crimes, we do not justify or victimize criminals, we help them to take responsibility for their mistakes and have integrated into society, for their selection you can work together with the justice system, with its rehabilitation and reintegration programs in society, also considering the expanders.

In conclusion, the Project Execution Committee must have management policies that guarantee human and environmental rights without any discrimination, work together with other related national and international bodies, as well as seek with other states nearby or generated joint projects, in coordination with their Municipal Committees for Sustainable Development.

Brief description of the work and previous experience of the NGO Arca Tierra, both functionally and geographically: We are the NGO Arca Tierra, a Non-Governmental Non-Profit Organization, environmentalist and for human rights, registered in Chile, of international scope, we educate, innovate and advise for the achievement of our mission, the solution to climate change, the mitigation of natural disasters and the expansion of humanity with quality of life through sustainable development with equal opportunities to exercise human rights without discrimination, in stable and participatory democracies that promote the assumption of human and environmental rights as duties and benefits to be exercised, so that citizens are responsible in their continuous consolidation, based on our [24 Strategic Plans](#).

Our experience begins in 2011 since our president and founder Patricia Rincón, a specialist in data evaluation and strategic planning, investigated the problems of climate change and population growth without planning, for which she evaluated the successful actions carried out in the world to

solve these problems, improved them to provide comprehensive solutions and proposed technological innovations, administrative and management policies, in 24 Strategic Plans, exposed in his book 531 Beauties of the World II Edition in 2015, he gave it away and received very good recommendations, in fact, The History Channel urged him to produce a documentary to expose these solutions, but he realized that to execute these strategic plans it was necessary to create an NGO, that is why it brought together professionals and artists to support it, so the NGO Arca Tierra was founded in 2016 in Venezuela, it was not formally registered since we do not know the Venezuelan narcoterrorist criminal state, displaced by violence part of its board of directors emigrated to Chile, where since January 2020 it is legally registered in the Commune of La Florida, Metropolitan Region, we are currently working on Climate Plan 1. Our board of directors is made up of President Patricia Rincón (with experience in project management), Treasurer Griselda Méndez (Economist, specialist in contract and project and bidding administration.) and Secretary Tamara Greaves (Professional Chef, Technician in Administration and Public Relations), who make up its staff of Operations Coordinator, Administration Coordinator and Public Relations Coordinator and dozens of volunteers, who previously have more than 40 years of experience. in project management, strategic planning, management of tenders and budgets and administration of contracts for the private sector, motivated by making the solutions of the 24 Plans a reality, they work for the NGO Arca Tierra.

We have dedicated ourselves to open education to teach how to develop technological, administrative and political innovations in the management of our [Plan I Climate](#), through [online courses](#) and [educational materials](#), the National Geographic Society awarded an award to our president and operations coordinator Patricia Rincón for the quality of our education and our innovative proposals to lay the foundations of a civilization capable of solving climate change, surviving natural disasters, recovering and conserving natural resources, with quality of life through sustainable development and equal rights, our areas of focus are: 1) Teaching innovative solutions through open education. 2) Advise on how to apply solutions by formulating and organizing projects for public and private institutions and for civil society aimed at reconciling solutions to their specific problems 3) Guiding in the execution of solutions in projects, we have a range of programs and projects to create sustainable development and help solve climate change in the process See in: <https://en.ongarcatierra.org/proyectos-projects-ong-arca-tierra>. We have participated in important congresses and forums to present our innovative integral solutions, we count with more than 7 partner organizations, more than 300 students and our publications on social networks reach more than 7,000 people weekly, they are great achievements in a short time, but we need to reach millions to help them understand and apply these solutions, help us spread them!