CONCEPT NOTE PROPOSAL FOR SINGLE COUNTRY

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme:	**Ha Ta Tukari, "Water our Life": Towards Universal Drinking Water Coverage for 21 Communities of the Wixarika Nation**
Country:	Mexico
Thematic Focal Area:	Water Management
Type of Implementing Entity:	National Implementing Entity
Implementing Entity:	Instituto Mexicano de Tecnología del Agua (IMTA)
Executing Entities:	Lluvia Para Todos, A.C.
Amount of Financing Requested:	$8,000,000 (in U.S Dollars Equivalent)

Project Formulation Grant Request (available to NIEs only): Yes ☒ No ☐

Amount of Requested financing for PFG: $50,000 (in U.S Dollars Equivalent)

Letter of Endorsement (LOE) signed: Yes ☒ No ☐

NOTE: LOEs should be signed by the Designated Authority (DA). The signatory DA must be on file with the Adaptation Fund. To find the DA currently on file check this page: https://www.adaptation-fund.org/apply-funding/designated-authorities

Stage of Submission:

☒ This concept has been submitted before

☐ This is the first submission ever of the concept proposal

In case of a resubmission, please indicate the last submission date: 8/8/2022

Please note that concept note documents should not exceed 50 pages, including annexes.

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List of Acronyms

1. IMTA – *Instituto Mexicano de Tecnología del Agua* – Mexican Institute of Water Technology
2. HDI – Human Development Index
3. INEGI – *Instituto National de Estadística y Geografía* – National Statistics and Geography Institute
4. CONABIO – *Comisión Nacional para Conocimiento y Uso de la Biodiversidad* – National Commission for the Knowledge and Use of Biodiversity
5. RWH – Rainwater Harvesting
6. RWHS – Rainwater Harvesting Systems
7. IFAD - International Fund for Agricultural Development
8. SECAP - Social, Environmental and Climate Assessment Procedures
9. TNT – *Taller Nuevos Territorios* – New Territories Workshop
10. HDPE – High density Polyethylene
11. EE – Executing Entity
12. PROMARNAT – *Programa Sectorial de Medio Ambiente y Recursos Naturales* – Sectorial Environment and Natural Resources Program
13. PECC - *Programa Especial de Cambio Climático* - Special Climate Change Program
14. PEACC - Program for Climate Change Action
15. SDG – Sustainable Development Goals
16. CONAGUA – *Comisión Nacional del Agua* – National Water Commission

17. PROCAPTAR – *Programa Nacional para la Captación de Lluvia y Ecotecnias en Zonas Rurales* – National Program for Rainwater Harvesting and Ecotechnologies in Rural Areas
18. SEDEMA – *Secreatría del Medio Ambiente* - Environment Secretariat
19. UN – United Nations
20. NGO – Non-Governmental Organizations
21. UNDP – United Nations Development Program
22. INDESOL – *Instituto Nacional de Desarrollo Social* – National Social Development Institute
23. INPI – *Instituto Nacional de Pueblos Indígenas* – National Indigenous Peoples' Institute
24. FGRA – *Fundación Gonzalo Río Arronte* – Gonzalo Rio Arronte Foundation
25. INSP – *Instituto Nacional de Salud Pública* – National Public Health Institute
26. UNAM – *Universidad Nacional Autónoma de México* – National Autonomous University of Mexico
27. CEI - State Indigenous Commission of the State of Jalisco
28. ESP - Environmental and Social Policy
29. ILO - International Labour Organization
30. UNDRIP - United Nations Declaration on the Rights of Indigenous Peoples
31. FPIC - Free, prior and informed consent
32. CONAFOR – *Comisión Nacional Forestal* – Nacional Forestry Commission
33. UV – Ultra Violet
34. WHO – World Health Organization
35. ARCSA – American Rainwater Catchment Systems Association

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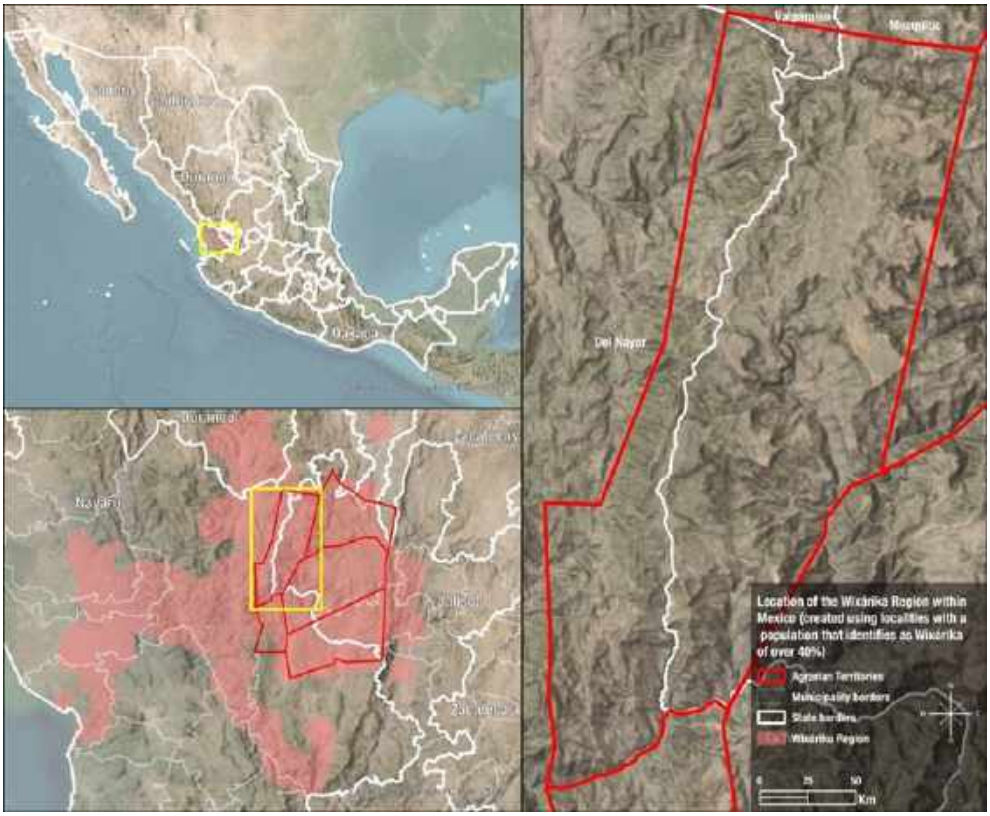
Project/Programme Background and Context:

This Project addresses the extremely precarious water access conditions being experienced in the territory of the *Wixárika* Nation, often known as Huichol, in the western Sierra Madre mountains (Figure 1). This remote and beautiful region, inhabited by one of the most iconic indigenous peoples of Mexico, is also one of its poorest, with some of the worst development and health outcomes in the country. Water access is very problematic, and most of the population lives with minimal amounts of often unsafe water, carried from small and dwindling springs and water holes spread thinly through the landscape. It is an arduous job, disproportionately borne by women, and the difficulty involved results in extremely low per-capita use, often in the range of just 10-15 liters per day. This contributes to the very high levels of child illness and mortality that are pervasive in the region. The Water problem in the *Wixárika* nation has geographic, economic, development, and environmental aspects. The combination of steep, mountainous terrain, scattered, low-density settlement patterns, and low levels of economic development make water infrastructure hard to build and maintain.

Environmental and climate changes are making already difficult water conditions even more precarious. The region is very vulnerable to the persistent droughts affecting the entire northwest of Mexico and southwestern United States. Rain-irrigated subsistence agriculture is fundamental in the Wixárika territory, and their mountain forests are highly vulnerable to desertification. Dryer dry seasons are seeing large forest fires, some of which burn for weeks, and the thinning forests and eroding soils hold less water. Springs and water holes are shrinking under combined pressures of reduced recharge, and increased demand from a growing population trying to meet its needs. The Sierra normally gets considerable, though short and concentrated, summer rains, but with little retention and storage capacity, the water flushes directly down the canyons and gorges, leaving the landscape dry and the population scarcely able to meet their most basic needs.



This project seeks to scale up a line of work we have been carrying out with Wixárika communities over the course of more than ten years developing and installing rainwater harvesting systems that have proven highly effective at improving water access, quality, and resilience in the complex contexts of the Sierra. We seek to achieve sustainable and climate adaptive universal drinking water access in the 21[1] Wixarika villages of San Andrés Cohamiata, the largest population group of the 4 subregions that constitute the Wixarika Nation (Figure 1), through the installation of 1200 rainwater harvesting cisterns, and landscape management for water retention and soil regeneration.

Figure 1. *Map of the location of the Sierra Wixárika, Jalisco, México; along the location of the Agrarian Nucleus of San Andrés Cohamiata, within the municipalities of Mezquitic, El Nayar, and Valparaíso.*

[1] The First proposal stated universal access for 23 communities. But since, and through the work of the past 13 years, we have already achieved this in 2 of those 23 communities (namely La Cebolleta and La Laguna). The proposal is thus directed to the remaining 21.

Economic/Social Context:
The Wixarika people live in one of Mexico's most isolated and underdeveloped regions, high in the western Sierra Madre, where the states of Jalisco, Nayarit, Zacatecas and Durango converge (Figure 1). The Wixaritari (plural of Wixarika) live in small villages and hamlets scattered amongst the imposing cliffs, mesas, and canyons that dominate the territory. One of Mexico's least assimilated indigenous communities, The Wixaritari preserve their native language and continue to follow the traditional spiritual belief system known as El Costumbre, which descends from their pre-European ancestors. The Wixarika people gained notoriety for the persistence of their rich indigenous culture, artwork, and their deep, elaborate spiritual traditions and practices involving the psychoactive Peyote cactus. They are an emblematic people, featured heavily in Mexican cultural and political displays appealing to national history and identity.

Photo 1. *Wixárika ancestor dressed in traditional attire (unknown author).* ***Photo 2.*** *Felipe Lopez Moreno, Rainwater Harvesting Systems installer technician, dressed in traditional Wixárika attire with his children.*

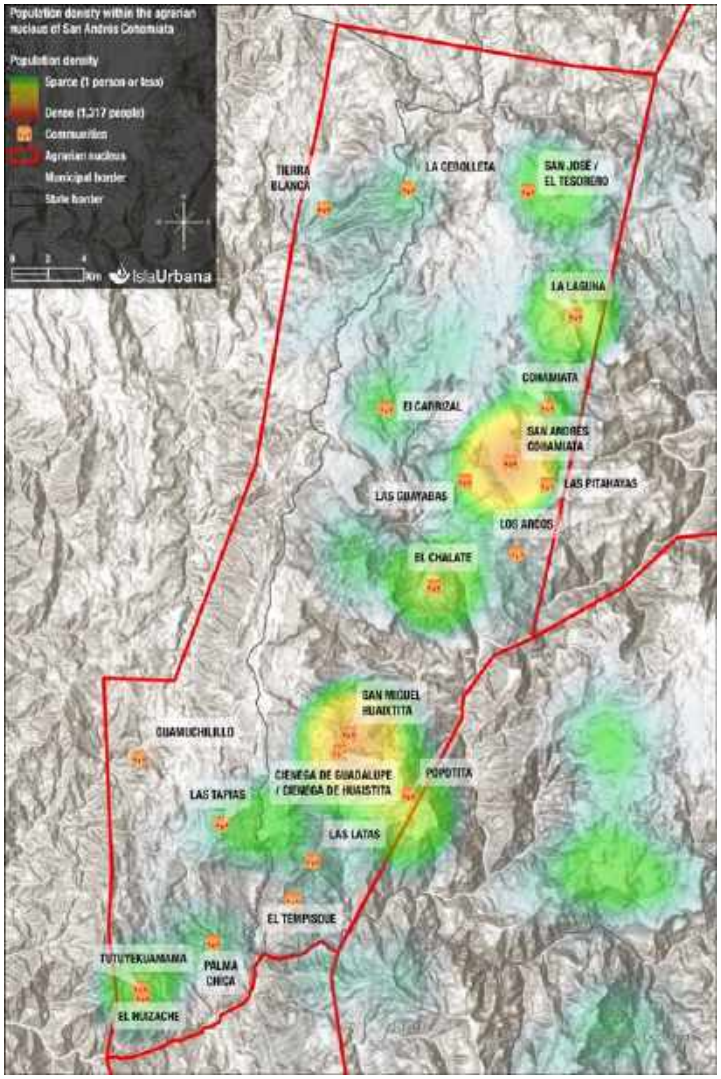
Despite this notoriety however, most Wixárika people today live in conditions of great material poverty. Paid work is almost non-existent in the region, and subsistence agriculture remains a principal activity, though the lack of arable lands and the thin soils result in very low yields. As a result, the Wixarika often leave home to work in industrial agriculture as laborers in neighboring states, or to sell their artcrafts in towns and cities throughout Mexico, their travel expenses consuming much of what they earn. The erosion of food self-sufficiency and the introduction of new necessities like cell phones has pushed the *Wixaritari* into an economic system for which they have limited preparation. Many people, especially the most vulnerable members of the community, such as single mothers, or those with abusive spouses, have practically no income whatsoever and subsist minimally on support from family members. The traditional ways of life in the sierra are being subjected to massive, converging pressures from the no longer distant outside world.

The Situation facing the *Wixaritari* people has recently become even more difficult with the increased presence and

activity of organized crime groups in the region, who commit acts of violence, intimidation, and engage in extractivist economies like illegal logging.

Development/Environmental Context:
The territory the work takes place in is one of extreme topography, with sheer cliffs and canyons separating villages that might be a few kilometers apart as the crow flies, but take many hours of driving or walking to get between. Elevations range from around 600 to 2,200 meters, often within short distances, so the ecology and plant life of the region vary greatly. For hundreds of years and up until the mid-late 20th century, the *Wixárika* Sierra had no roads whatsoever, and the peoples living there were settled in very small, family ranches or hamlets, located in places near springs or water holes and land suitable for farming. The forests in the area, especially the higher elevation parts, were dense and rich in wildlife (Figure 2).

Infrastructure development in the *Wixárika* region began with the establishment of airstrips, followed by government schools, and eventually in the 1980's and 90's, roads, the presence of which resulted in large scale logging, which in the telling of local people, changed the forest and made it significantly thinner, to this day. The topography and location of the *Wixárika* Sierra make it very vulnerable to soil erosion and climate related problems. The rocky mountains have only very thin soils, and the loss of forest cover, overgrazing from livestock, and increasing drought conditions in the entire region result in a desertifying landscape, with growing incidence of forest fires, less surface water, and tougher conditions for the subsistence farming the *Wixárika* rely on to feed themselves.



By almost any indicator, the area has very low development, with some of the lowest basic services coverage in Mexico. The great majority of homes have no running water, sanitation services are almost nonexistent, electricity only started reaching most communities in the last 10 years and is intermittent at best. Health and education outcomes are at the very bottom of national ratings.

The municipality of Mezquitic, where our work is focused and where the largest share of the *Wixárika* people live, has the lowest Health Index rating in all of Mexico (0.39), among the lowest education and income ratings (0.42 and 0.59), and has the lowest Human Development Index (HDI) rating in the State of Jalisco (0.46). Tellingly, Mezquitic suffered one of the country's greatest reductions in HDI, falling 9.61% between 2010 and 2015.

INEGI (Mexico's National Institute of Statistics and Geography) categorizes the municipality as having "Very High" Marginalization. The population density map was created using the mean coordinates of every official locality of the INEGI 2020 census within the borders of the San Andrés Cohamiata Agrarian Nucleus. A heatmap was created using a 300-meter radius from every locality's coordinates, with the total population within each locality serving as the main weight, in order to visualize the population distribution within the agrarian nucleus. However, the coordinates of every locality do not accurately represent the spatial distribution of the individual dwellings within each locality.

Figure 2. *Map of the location and population density of the Agrarian Nucleus of San Andrés Cohamiata and its 21 localities.*

Climate change impact on the *Wixaritari* people

Future climate change predictions within the San Andrés Cohamiata region are expected to have a detrimental effect on the local population. Overall annual average precipitation levels at a national scale are expected to decrease by 3 to 15% and temperatures are expected to increase by 1.3 to 4.8 Cº by the end of the century. Based on figure 2, current climatic classifications include Subtropical Highlands and Humid subtropical within most of the region, Tropical Savannah to the southeast border and a small region of Hot semi-arid climate. However, based on a study by Beck et al. (2018), indicates that based on current climate change weather predictions for 2071 to 2100, (1) Subtropical highland climate will virtually disappear, (2) humid subtropical climate will be displaced northwards, and (3) both tropical savannah and hot semi-arid climates will dramatically increase. These last two climates have a shorter and less intense rainy season, as well as a dryer and hotter summers.

CONABIO indicates that currently the three municipalities where San Andres Cohamiata agrarian nucleus is located: Mezquitic, Del Nayar and Valparaiso have a high and very high vulnerability towards drought at a national level. Thus, the climate change predictions for the future are expected to worsen the region's vulnerability index to drought. These effects will compromise the reliability of *Wixárika* communities' current water sources and their agricultural cycles; thus drastically increasing the overall vulnerability of these communities.

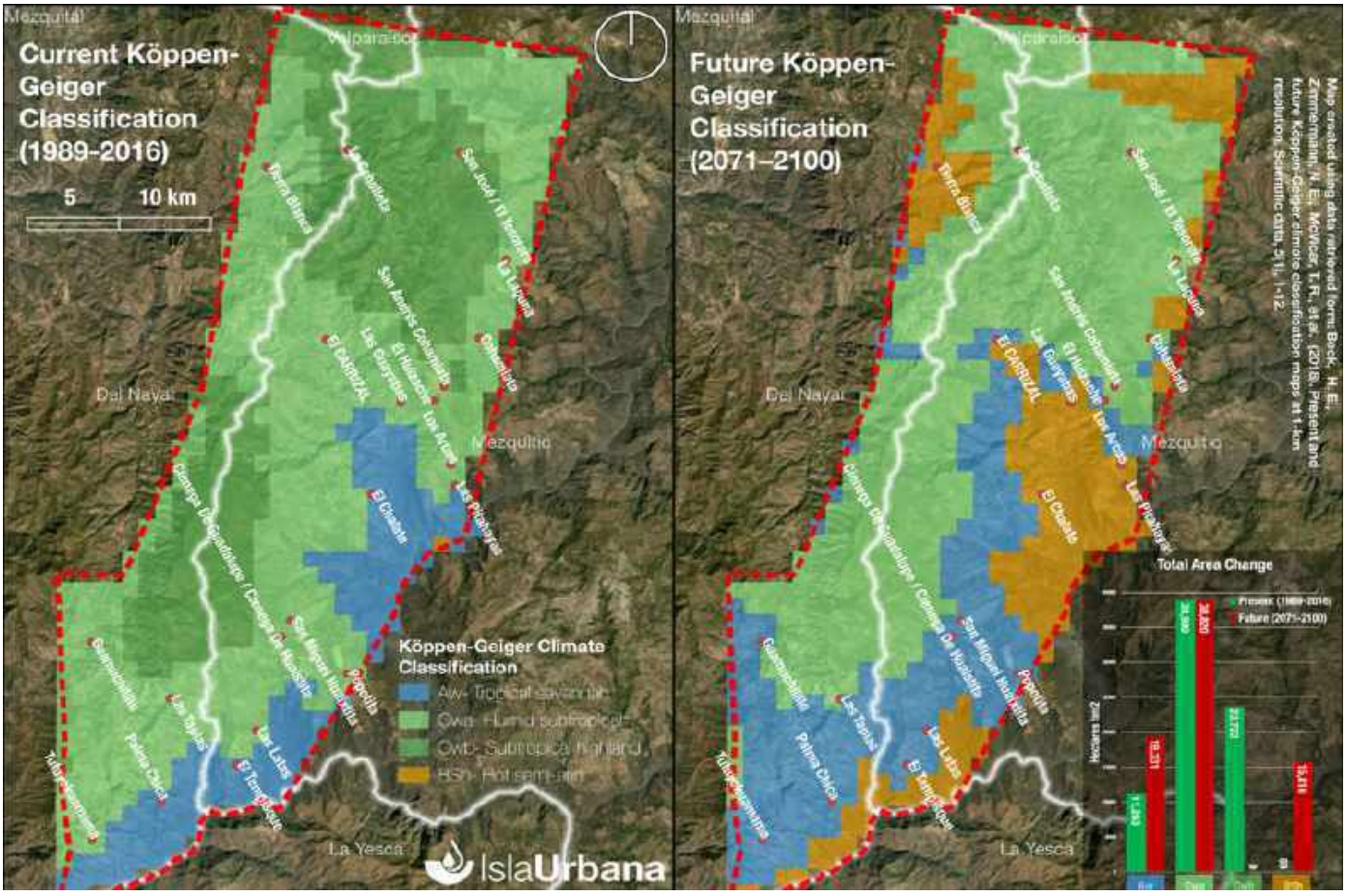


Figure 3. *Actual and future distribution of the Koppen-Geiger Climate classification within the Agrarian Nucleus of San Andrés Cohamiata*

Currently, the probability of forest fires are low for Valparaiso and the associated risk is medium for Mezquitic, High for Del Nayar and Low for Valparaiso. However, with longer dryer seasons and hotter winters, it is expected that both the probability and risk are going to increase significantly by the end of the century. Already in the past three years, large forest fires have blazed for weeks over large areas of forest in Mezquitic and El Nayar.

Project/Programme Objectives:

Brief summary

This project seeks to achieve universal, autonomous, renewable, and climate-adaptive water access in the entire *Wixárika* region of San Andrés Cohamiata through the deployment of Rainwater Harvesting (RWH) strategies and community capacity building, securing drinking water in every home, school, and clinic, and working on landscape-scale water management to combat desertification and improve the resilience of the natural ecosystems and agricultural lands in the area. It represents the first essential phase of achieving universal water coverage for the totality of the *Wixárika* Nation.

With the Adaptation Fund, we aim to build on and scale the work we have done over the past 13 years in the *Wixárika* region of San Andrés Cohamiata installing RWH systems in buildings (homes, schools, clinics and ceremonial centers), training and supporting local installers and community workers, and doing initial piloting of strategies for landscape-scale water and soil management. Over this period, we have installed over 250 RWH systems in *Wixárika* communities, achieved near-universal coverage in two villages, and built and trained a core team of *Wixárika* technicians and community workers. This is in addition to the overall work that Lluvia Para Todos and its sister company Solución Pluvial (together called Isla Urbana; see Annex 1) have done in Mexico, including over 35,000 RWH systems already installed in homes and over 500 schools, in villages, towns, and cities over the entire country. Our collaborating partners *Taller Nuevos Territorios* (https://www.tallernuevosterritorios.com/) and *Cosecha de Agua* have been working for more than 10 years on projects that integrate the human intention with the ecological potential of each place; they hold and ample experience in regeneration of the ecological functionality and landscapes projects at multiple scales, integrating the human aspirations and intentions with the natural vocation of territories to generate positive socio-ecological impacts.

The work in the *Wixárika* Sierra has vastly improved the water access conditions in the villages where it has taken place, with systems providing most or all of their beneficiary families' drinking water needs, as well as a high percentage of their overall domestic water use, and greatly reducing or even eliminating water hauling. Rainwater Harvesting has proven a lasting solution to *Wixárika* families' water precariousness, and has been received with great enthusiasm. Systems installed as early as 2010 remain fully operational, and villages over the entire San Andrés region have petitioned and requested that the project reach them as well. A great reservoir of trust and strong relationships have been built up over this time, allowing for a true collaborative effort to have taken root.

We now seek to scale this work that involves a deep understanding of the territory, the design and implementation of the ecotechnologies and the recognition and strengthening of the local capacities in every one of the 21 towns and villages that make up the San Andrés Cohamiata Agrarian Nucleus. We want to secure drinking water through this autonomous and decentralized form of infrastructure for the totality of the population in the region, and detonate tools and methodologies to combat desertification.

We will install 1,200 individual rainwater harvesting systems in the homes, schools, clinics, and ceremonial centers of the region, working with a local team of hired, trained, and closely supported *Wixárika* technicians and community workers. We will work in every one of the region's schools, with the teachers and students, so that all *Wixárika* children in the area learn how to harvest rainwater following best practices to ensure their access to quality drinking water. Alongside, we will work closely with the communities to organize and implement landscape-scale management practices such as rehydration of the landscape and agroforestry to store as much water as possible in the soil and combat desertification, reduce erosion, and expand vegetation coverage, in order to generate development and livelihood opportunities for families and build up the region's resilience in the face of climate change and land degradation.

Objectives and scope

Main Objective: to achieve universal sustainable water coverage and combat desertification to enhance Mexico's *Wixarika* territory (San Andrés Cohamiata region) climate change adaptation and resilience.

For this particular funding opportunity, we will be focusing on 21 communities of San Andres Cohamiata, working towards achieving universal sustainable drinking water coverage in the whole *Wixárika* Nation.

The project is structured under 5 components and their respective outputs, activities, and expected outcomes.

Component 1: Participatory community water access diagnostics of the San Andrés Cohamiata region communities.

Concrete outputs:

1.1 Carry out community meetings, tours, and other activities to deeply diagnose the water access and environmental situation through community participation processes, and achieve agreements of co-participation with the locals in preparation for the implementation phase.
1.2 Inform local authorities about the project and invite them to make formal requests for their community to be included in the project

Related activities:

A. Design, piloting, adjustment and translation of instruments for the correct diagnosis of the current water access situation, sensitive to existing cultural and language barriers.
B. Outreach to local authorities, teachers and community leaders.
C. Meetings with local authorities to define the nature of new partnerships (and each party's respective roles and responsibilities), as well as presenting the Project's Operating Rules and conditions.
D. Carry out a participatory mapping of the current water situation and state of streams, natural wells, production systems, create a timeline of local human intervention and identify priority areas with the greatest potential within Micro-basins.
E. Create a participatory diagnosis of traditional managing techniques for rainwater seeding into the subsoil (such as infiltration ditches, water storage facilities, dams and fauna used to protect wells) in each locality, with a particular focus on gendered roles and equity.
F. Estimate the possible changes in precipitation patterns and seasonality, temperature changes, and vegetation changes based on current climate change prediction models adapted to San Andrés Cohamiata Agrarian Nucleus.
G. Field reconnaissance and application of semi-structured interviews for the identification of the main sources of water supply, for the full diagnosis of the water situation.
H. Create a diagnosis of the current health practices and conditions within schools.
I. Create in a collective fashion the history of water within the community and the territory. Mount theater plays about this history.

Expected outcomes:

1. Communities with comprehensive diagnoses of the current water situation.
2. Baseline data for future monitoring and evaluation.
3. Co-participation agreements with local authorities and communities for implementation.

Component 2: Establishing rainwater harvesting (RWH) infrastructure for sustainable and autonomous water access.

Concrete outputs:

2.1 Implementation of 1200 fully functioning RWH systems in homes and community buildings
2.2 Group and one-on-one training and agreements with users for the correct use and maintenance of the RWH systems.

Related activities:

A. Community meetings with traditional, communal, and religious authorities, as well as end-users, to define the location and design of the community RWH systems.

B. Technical visits to installation sites to determine feasibility and specifications for each system and the user's commitments in terms of operation and maintenance.
C. Installation of 1200 RWH systems in homes, schools, clinics, and ceremonial centers in the area (starting with schools, clinics, and community buildings).
D. Monitoring and evaluation of the use and maintenance of community systems.

Expected Outcomes:
1. 1200 rainwater harvesting systems installed and in proper operation throughout San Andrés Cohamiata.

Component 3: Developing and piloting of a community action plan for landscape-scale water management.

Concrete outputs:
3.1 Analyze and co-design the best strategies for water retention, storage and soil rehydration and implement pilot systems in the areas with the best opportunities

Related activities:
A. A participatory identification of the current state of streams, natural wells, production systems, the creation of a timeline of local human intervention and identify priority areas with the greatest potential within Micro-basins.
B. An assessment of the restoration potential and agroforestry transition with interested families.
C. Create a participatory diagnosis of traditional managing techniques for rainwater seeding into the subsoil (such as infiltration ditches, water storage facilities, dams and fauna used to protect wells).
D. Participatory identification and classification of the local floral species with the highest potential for rainwater subsoil seeding and Agroforestry successional agriculture.
E. Codesign a strategy to obtain the identification of local floral species that includes an interchange of knowledge between the oldest and youngest generations, making sure that women and girls are involved.
F. The creation of a nursery garden to cultivate and propagate the identified flora;
G. Codesign the models for water harvesting, infiltration and storage within sub-basins and channel systems with different natural elements and plants (such as local stones, wood, etc.)
H. Carrying out a participatory investigation that records current conditions in the identified areas of potential restoration.
I. Adapt the models for water harvesting systems in order to mitigate a future with a shorter and less intense rainy season.
J. Implement the restoration models in a participatory fashion.

Expected outcomes:
1. Local capacities for landscape-scale water management.
2. Full adoption, correct use, maintenance and replication of RWH technologies.
3. Common understanding of climate change impacts on the local territory and its environment, as well as the adaptation strategies at hand.

Component 4: Developing communities' capacities for sustainable water management.

Concrete outputs:
4.1 Carry out workshops, meetings, group and one-on-one training, and other knowledge-sharing activities to develop and strengthen the local capacities around RWH technologies and ensure the project's sustainability.
4.2 Extend and professionalize the local intercultural team of installers and coordinators.

Related activities:
A. Build, train, and professionalize a local, intercultural team of technicians and social workers for the diagnosis, community involvement, installation, and monitoring of the RWH systems, with a particular emphasis on providing conditions for the inclusion of women within the team.
B. Carry out theory and practical training workshops with the intercultural team and build capacity for effective implementation in the field.

C. Design and produce participatory tools and didactic material needed for the full adoption of RWH systems and generalized knowledge on their use and maintenance by the local population.
D. Provide technical training for the population on the correct operation, use and maintenance of community and residential RWH systems.
E. Train the local intercultural team (mostly *Wixaritari* people) that will implement the project.
F. Generate didactic and educational material, which is both bilingual and intercultural, which includes the general thought about communitarian resilience against climate change.
G. Carry out workshops through artistic means in order to educate about the adoption of rainwater harvesting systems within primary schools, communitarian centers and within homes.
H. Carry out workshops in order to teach children and parents about health. Establish routines for hygiene and sanitation adapted to the context of each school and home.
I. Create murals and other communitarian art related projects about the water rights of the *Wixárika* Nation and the history of water within the region.
J. Evaluate the potential for restoration and co-envisioning a transition towards agroforestry with interested families.

Expected outcomes:
1. Local capacities for RWH and water management, maintenance of the technologies, and correct operation.
2. A professional intercultural team made up of technical coordinators for the installation of rainwater harvesting systems and field coordinators who are trained in all the program.

Component 5: Project implementation and systematization monitoring, and results documentation and dissemination.

Concrete Outputs:
5.1 Systematized documentation of the community processes taking place during the project for the elaboration of a detailed manual for the effective replication of the model created.

Related activities:
A. Design the monitoring, follow-up and evaluation tools for short-, medium- and long-term impact measurement and analysis.
B. Capture data and evaluate the direct impact of the installation of RWH technologies and the benefits of the increased access to water in the *Wixárika* communities.
C. Joint monitoring of areas of intervention and necessity identification (planting, pruning, soil enrichment, etc.).
D. Consolidate, systematize, and structure all the steps and actions taken in the course of the implementation, and produce a manual detailing the process, with the purpose of facilitating the adaptation and replication of the model for other communities in and beyond Mexico.
E. Systematize the development of content, processes, didactic material for intercultural education, and adapt them to other cultural contexts.

Expected outcomes:
1. Integrative model for the implementation of rainwater harvesting systems and water management that can be replicated to address water precariousness in contexts of dispersed rural populations

Experience in the proposed field
Isla Urbana (the umbrella organization made up by Lluvia Para Todos and its sister company Solución Pluvial; see Annex 1) was founded in 2009, and is since a pioneer organization in the field of Rainwater Harvesting used at scale as a tool for achieving water resilience in vulnerable communities. Our focus is on low-income peri-urban and urban settlements, as well as isolated indigenous communities. We have installed over 39,000 RWH systems in homes and over 600 in schools throughout the country.

Our work has focused on the development of technologies and implementation models that allow the large-scale deployment of Rainwater Harvesting Systems that achieve long-term adoption and appropriation by their users.

The models we have developed involve carefully designed technology in the form of robust and durable physical components, combined with user training, local technical capacity building, production of didactic materials, and long term support, in order to leave communities with a deep appropriation of rainwater harvesting practices. Follow-up and long term monitoring have shown robust adoption of the systems many years after project implementations. Our experience implementing and designing rainwater harvesting programs has included significant contributions to the development of rainwater harvesting policy in the country. Mexico City's Rainwater Harvesting Program was largely designed with Isla Urbana, as was Guadalajara's Nidos de Lluvia Program, along with several municipal scale programs. In 2022 and 2023, Isla Urbana installed over 13,000 rainwater harvesters within the context of these large-scale programs, and in the same period, extended its network of "Rain Schools" -schools that implement RWH systems together with workshops and support for the school community to learn how to use and maintain them long term- by over 200 schools.

Isla Urbana has also executed RWH projects in remote and isolated indigenous communities for many years, including in the *Wixárika* (where the current proposal is focused), the *Rarámuri* (Tarahumara), and *Mazateca* sierras. In these rural, isolated, highly marginalized contexts, the levels of water precariousness are extremely high. This has generated very strong receptivity and high adoption of RWH systems by the local families and community members, for whom having a large tank full of clean water in their homes has proven of huge benefit. Through careful administration, they have generally been able to use these tanks to secure drinking water year round, saving each family hundreds of hours of heavy work hauling water every year.

The work in these communities, however, has far greater levels of complexity than what we find in cities like Mexico and Guadalajara. The geographic isolation, lack of roads, and poor state of infrastructure alone have required the development of specific RWH system designs better suited for transportation by hand and pack animals (for which reason we have developed the geomembrane cistern designs included in this project). More significantly, the vast cultural and linguistic differences between the different indigenous communities found in the country, and between them and the broader mestizo culture, makes the social, organizational, and capacity building aspects of the work especially complex. Nowhere is this truer than with the highly isolated and very unique *Wixárika*, with whom we have worked for the past 13 years.

Executing projects in these communities has involved the development of community work models grounded in concepts of empathy and culturally sensible knowledge sharing. The *Wixárika* have been traditionally distrustful of "*teiwaris*" -non-indigenous outsiders-, and the main town of San Andrés Cohamiata where this project takes place is over 16-hour drive from Mexico City, passing dangerous and largely lawless tracts of mountain highway. Because of its nature, this project requires a far deeper understanding of the local culture and context, its cosmovision and traditions, and a much more sensitive approach to be able to intervene in the field. These are some of the reasons why the work in the *Wixárika* Sierra has been so slow and cautious in comparison to Isla Urbana's larger urban programs. Further details about lessons about other projects and lessons learned are discussed in Annex 4.

We do not seek to simply install RHW technologies, but rather to work closely with *Wixárika* communities to reach real water autonomy. To achieve this, we only work with communities who explicitly request it and, most importantly, with technicians and promoters who are trained *Wixárikas* that live in the Sierra and are employed by Lluvia Para Todos. Our work is based on building long-term relationships of trust, and has involved developing methods and strategies unique to this program and distinct from all the others Isla Urbana has carried out.

Integrating the landscape

As climate change related issues arise around the places where our work focuses, the integration of other water-related practices (such as landscape rainwater harvesting, successional agroforestry, soil rehydration and regeneration) become more and more relevant in our projects. Desertification is becoming one of the main issues to address in Sierra *Wixárika*, since it not only affects food availability, but also reduces overall humidity and rainfall patterns.

For the past 3 years, the Isla Urbana team has been building internal capacity to address the water problem from an integrated hydrological management standpoint, by attending courses, workshops, certificates, and other

activities. But it has mainly done so by partnering up with expert individuals and organizations. In the Ha Ta Tukari project, such collaborators have worked with us in the field since 2022 by integrating an analysis of landscape water management potential, and exploring possible avenues for the Sierra *Wxárika* and its people like successional agroforestry systems.

For this specific project, the Integrated Hydrological Landscape Management Methods will be led by *Taller Nuevos Territorios* (TNT) in collaboration with Cosecha de Agua, partners with which Isla Urbana has collaborated before. *Taller Nuevos Territorios* is a network of professionals in earth sciences established in 2012 that integrates biology, engineering, architecture, forestry, silviculture, agriculture, anthropology and landscape management and design. Its methodology is framed by the principles of Ecological Design and Permaculture, and it is rooted in the cultural identity and efficient use of local resources to establish sustainable and resilient human settlements that lay the opportunity to achieve a right livelihood. The focus is on the relationship between territorial opportunity and human needs. TNT works for a broad range of clients such as private and public institutions, communities and community groups and NGOs.

In the last eleven years, *Taller Nuevos Territorios* has directly worked with 19 different communities building local capacities and a knowledge base that allows users to establish cooperative relationships with the territory by adapting land use activities fitted to the natural opportunities of the site, adding to approximately 39,000 hectares designed for rehydration and indirectly affecting 14,000 people inhabiting these territories. This process is expressed in land use plans and Community Hydrological Designs, which are based on a participatory approach, and that collectively build a path towards water autonomy at a broad landscape scale. Such designs are expressed through a set of strategies, practices and land use plans to rehydrate landscapes by slowing the water flow and promoting its infiltration in soils, biological resources, built water bodies and tanks, and the appropriate treatment and reuse of gray and black waters.

Their work spans through different states of Mexico and Colombia, and has been shared in conferences, forums and workshops in Brazil, Peru, Costa Rica, Venezuela, Australia, Germany and Norway.

These methods will be deployed in a few locations previous to a diagnosis and then they will be implemented at an expanded scale. This phase will allow us to carefully design the integration of this component within the project and implementation model, and deploy it once it is fully integrated. The many years of work in the area and precious similar collaborations have given us the experience necessary to successfully carry out this integrated project.

Description of the technologies

RWH systems in buildings: the systems capture the rainwater that flows off the building's roofs and channel it via gutters and pipes, passing through a leaf-screen (stainless steel 2x2mm mesh), a first flush system that diverts the first 0.5-1.5mm or 0.5-1.5 L/m2 of precipitation from each rain event (in order to flush dirt and other contaminants from the roof prior to collection), and is then introduced into a storage tank. Within this tank, a calm inlet allows incoming water to fill the tank from the bottom without stirring up settled sediments. The tanks are made from HDPE (High Density Polyethylene) geomembrane and have capacities ranging from 14,000 to 30,000 liters, depending on the type of system and size of the building (e.g. homes vs schools). Final treatment of the water can be achieved with chlorine tablets or with purification filters, depending on each village's context.

These systems capture approximately 25,000 liters of rainwater per year in homes, and 4-6 times as much in schools, enough to provide families with an average of 68 liters of drinking water at home per day, equivalent to 3 or more daily trips to streams and water holes carrying 20+ kilograms of water each time.

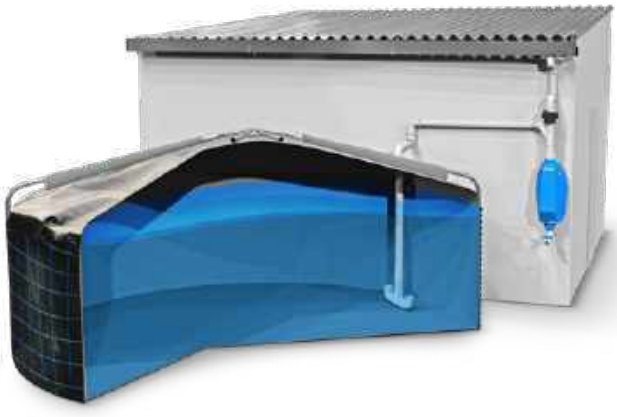


Figure 4. *RWH system render*

Photo 3. *RWH system in the Palma Chica locality*

Integrated hydrological territory management methods: these interventions are designed to combat desertification by increasing water retention and infiltration in the landscape, increasing biomass and vegetation cover, reducing soil erosion, and reducing the degradation of agricultural land. They are done by the implementation of features that slow the speed of surface water flows, promote infiltration, catch soil, and retain moisture. These features include swales, keyline and/or contour line trenches and slits, revegetation/forestation along contours, ponds and micro dams, gabions, and other subtle changes in the land that prevent the fast erosion of soils and allow water more time to permeate into the ground. It also involves working with the local farmers to implement similar methods that allow their cultivated fields to retain soil more effectively, since the steep grades and shallow soils of the sierra mean that agricultural land generally becomes massively depleted within a few years.

To integrate these interventions and create a healthy landscape that can also sustain food sovereignty, it is necessary to build Successional Agroforestry Systems: a design methodology that promotes the natural replacement of plant species over time in healthy ecosystems (natural succession). This type of intervention produces abundant food for humans and animals, wood for different uses, as well as biomass that is reincorporated into the soil, favoring soil health and therefore its retention and infiltration capacity. These actions contribute to rehydration at the landscape scale, while forming productive and resilient "micro-ecosystems". The actions mimic the natural processes of biodiverse ecosystems and human intervention serves as the accelerating and optimizing element of the regeneration process.

The potential of these interventions has already been analyzed in the *Wixárika* Sierra (see figure 4). Component 3 and its outputs, activities, and expected outcomes directly address this topic, as well as D, E, F, G in component 1, and activities A, B, E, F, J of component 4, and all of the component 5.

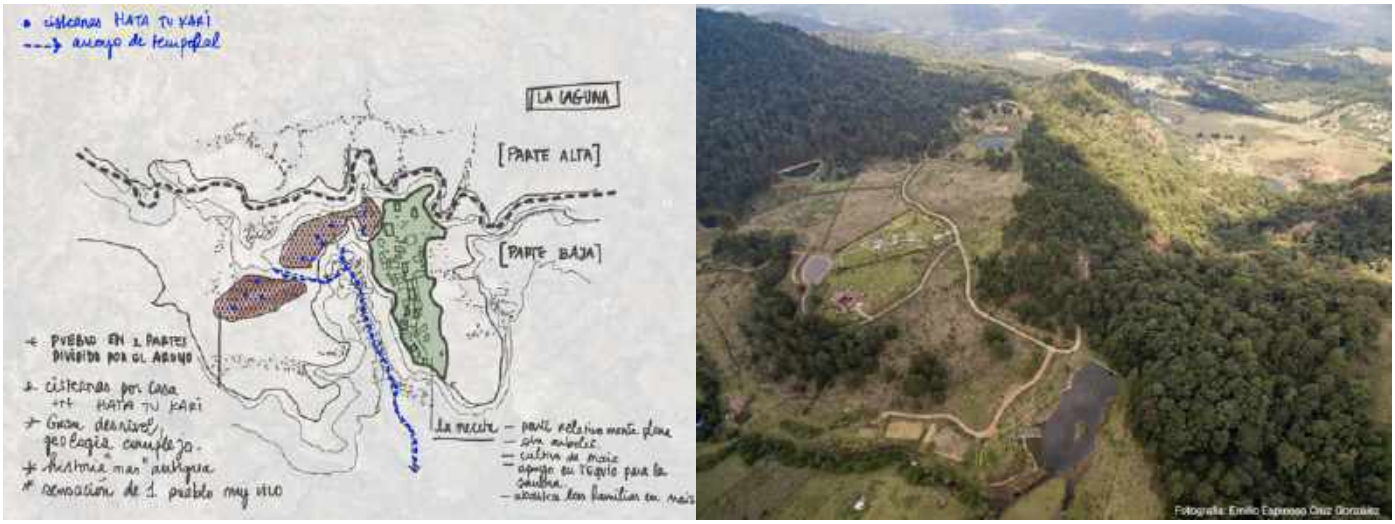


Figure 5. *Image of the initial landscape analysis of la Laguna town, Sierra Wixárika, 2022*
Photo 4. *Successional agroforestry system by TNT in Reserva El Peñon, Valle de Bravo, Mexico*

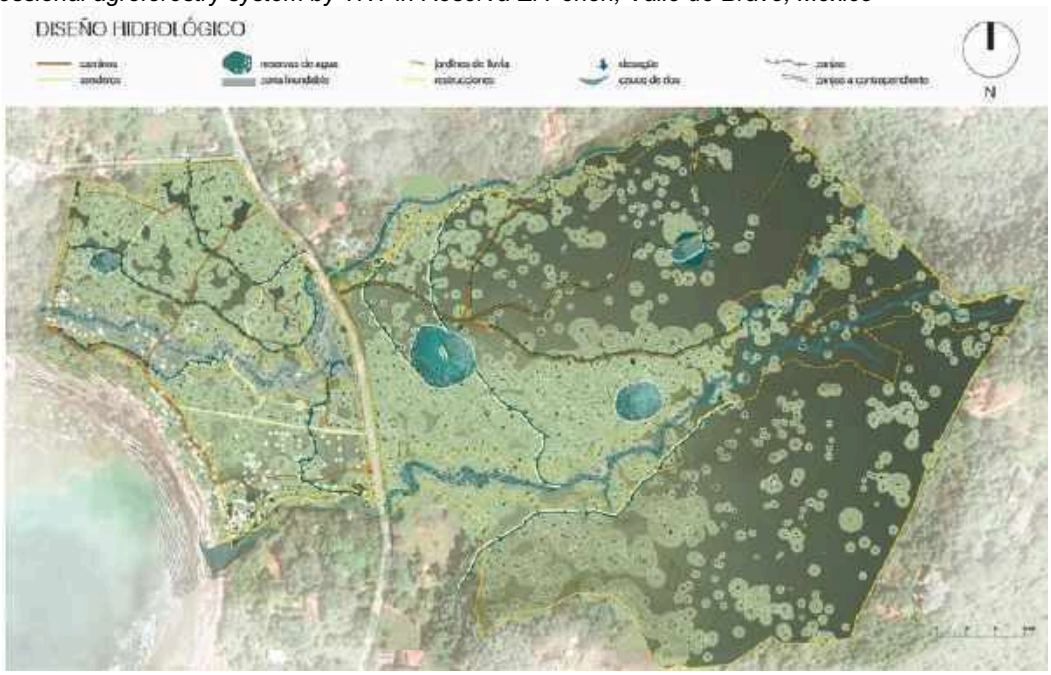


Figure 6. *Hydrological design for the project ZUNYA, Nicoya Peninsula, Costa Rica, 2019-2022, by TNT*

Project/Programme Components and Financing:

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US$)
Component 1: Participatory community water access diagnostics of the San Andrés Cohamiata region communities.	**1.1** Carry out community meetings, tours, and other activities to deeply diagnose the water access and environmental situation through community participation processes, and achieve agreements of co-participation with the locals in preparation for the implementation phase. **1.2** Inform local authorities about the project and invite them to make formal requests for their community to be included in the project	**1.** Communities with comprehensive diagnoses of the current water situation. **2.** Baseline data for future monitoring and evaluation. **3.** Co-participation agreements with local authorities and communities for implementation.	$598,571
Component 2: Establishing rainwater harvesting (RWH) infrastructure for sustainable and autonomous water access.	**2.1** Implementation of 1200 fully functioning RWH systems in homes and community buildings **2.2** Group and one-on-one training and agreements with users for the correct use and maintenance of the RWH systems.	**1.** 1200 rainwater harvesting systems installed and in proper operation throughout San Andrés Cohamiata.	$3,437,531
Component 3: Developing and piloting of a community action plan for landscape-scale water management.	**3.1** Analyze and co-design the best strategies for water retention, storage and soil rehydration and implement pilot systems in the areas with the best opportunities	**1.** Local capacities for landscape-scale water management. **2.** Full adoption, correct use, maintenance and replication of RWH technologies. **3.** Common understanding of climate change impacts on the local territory and its environment, as well as the	$1,710,822

		adaptation strategies at hand.	
Component 4: Developing communities' capacities for sustainable water management.	**4.1** Carry out workshops, meetings, group and one-on-one training, and other knowledge-sharing activities to develop and strengthen the local capacities around RWH technologies and ensure the project's sustainability. **4.2** Extend and professionalize the local intercultural team of installers and coordinators.	**1.** Local capacities for RWH and water management, maintenance of the technologies, and correct operation. **2.** A professional intercultural team made up of technical coordinators for the installation of rainwater harvesting systems and field coordinators who are trained in all the program.	$511,433
Component 5: Project implementation and systematization monitoring, and results documentation and dissemination.	**1.1** Systematized documentation of the community processes taking place during the project for the elaboration of a detailed manual for the effective replication of the model created.	**1.** Integrative model for the implementation of rainwater harvesting systems and water management that can be replicated to address water precariousness in contexts of dispersed rural populations	$414,454
6. Project/Programme Execution cost			$700,461
7. Total Project/Programme Cost			$7,373,272
8. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)			$626,728
Amount of Financing Requested			8,000,000.00

We are currently working on the development of maps for the area where we can estimate the potential for water harvesting in each of the 21 localities and its impact on different households can be visualized. For this purpose, we are using coordinates for every visible building using publicly available satellite imagery from Google, and (2) calculating the linear distance of every building to the nearest water source (retrieved from fieldwork). As the distance does not consider topography or the path from existing road networks or footpaths, the actual walking distance is higher than this estimate (Figure 7).

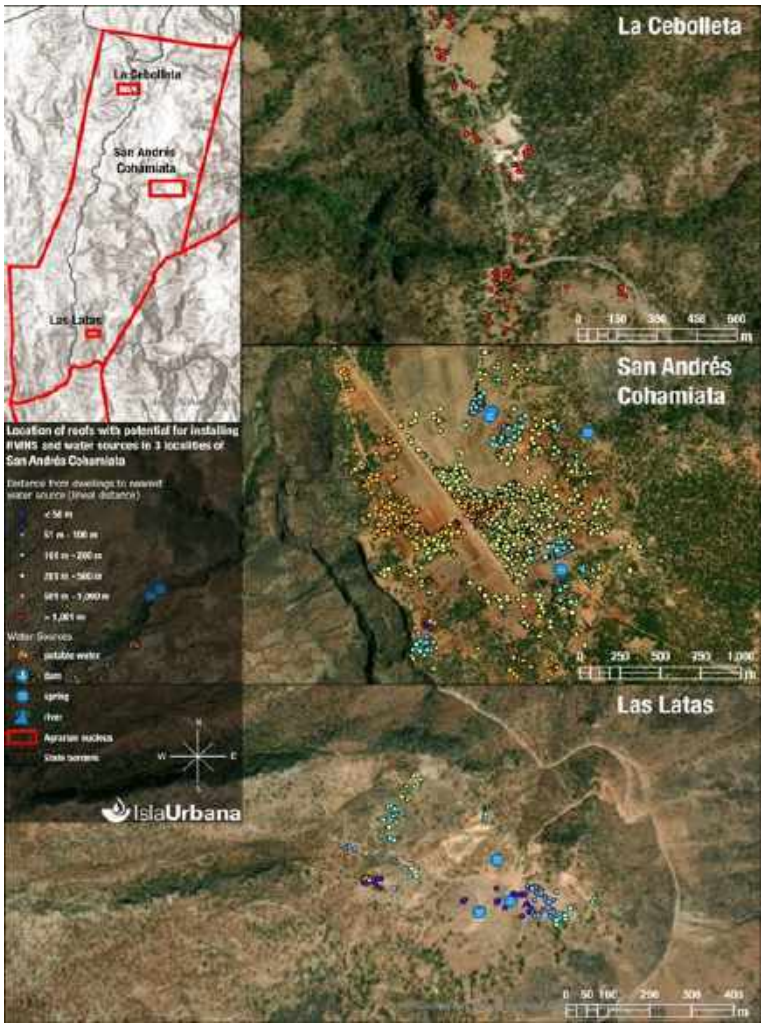


Figure 7. *Map of three different localities and the distance from each building to the nearest water source.*

Ha Ta Tukari has already achieved near universal coverage in two of the 21 villages of San Andrés Cohamiata, and has secured funding to install Rainwater Harvesting Systems in every school and clinic in the area. The current proposal for 8 million USD would cover the implementation of Rainwater Harvesting Systems for the remaining households in this area, as well as significant landscape-scale work to combat desertification and increase water retention.

The goal of achieving universal coverage in the other 3 regions will be pursued after San Andrés Cohamiata. The 4 *Wixárika* groups are fully independent of each other, and though they are geographically close, they are not well connected. Large canyons separate them from each other, and no roads connect them internally. The work in San Andrés Cohamiata, the largest of the four, will allow us to build up the implementation capacity necessary to extend into the other three.

In order to fund this future stage of the work, we continue to develop and expand our relationships with diverse funders. We have set up a task force within the organization that will be dedicated to fundraising and grant-writing for this project, and we hope and believe our current main funders, Fundación Gonzalo Río Arronte and Casa Córdoba, are likely to continue supporting the work. We have also begun working with the State Government of Jalisco, which has shown great interest in the project, and especially the Secretary of Citizen Participation and Reduction of Inequalities, who will begin funding Rainwater Harvesting Systems with us in the region this year (2023). We strongly believe that as the work in San Andrés Cohamiata ramps up in scale, it will draw increased support from the foundations and government institutions that have already committed initial resources or expressed interest.

Projected Calendar:

Milestones	Expected Dates
Start of Project/Programme Implementation	November 2024
Mid-term Review (if planned)	February 2026
Project/Programme Closing	November 2027
Terminal Evaluation	February 2028

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Description of the project components and concrete adaptation activities

Component 1: Participatory community water access diagnostics of the San Andrés Cohamiata region communities.

Diagnostics are essential for two reasons: they involve the production of detailed information about each individual town upon which the following components depend (number and location of households, identification of extraordinary cases, analysis of existing water access conditions, and establishment of baseline data), and they create the necessary space upon which the collaboration with the local population is built. They involve holding participatory community meetings where everyone can ask questions, voice concerns, and contribute.

Carrying out community diagnostics allows for the population to gather, share, learn, propose, and participate in the development of climate adaptation strategies, and strengthens the collective organizational capacity to respond to the changing climate conditions. Both a well-informed population and the baseline data contribute to understand existing conditions, and are essential for effective adaptation strategies. In this sense, this component addresses the AF strategic Outcome 1, as it enables us to learn about the people's perception about changes in the climate and potential threats (as an informal assessment since it is through the locals' experience and observation). Similarly, through Output 3, this component ensures community participation in adaptation and risk reduction activities, to move towards building adaptive capacity.

Component 2: Establishing rainwater harvesting (RWH) infrastructure for sustainable and autonomous water access.

As climate change, drought and desertification challenges deepen, there is little that the people can do but walk further in search of water and increase the overexploitation of the existing water holes and springs. By building a broad, decentralized infrastructure of multiple, independent Rainwater Harvesting systems, families can count on clean, stored water, directly next to each home. The distributed and autonomous nature of each system means that any mechanical or physical failure or damage to any individual system will not affect the rest, which gives great resilience to the whole. By virtue of this decentralization, RWHS directly address the AF strategic outcome 1, since they provide completely independent infrastructure to each building and family, and reduce their exposure to threats that might affect the whole community. This component addresses outcome 4 through the development of infrastructure assets that increase adaptive capacity and resilience in the community. Lastly, this component supports Output 8 through the scaling-up and development of RWHS systems throughout the community, offering an innovative technology to move towards successful adaptation.

The project will provide a large number of RWH systems in all 21 towns and villages that make up San Andrés Cohamiata, in the homes, schools, clinics, and other public buildings. Each system includes a tank of 15,000-liter capacity. The existence of this distributed infrastructure of rainwater tanks will produce an enormous increase in available water, whose quality can be secured much more readily than that of the existing open water holes from which so much of the water is currently obtained.

Having this capacity to store water whenever it rains for use later allows for a greatly expanded capacity to adapt to the increased irregularity in rainfall that is a direct result of climate change. It also increases adaptivity because this system of RWH systems reduces the demand and pressure put on the existing water holes and springs in the area. This means that they are less over-exploited, and thus can maintain a greater volume if and when they are needed. Reduced pressure on these sources also means a greater volume of water can remain in the landscape, with fewer people concentrating and drawing from these natural sources, which means less pressure on the fragile riparian ecosystems that exist in the immediate surrounding of these water sources.

Component 3: Developing and piloting of a community action plan for landscape-scale water management.

The *Wixárika* region is being subjected to increasing drought conditions, forest fires, and land-changes that worsen the degradation of the local soils and ecosystems. This is a grave and highly worrisome problem given that the rocky ground with thin soils and steep slopes of the *Wixárika* Sierra is highly vulnerable to desertification and erosion, and degraded lands in the area are very difficult to regenerate.

In order to increase resilience at an ecosystemic level and adapt to the changing rainfall patterns and general climate, retaining as much water as possible within the region's watersheds and soils is essential. Water retention and infiltration can increase the landscapes capacity to sustain its vegetation cover, and increase the flow and duration of seasonal streams and springs. Increased vegetation and humidity in the landscape can even potentially help increase local rainfall. All of these outcomes aim at reducing the exposure of the *Wixarika* to climate-related threats (AF strategic outcome 1), by regenerating the landscape and re-building its capacity to retain humidity.

Retention of water and soil in the landscape are essential actions to improve the health, resilience, and adaptability of the *Wixárika* people settled there, increasing their potential water access and agricultural capacity. Water can be stored in open ponds for non-potable uses, and in the soil itself in order to decrease the rate of desertification.

This line of work requires a great deal of community participation and organization, which will be a great part of the focus in carrying out the project. This is difficult work, but it is absolutely essential to increase the adaptability and resilience of the *Wixárika* communities, whose best hope for avoiding the degradation of their lands is in being able to organize and work together towards protecting them from erosion and deforestation. This community adaptation plan targets Outcome 7, in which new planning and policies are created with community input to promote and work towards resilience. The implementation and execution of this plan works towards Outcome 3, by ensuring community participation and ownership throughout the process.

This component of the project will be implemented in 2-3 locations, where the physical conditions of the landscape are favorable, and the local villages are most interested and organized. It will involve collaborating with experienced landscape management experts, and the development of a strong community organization effort to bring about. The execution of this phase of work is a necessary pilot stage for its subsequent scaling and extension to the greater region.

Component 4: Developing communities' capacities for sustainable water management.

Rather than implement the project by bringing in outside technicians to install the RWH systems and develop the landscape-scale water management plan, the project will grow and strengthen an existing team of *Wixárika* technicians and community workers, so that as much as possible of the work in organizing and building the decentralized infrastructure is done by the communities themselves, thus ensuring the local ownership of the adaptation solutions (AF outcome 3) and the strengthening of livelihoods through employment opportunities

(Outcome 6).

We will bring outside expertise whenever necessary, promoting intercultural knowledge-sharing processes and the strengthening of local capacities for the efficient replication, installation, use, and maintenance of eco-technologies, and design and execution of landscape-scale water and soil retention works. We will also work with each village and town through the establishment of community co-participation agreements, and develop capacities for the technologies' long-term maintenance. The goal is for the *Wixárika* population to be able to build, expand, use, care for, and repair their own RWH systems and landscape RWH interventions in the long term, and thus build a truly autonomous, decentralized, and lasting infrastructure.

This component involves growing and training the professional team of *Wixárika* technicians who will build the infrastructure, teaching every family how to operate and perform basic maintenance and repairs for their RWH systems, and carrying out a full education component that involves every single school in the area, working with teachers and students so that RWH system use, safe drinking water practices, and landscape water management principles are taught to every *Wixárika* child during their school years.

This broad and intense effort to create capacity and build knowledge on water management among the population will vastly increase the *Wixáritari* resilience and capacity for adaptation in the face of changing climate and water conditions, and increase the local team and general population's capacity to minimize their exposure to climate variability risks, and to respond and mitigate the impacts of climate related events (like forest fires, floods, and rain variability; AF strategic outcome 2).

Component 5: Project implementation and systematization monitoring, and results documentation and dissemination.

One of the most important achievements of this project is to build work methodologies based on empathy and local experience. In pursuit of this objective, we aim to continue this systematization work, testing our tools once again. This will allow us to optimize processes and improve as we progress, with the ultimate goal of replicating and expanding the experience and intercultural aspects, which are the most crucial elements of this methodology. We will be working on systematizing this experience in San Andrés Cohamiata, laying the foundation to achieve the goal of universal water coverage throughout the Sierra *Wixárika*.

To work towards knowledge management and dissemination, we will produce documents (reports, guides, etc.) as well as products (videos, pictures, etc.) to share the experiences both within and outside of the Sierra, so that these processes and stories can be known and shared throughout the Global South, therefore addressing Outcome 8 through the development of new tools. This documentation will be done through two main mechanisms: (1) semi-annual work reports that contain information obtained on site through different tools (daily logs, census formats, databases) and (2) audiovisual products (pictures, shorts, and videos) documenting all phases of the project. These materials offer new knowledge, specifically on integrated rainwater harvesting and landscape hydration systems in the region, while recognizing the intercultural processes that are the foundation for successful implementation and sustainability of RWH projects.

The scope of this objective will result in an implementation model that can be replicated in the other three major communities (or subregions) of the *Wixárika* Nation. This component also harnesses our strategy to improve by analyzing the work done, and to be able to capture and disseminate lessons learned, both amongst our team and outside of it.

B. Description of economic, social, and environmental benefits (particular focus on vulnerable communities and groups)

The potential success of this project has been proven at a local, smaller scale, with the installation of 250 RWH systems that provide water for human contact and consumption for 8-12 months a year for almost 2,000 people (direct and indirect beneficiaries). With the Adaptation Fund this number could increase to over 7,000 direct

beneficiaries, through universal coverage of RWHS in homes and community buildings for the whole population of San Andrés Cohamiata (INEGI). Just in terms of RWH systems in homes, the benefits include year-round water availability for domestic purposes, a significant increase in people's hygiene, health, general quality of life, and a step towards gender equality, since it reduces time and efforts to provide water, a task most often done by women and children.

General water access

Water access is extremely uneven in Mexico; there is a great amount of overlap between communities that are economically poor, and those that suffer from poor water access. Small, rural, and especially indigenous populations, are much more likely to lack secure water. The *Wixárika* as a whole are a stark example of this. By securing permanent, sustainable, autonomous water infrastructure in this area, and undertaking soil regeneration and water retention strategies, we will help address this inequity, bring social, economic, and environmental benefits while mitigating negative impacts.

Social, economic, and environmental benefits

The project takes place within the context of a semi-autonomous indigenous area, with a large degree of self-rule under a traditional government and customary law. This fact is considered throughout the implementation process, which involves close collaboration with local traditional authorities. Work in each individual community begins only after having established agreements of collaboration with the current representatives of the local traditional government, the details of which are developed in conversation with them, and then set into writing. The central traditional government, which represents all the communities, requested the extension of the project to every town and village in the area, and the project was formally presented in the main assembly and accepted by the traditional authorities earlier this year.

Traditional governance and custom are always taken into consideration and respected. For example, it was the request of the traditional authority that the work of implementing Rainwater Harvesting Systems in all the communities should begin in the 11 major ceremonial centers where the principal rituals are held. This was agreed upon, and has already been fulfilled, with traditional ceremonies held to bless the work and place it within the framework of the customary law and tradition.

The *Wixárika* region has minimal access to paid work, and stable, formal employment is almost non-existent. This project will generate local paid jobs in the forms of rainwater harvesting technicians, community workers, landscape workers, etc., through the building of the intercultural team of installers and promoters. All the technicians and promoters (currently 10; 7 men and 3 women who would otherwise hardly have a stable job) are hired directly by us. In the medium-term, we expect to expand this team and eventually offer more work opportunities.

In terms of environmental and access to food benefits, rainwater retention within the watersheds will have impacts on food sovereignty as well as in the landscape and the ecosystemic services it can provide, in turn also attracting biodiversity and generating biomass. Establishing integrated systems (rainwater harvesting, successional agroforestry systems, controlled water consumption and land roaming for livestock) is the key starting point towards soil and forest regeneration, which can be the detonation of a more stable habitat resilient to droughts. Water retention within the watershed will also conduct the communities towards access to diversified and nutritive food, as well as sustainable wood and traditional medicine.

The rehydration of the landscape gives viability to peasant landscapes, as it increases their water storage and supply capacity. This, especially in the framework of an agroforestry system, contributes to ensure food sovereignty and appropriate livelihoods, which, based on a cultural identity, enable a cooperative relationship with the landscape. Given the productive and at the same time careful orientation of the soil, abundant results are obtained for the use of the families. This represents an advance in autonomy and sovereignty and, eventually, could mean the generation of surpluses (food and wood), for exchange or commercialization. In this way, the new generations have the social, cultural and economic conditions to develop roots with their territories, stopping migration and abandonment of the countryside.

The productive capacity and the visible changes in the health of the soil and the environment of these systems in the short, medium and long term, favors the involvement of people and their commitment over time. The agroforestry landscape has the potential to become the nucleus of fertility and biodiversity at family, community and territorial scales. It strengthens the supply of ecosystem services for the family, the community and the landscape. In this way, future generations have the social, cultural, and economic conditions to reestablish a connection with their territories, halting migration and abandonment of rural areas. This model represents a radical shift from the current agricultural paradigm as it advocates for the utilization of local resources, avoiding dependency on external inputs, and seeking economic and ecological autonomy by employing natural principles such as soil coverings, diversification of plant species, and the incorporation of trees into the production system. Trees become nutrient recyclers that are constantly reintegrated into the system.

Gender equity

This project inherently impacts on gender and equity issues, because current water access is highly unequal, and has markedly differentiated effects and implications for women vs men. Since there is very little official data of the region, most of the analysis we count on is made either by research of existing documents, or direct observation from our team and our 13 years' experience working in the region. The most relevant observation is the following: most of the people in the Sierra have to haul their water, and most of the hauling (at least 75% according to our observations) is done by either women or young girls due to the traditionally gendered housekeeping and cooking roles. An initial gender assessment is further developed in Annex 2.

This work, by the mere fact of providing clean water in the homes, will have tangible positive effects on gender and equity dynamics. We strive, however, to go beyond these direct impacts. The Executing Entity is very committed to the integration of women into the team (the EE's team itself has very strong female integration, including the project director). *Wixárika* women, however, are often not supported by their families if they seek active employment, and effort had to be put into encouraging female candidates to apply. The integration of women into the local team has involved on-going support for them from the whole team. It is the intention of the EE that the growth of the team in the next phases of the project involve as many women as possible.

Our work tries to prioritize certain beneficiary profiles who have a significantly greater or special need. The most common is the case of single mothers. These women often became pregnant while very young to fathers who did not stay. Having children, they often find it very difficult to re-partner, and are left to raise the children themselves with only whatever limited help their parents and siblings can give. These women often find themselves in conditions of great material poverty, and have to carry out multiple tasks that would normally be shared in a couple. In these cases, eliminating, a woman's need to walk for and haul back water for her family is an enormous burden lifted.

As mentioned above, within the project particular emphasis is placed on providing conditions for the inclusion of women within the work team. In this regard, it is recognized that the current socio-cultural conditions are complex and in many cases limit the participation of women. The EE intention is to use the previous experience of working in the region and complement it with specialized advice for the design of a strategic plan for the integration of women, which will be elaborated in greater detail in the full proposal.

C. Analysis of the cost-effectiveness

The current characteristics of geographic isolation, insecurity and marginalization of the region, which are evidenced in the low Human Development Index (HDI), the conditions of health and access to basic services, make the implementation of socio-environmental projects in the area (in addition to being risky and complex) costly and demanding in terms of investment of time, human and financial resources. For these reasons and because it is an indigenous population whose socio-political and religious organization is complex, cost-benefit analysis by number of beneficiaries can be detrimental to the evaluation of this type of project.

Government agencies and municipal authorities, guided by hegemonic conceptions of development, make social investment decisions inappropriate to local problems due to ignorance, misunderstanding or lack of sensitivity or interest in other different realities. Evaluating interventions through cost-benefit models ignores the particularities of

the area, increasing the level of exclusion of populations with these characteristics and condemning them to a circle of vulnerability and marginalization that clearly opposes ethics and water justice. The work carried out in this project is based on principles of transdisciplinarity and interculturality, and aims at overcoming these dominant paradigms, starting from the collective and permanent construction arising from a dialogue of knowledge sharing, for the guarantee of human rights associated with water as an ethical commitment of the project.

Given the geographical conditions of this territory, and the fact that most settlements are located on very difficult terrain, with no natural waterways other than some springs and small rivers, the cost of building traditional infrastructure for water provision from wells or other natural sources is very hard to calculate, but surely extremely high and almost impossible to maintain in good conditions in the long term. In these conditions, providing completely decentralized water provision systems that rely on the most local of all sources - the rain that falls on people's roofs - is the most cost-effective strategy.

The installation of rainwater harvesting systems has been an alternative adopted and widely accepted by the populations in the region and although it is complex to measure a cost effectiveness, we have carried out different exercises that allow us to consider that there is a social return on investment of 0.6, which implies that for every Mexican peso invested for the development of this project, a social value of approximately 0.6 pesos could be generated.

The sources of water available, which ever they are, are all seasonal, which states the importance of building storage capacity, whether it is communitarian or individual. The biggest investment of the RWH is the storage tanks (in this case geomembrane cisterns with high capacity), so by implementing such a project, we are solving the central problem that any other water-provision systems would also be faced with: storage. Dispersion and low density means that buildings have enough space for big cisterns and year-round storage. **Achieving universal coverage of RWH systems in San Andrés Cohamiata is probably the most effective (and maybe only) way to secure potable water for all.** Further, the cost effectiveness also relies on the fact that the RWH technologies proposed have the potential to generate permanent changes in the population's water access; the technologies and practices proposed are highly durable, and their adoption generates deep transformations in terms of habits, behavior and practices for water provision and territory management in users.

D. Consistency with national and sub-national sustainable development strategies

Mexico's climate change policies and plans are somewhat recent and state that "a) there is still a lot of uncertainty about climate change's impacts", and "b) the vulnerability of its impacts is very dynamic and demands a constant evaluation to better understand these processes". It has 3 main national tools for climate change adaptation which aim at "reducing the society's and ecosystem vulnerability in the face of climate change effects, and strengthen the resilience and resistance of human and natural systems" and our project attend to them as follows (citing the national tools objectives and points that directly apply):

1. **The General Climate Change Law of Mexico**
    a. Reducing vulnerability and increase resilience of the social sector
    b. Increasing the access to, reducing vulnerability and increasing resilience of critical infrastructure and productive systems
    c. Preserve and sustainably use ecosystems and the environmental services they provide

2. **PROMARNAT (2020-2024 Sectorial Environment and Natural Resources Program), through its Priority Objectives 1, 2, 3, 4, and 5:**
    a. 1: Promote the conservation, protection, restoration and sustainable use of ecosystems and their biodiversity with a territorial and human rights approach, considering biocultural regions, in order to maintain functional ecosystems that are the basis of the well-being of the population;
    b. 2: Strengthen climate action in order to move towards a low carbon economy and a resilient population, ecosystems, productive systems and strategic infrastructure, with the support of available scientific, traditional and technological knowledge;

c. 3: Promote water as a pillar of well-being, managed by transparent, reliable, efficient and effective institutions that ensure a healthy environment and where a participatory society is involved in its management;
d. 4: Promote an environment free of water, air and soil contamination that contributes to the full exercise of the right to a healthy environment;
e. 5: Strengthen environmental governance, through free, effective, meaningful and co-responsible citizen participation in public policy decisions, ensuring access to environmental justice with a territorial and human rights approach and promoting environmental education and culture.

3. **PECC (Special Climate Change Program), through objectives 1 and 3:**
   a. 1: Reduce population's as well as ecosystems and their biodiversity's vulnerability, as well as productive systems and critical infrastructure through impulse and strengthening of adaptation processes and resilience.
   b. 3: To boost actions and policies that present synergy between mitigation and adaptation, and that attend to the climate crisis, prioritizing the generation of environmental, social and economic co-benefits,

4. **The National Climate Change Strategy**
   a. Attend to the most vulnerable communities
   b. Project and program transversality
   c. Promote prevention
   d. Sustainability in the use of natural resources
   e. Preservation of ecosystems and their biodiversity
   f. Active participation of target population and capacity strengthening
   g. Adaptation capacity strengthening
   h. Coordination between actors and sectors
   i. Flexibility
   j. Monitoring and evaluation of enforcement and effectiveness of the actions taken

5. **The Special Climate Change Program (this program is specific to Federal Public Administration, but our project in consistent with it nonetheless)**
   a. Territorial and ecosystemic approach: consider socio-environmental and institutional diversity, and the sustainable management of the territory and its resources
   b. Human rights, social justice and gender equity: consideration of equality of rights and ethnics and gender differences
   c. Inclusive and participative processes: adaptation must result from a collective and inclusive process
   d. Source: Gobierno de México, (2022), Adaptación al Cambio Climático, https://www.gob.mx/inecc/acciones-y-programas/adaptacion-al-cambio-climatico-78748

The project is also consistent with the adaptation and mitigation strategies presented in the most recent climate change action plan in the State of Jalisco, where the project is being implemented, the "2015-2018 State Program for Climate Change Action, PEACC" (2018), and with the 2030 Agenda and the following SDGs (to a greater or lesser extent): 1) No poverty, 2) Zero hunger, **3) Good Health and wellbeing**, **5) Gender equality**, **6) Clean water and sanitation**, 8) Decent work and economic growth, **10) Reduced inequalities**, **11) Sustainable cities and communities**, **13) Climate action.**

6. **State Development Plan of the state of Nayarit 2021-2027 with a long-term strategic vision.**
   - In the alignment of the State government programs with the SDGs, Climate Action (SDG 13) is established as "highly relevant" to "mitigation".
   - The long-term objective of the state development plan regarding Natural Resources (8) explicitly states the need for actions of "protection, rational use of resources, respect for ecosystems, mitigation, and adaptation to climate change, with the "linking of culture, nature, and civic action".
   - Objective 8.1 of the state plan explicitly establishes the strengthening of mitigation and adaptation measures to the effects of climate change "under a participatory approach based on human rights and climate justice."
   - Two strategies of this objective directly relate to our proposal as follows: the first one (8.1.2) aims at promoting sustainable production models and processes as well as efficient use of water resources. The second related strategy (8.1.4) seeks to improve environmental education and promote the adoption of mitigation and

adaptation measures to climate change in the state.

- Furthermore, given the characteristics of ecological restoration pursued through successional agroforestry systems and their impact on water resources, we identify two other strategic objectives of the plan related to the proposal, namely:
  - "Reverse the deterioration of ecosystems and achieve the conservation of biodiversity by restoring and increasing protected natural areas" (8.2). The proposed strategies for this objective include "Ensuring the protection and integral regeneration of the state's ecosystems" (8.2.1) and "Promoting the conservation of biological diversity and ecosystems in conjunction with society" (8.2.2).
  - "Promote and guarantee access to safe water in terms of quality and quantity, ensuring the preservation of ecosystems and watersheds through coordinated and participatory management" (8.4). Within the related strategies, we identify two: "Prioritize demand reduction through efficient water use and recovery of physical losses" (8.4.1) and "Advance in the recovery, conservation, and integrated management of hydrological basins" (8.4.2).

7. **Jalisco State Climate Change Strategy, 2050 Vision**
   - The strategic axis that seeks to "Ensure food sovereignty and resilient supply chains" aims, among others, to transform, adapt, and strengthen sustainable and efficient production models. Successional agroforestry systems align with the established lines of action for this strategy, as they include elements considered within the proposal, such as: productive systems that consider the carrying capacity of the territory and the food needs of the local population; reinforcing the protection of native agrobiodiversity; ensuring resilience through agricultural practices that maintain ecosystems and soil quality, and promoting the adoption of practices and technologies for efficient water use in the agricultural sector.
   - On the other hand, the strategic axis that aims to "Integrate water resources and watershed management" includes several related lines of action regarding water harvesting in buildings and landscapes, namely: "Strengthen the integrated management of surface and groundwater" (A5.3); "Promote secure access to water for life, health, and productive processes, focusing mainly on areas with water stress and increasing scarcity" (A5.5); "Encourage actions for rainwater management based on ecosystems" (A5.7), and "Promote actions to increase infiltration, pre-infiltration treatment, and protection of recharge areas."
   - Additionally, a new Justice Plan for Indigenous Communities of the state of Jalisco (https://www.inpi.gob.mx/plan-winaodme/docs/plan-de-justicia-wixarika-naayeri-odam-y-meshikan-de-los-estados-de-jalisco-nayarit-y-durango.pdf), which strongly includes the Wixárika, has been published recently. That could lead the way on a national level for indigenous communities.

E. Relevant national technical standards and compliance with the Environmental and Social Policy of the Adaptation Fund.

There are currently few national technical standards specifically governing rainwater harvesting in Mexico. There are, however, guidelines for Rainwater Harvesting System Design set out by the National Water Commission (CONAGUA) through the program PROCAPTAR, and by the Mexico City Secretary of the Environment (SEDEMA CDMX), through the manual for domestic Rainwater Harvesting. The Rainwater Harvesting systems proposed for this program are designed in accordance with these guidelines. Moreover, Isla Urbana coordinated and wrote this manual in 2019 and 2020.

In terms of PROCAPTAR (the biggest federal government reference about RWH), although our systems do meet most of the technical standards, the very premise of this program is limitative in terms of project deployment: it states that the minimal annual rainfall to operate is 1,500 mm, almost double the rainfall of the Sierra. If we followed this standard, most of the Mexican territory would be discarded for RWH. Further, the international agreement for minimal rainfall amongst the RWH community is of about 400 mm.

The primary technical standard governing water for human consumption in Mexico is the Secretary of the Environment's NOM-127-SSA1-2021 which establishes permissible limits for various pollutants. Rainwater Harvesting Systems similar to the ones to be used here have been tested multiple times by certified labs and successfully met these standards.

Still, harvested rainwater quality can vary through many local conditions, and so the proposed program involves performance of tests and analyses of water quality carried out by certified third-party laboratories throughout the implementation process and in several locations of the Sierra. These tests follow the procedures for water-quality testing set out in the NOM-014-SSA1-1993.

The systems may also integrate final stage filters for added security in cases where local factors could contribute to lower water quality. In such cases, filters would be used which comply with the national standards governing water purification set out in the NOM-244-SSA1-2020.

Based on the Article 7 of the national water laws (Ley de Aguas Nacional), the following indexes apply to the proposed project as public utility or public interest:

- Art. 7, I - Integrated management of surface, subsurface water resources, based on the hydrological basins within the national territory as a priority and as a national security issue.
- Art. 7, V - Restoring The ecosystems' equilibrium relevant to water quality
- Art. 7, VI - Increasing the efficiency and modernization of domestic and public water services, as a way to contribute and improve public health and wellbeing, to improve the quality and accessibility of the resource, as well as making a contribution to the goal of reaching an integrated management of water resources
- Art. 7, IX - To prevent and address the effects of unusual meteorological phenomena that could affect the people, productive areas or installations.
- Art. 7 BIS., V - The prioritization to address water related issues within communities, aquifers, hydrological basins and hydrological regions with water scarcity.

Our project is compliant with the following Principles of the Environmental and Social Policy of the Adaptation Fund:

- Compliance with the Law: All our actions will be consulted and have been previously approved by the federal, municipal and communitarian laws. Similarly, our infrastructure has been corroborated to deliver a water quality which meets the minimum water quality standards.
- Access and Equity/ Marginalized and Vulnerable Groups: Our project is specifically designed to address the water scarcity problem within marginalized and vulnerable groups. Also, assuring that the most vulnerable section of the populations, specifically indigenous women and children, are the most benefited by this project.
- Gender Equity and Women's Empowerment: Similar projects and associated studies have proven that Women are the most benefited with these projects, as they deal with the responsibility to provide water for their family.
- Indigenous Peoples: Our project complies and emphasizes The UN Declaration on the Rights of Indigenous Peoples
- Involuntary resettlement: Our Project increases the viability of communities to stay within their original
- Protection of Natural Habitats: Our project has the intention to modify micro basins in order to increase water availability within the landscape. However, the physical modifications created will benefit the ecosystem, reduce erosion rates and increase the water retention of the landscape.
- Conservation of Biological Diversity: Our Project will not harm the ecosystem or any biological species within it.
- Climate Change: Although the use of fuel to transport equipment will be used, no other significant source of Green gas House emissions will be used.
- Pollution Prevention and Resource Efficiency: As our project will be conducted in a very isolated region, the reuse of disposable materials will be highly encouraged. Similarly, most infrastructure comes with no packaging
- Public Health: Our project will be carried in a way that enforces the best practices during installation, transport and assembly to guarantee the public health of staff, the community and providers.
- Physical and Cultural Heritage: This project will be carried out with members of the *Wixaritari* community, of which have been consulted before and will continue to be consulted on the matter of cultural values, beliefs and resources.

- Lands and Soil Conservation: This project will be carried out in a manner that will prevent soil erosion and loss of biodiversity, as well as promoting the production of organic soil, increasing soil resilience to a changing climate, and increasing water retention.

F. Duplication with other funding sources

There isn't any duplication with other funding sources, but rather complementarity with the former and ongoing sources. Furthermore, we intend to stay aware and identify other projects and programs for possible synergies and collaboration opportunities.

The work done thus far has been possible thanks to a diversity of partnerships and collaborations with funders, other NGOs and civil society organizations, and several national and international institutions, including the UNDP, HSBC, PepsiCo Foundation, the National Institute of Social Development (INDESOL), the Gonzalo Río Arronte Foundation, the National Institute for Indigenous Peoples (INPI), the Mexican Institute of Water Technology (IMTA), amongst several others.

Currently, the project is mainly financed by the Gonzalo Río Arronte Foundation (FGRA) and Casa Córdoba Foundation, totaling around USD$500,000.00 exercised from 2020 to 2025. Nevertheless, the funds we are applying for here are specific to the expansion of the project in San Andrés Cohamiata. But since our general objective is the long-term vision of ensuring universal access to water *in the whole Wixárika nation,* we have and will keep on working to get more funding sources that will each take us closer to our goal.

Beyond the work in *Wixárika* communities, Isla Urbana counts on an extensive network of partners and collaborators whose support and assistance can be called upon for the development, execution, communication, and evaluation of this project. Existing collaborators that may prove valuable include the National Institute of Health (INSP), National Geographic, the National Autonomous University of Mexico (UNAM), Agua Capital, the Ashoka Network, amongst many others.

Additionally, Isla Urbana has developed a close collaboration with the State Government of Jalisco, involving the installation of RWH systems in homes in Guadalajara (Nidos de Lluvia), as well as in Schools. In 2023 the State Government begun funding RWH systems in the *Wixárika* Sierra. The development of a close working relationship with the government of Jalisco, where the *Wixárika* live, is of great complementarity to this project. We will be able to count on their close support on multiple fronts.

Other projects and programs have built upon the experience that has given us recognition and visibility, and have granted us the confidence from the part of important partners. Here are some recent examples:

Recently finalized projects and programs

- *Nidos de Lluvia*: implementation during 2022 and 2023 of more than 8,500 RWH systems in low-income houses in Guadalajara, Jalisco (implemented by the Isla Urbana Social business).
- Mexico City Rainwater Harvesting Program. Installation during 2022 of 5,750 rainwater harvesting systems in low-income homes in Mexico City (implemented by the Isla Urbana Social Business).

On-going projects and programs

- Rain Schools, Isla Urbana's ongoing program for the installation of RWH systems in schools, along with education workshops for teachers and students (206 schools installed in 2022, and more than 250 in 2023).
- Installation of RWH systems in the *Mazateca* Indigenous region of Oaxaca.
- Installation of RWH systems in the *Rarámuri* indigenous region of Chihuahua.
- Ha Ta Tukari, installation of RWH systems in homes, schools, clinics of the *Wixárika* Sierra (250+ systems installed so far through diverse funders).

G. Learning and knowledge management component to capture and disseminate lessons learned

Though Rainwater Harvesting is in itself a long understood and widely used practice, we have been able to develop new technical solutions aimed at making replication more viable in such a geographically and socially complex context. The Rainwater System itself has been developed through an iterative process of testing and monitoring different ideas, and has resulted in a uniquely deployable technological package of demonstrated effectiveness.

Additionally, the coordination, community work, and capacity building aspects of the project have required a great amount of thought and development in order to function effectively in the Sierra. The integration of several protocols and approaches adapted to working with remote and isolated communities has resulted in a very innovative methodology for water infrastructure deployment. Within the community, knowledge sharing takes the form of education and capacity building.

An important part of this project is to produce documents (reports, guides, etc.) as well as products (videos, pictures, etc.) to be able to share the experience within the communities of the Sierra as well as outside of them, to make these processes known and to be able to share experiences across the global south.

The mechanisms employed to these ends are:

- Semi-annual work reports elaborated from information obtained on site through different tools (daily logs, census formats, databases)
- Audiovisual products (pictures, shorts and videos) of all phases of the work

Up until now, the learning and knowledge management approach is one of documentation of processes and progress, and experience sharing within and between the individuals and organizations that have participated in this project. Nevertheless, one of the key objectives of this work (described by Component 5) is to systematize the methodology and produce a manual that can be used and adapted for working in other communities, or for the implementation of other development programs in the same area. The writing of such a manual would constitute a significant knowledge sharing exercise we hope will prove valuable to the sustainable development community in Mexico and beyond.

The generated products in the past phases are mainly related to implementation processes in only two villages in the Sierra Wixárika, where the project started in 2010. The main documents generated up to date have been activities reports, research and dissemination papers on implemented methodologies, a book narrating the experience of the project, and a scientific article about impacts in health and perception in a village. These documents are further described and sourced in the next point (H). So far, no product or material exists on integrated rainwater harvesting and landscape hydration systems in the region. Previous experience on this subject stems from the implementation of these projects in other contexts and areas of Mexico.

While previous information and knowledge about implementation of RWH systems of communal buildings and homes provides the ground for continuity and elaborating the next proposal, the intended generation of knowledge from implementing this project are different and mainly related to replicate previously designed and approved methodologies, specifically aiming at the intercultural processes that are the basis for a successful implementation and sustainability.

H. Description of the consultative process

The project is mainly driven by Isla Urbana, with the help of other organizations that all take part in the decision-making processes. The project preparation, in all of its phases, is an exercise of constant consultation and teamwork between the implementing organizations and the collaborators and funders. With funders, as well as with collaborators, the process relies mainly on weekly or monthly meetings to present progress, adjust items, funds, and objectives. **More precise information about the consultative process is shared and explained in Annex 3.**

The *Wixárika* being the principal stakeholders, understanding the spiritual framework, traditional governance structures, communication styles, taboos, and forms of communal organization present in *Wixárika* culture is crucial. To give one example, we have learned that in order to begin working in a new *Wixárika* community, it is necessary to first be formally "presented" and give an offering of candles, corn, and some very specific items, in the local ceremonial center. Failing to do so causes the people to fear that the work will not be spiritually grounded, and any accident or incident that occurs will often be blamed on this failure.

The design of the work carried out in the *Wixárika* communities involves ongoing dialogue and participation with the population. Practical decisions, for example criteria on where to install Rainwater Systems, or what co-participation requirements are fair and viable, have always been made in consultation with the communities. This is done in a variety of ways, some formal (meetings with traditional authorities and leaders, open consultation during community meetings and assemblies) and some informal (privately asking the opinions of multiple people from the communities). Both approaches are necessary. The traditional authorities must have a say and be heard. They have valuable insight and understanding of their communities' needs, but they also often have significant blind spots, especially concerning more marginalized members of the population. Women often participate much less than men do in community meetings, and the most vulnerable people (single mothers, spouses of alcoholic or abusive partners, persons with disabilities, etc.) often do not participate at all. The thoughts, opinions, and needs of these people must be sought through direct and personal approach.

These materials have helped build a better understanding of the ways that community members within *Wixárika* Villages understand and perceive the water scarcity problems they live with, and crucially, how they have experienced the work and involvement of our team. These interviews have been very valuable in the continuous process of analysis and reflection on how to better collaborate across the cultural differences. They have also allowed our team to get feedback from a very diverse cross-section of the *Wixárika* population on the impact and perceptions of our work.

I. Justification for funding requested (full cost of adaptation reasoning)

All of the objectives for this project and this particular financing opportunity are designed to address the most urgent risk in the Sierra: the lack of potable water and the soil deterioration leading to desertification. Through the Adaptation Reasoning, we find that:

1. The Climate Related Drivers are (although these are merely assumptions and observations due to the lack of local data): 1) Increased intensity and frequency of Droughts; 2) Decrease in annual precipitation; 3) Warming trend.
2. The Key Risks linked to this are Risk 5: food insecurity and breakdown of food systems, and precipitation variability; Risk 6: loss of rural livelihoods and income due to insufficient access to drinking and irrigation water and reduced agricultural productivity (semi-arid region); Risk 8: loss of terrestrial and inland water ecosystems, biodiversity, and ecosystems goods, functions and services.
3. The Barriers identified are mostly social (on the one hand, some locals, whether they are authorities or other individuals, tend to be reluctant to the project and our interventions there; on the other hand, there is a rising insecurity crisis due to cartel presence in the region that has been the major obstacle for implementation in the past two years), and of resource availability (mostly economic: although the past two and following two years' work has been secured with financing, this hasn't always been the case and we have no certainty that it will after those two years).

Our general objective in the Ha Ta Tukari project (achieving universal sustainable water coverage in the *Wixárika* territory to build resilience and adapt to the impacts of climate change, while systematizing a complete methodology that merges technical innovation with intercultural, social tools and processes for the project's sustainability) is a long-term one that can only be met if we keep finding financing opportunities. **We have calculated the full cost of implementing such a project at around 15 million USD. The current proposal for 8 million USD would cover the implementation of Rainwater Systems for the remaining households in the San Andrés Cohamiata**

region, as well as the deployment of integrated hydrological territory management methods to combat desertification; a first step towards our general objective.

The objectives specific to the Adaptation Fund and this application, if approved, are the five components related to the work in San Andrés Cohamiata described under the section Project/Programme Objectives.

J. Sustainability of the project's outcomes

The project's sustainability strongly relies on our organizational capacity to secure funds to continuously carry out the work in the Sierra and keep up with our current expansion. To achieve this, we have put together a team able to cultivate a network of funders, and diversify streams through fundraising, grants, partnerships, collaboration with governments, amongst others. We have been able to work in the sierra for the past 13 years and currently have funding secured for another 2 to 3 years.

The main issue encountered has been difficult terrain and isolation of settlements, as well as availability of skilled labor. These issues have been addressed through the construction of local infrastructure and operational capacity (headquarters and the local Intercultural Team). As a result, we are now able to continue the work without the constant presence of coordinators.

In terms of operation and logistics, in the past two years we have been expanding our local infrastructure and operational capacity in the Sierra (La Cebolleta village), and now have two 4x4 trucks (one for the coordination team and one permanently in the sierra for the local team), a warehouse, dormitory, kitchen, office and training space, and satellite internet connection. All of these tools simplify and structure the work being done locally, and will allow for rapid expansion.

Social and environmental aspects

Achieving truly sustainable improvement in water access is the core objective of this project. It seeks to do so by the mass implementation of RWH systems and interventions in the landscape for water retention and soil regeneration, both technologies that, once implemented, require minimal external energy to maintain, and take advantage of the sole renewable water source available in every location in the sierra (which currently goes unused for lack of storage capacity and knowledge on how to retain it effectively): the rain.

Each project's sustainability is founded on the value given to its social processes, which enable it to create a common understanding of its complexity in the context where it occurs, as a starting point for profound knowledge exchange and the generation of new skills, which ultimately result in full adoption of adapted technologies. In this particular project, the relationship of trust and common understanding of the objectives is already established, both with authorities as well as communities and individuals, and is further enforced by the promotion of professional work capacities. This sustains the project and brings new opportunities for the practice to be continuous, expanded and replicated without our constant presence, as it also becomes a community gathering point.

The work involves extensive education and training in three key spaces: the professionalization of the local team of technicians and community workers for implementation and major maintenance; the training of the general population for correct operation, maintenance and minor repairs; and education work in schools for RWH, sustainability, water management, health and hygiene practices.

Sustainability is deeply rooted in the thorough way of leading every stage of the implementation process to completion, equally considering technical and socio-ecological aspects. Giving the same importance to both elements is essential so that eco-technological designs respond to the specific local needs and conditions in the long-term, and training processes, users learning, response to technical problems, and all of these element's follow-up are carried out considering and involving all the actors in every village, actively seeking to involve the most marginalized and historically excluded - such as women and children - in decision-making processes.

RWH systems in homes

Once built, this large number of systems will provide fully autonomous and renewable water in every homestead. They are capture, treatment, and storage systems that can be locally installed, maintained, operated, repaired, and expanded as necessary. The design is a result of years of experimentation for minimal operating costs, ease of use, durability, repairability, deployability, in extremely isolated areas that are difficult to reach with heavy materials and equipment. The result is a RWH system with a 15,000-liter capacity geomembrane cistern, with pipes, gutters, and filters, that is extremely lightweight and can be transported pretty much anywhere, including places with no vehicle access, and be quickly installed in every home. Since there is no water infrastructure in homes, the systems can be adapted to pretty much any building. Small dispersed houses with metal sheet roofs with vast space around them simplifies the installation of on-ground 5 meter-diameter cisterns, with simple filters designed for unpolluted rural contexts.

The RWH system is a tool with the potential of providing permanent water access, but its success relies on full adoption and the development of a permanent practice. No decisions are taken without the user's engagement and agreements. Families decide where their cisterns will be installed with the help of the local technicians, and the extensive one-on-one training is carried out (during technical visits, installation, and follow-up). The RWH system installation is always accompanied by a process of co-design and local capacity building, support, monitoring, maintenance and repair.

Interventions in the landscape

The landscape water management interventions will follow the same model: trained technicians in the field, involvement of the community and end-users, local capacity building, monitoring, support, and follow-up. By working with the entirety of the community, we will seek to prove the viability of the interventions to detonate a new water management culture that integrates the landscape, and normalize these practices in the communities, through a common understanding of the challenges and benefits they entail.

The landscape rehydration will be carried out through a community action plan, focused on the intervention of the rural landscape at different scales to store as much water as possible and generate development opportunities and a sense of belonging for families. Increasing the water storage in the landscape will provide resilience and sustainability to the territory and its inhabitants. Agroforestry systems will contribute to cultural identity and cooperation (not only between individuals and communities, but also between individuals and their landscape), as they will contribute to food sovereignty. This productive and soil-conscious orientation brings abundant results for families, and represents a progress towards autonomy, sovereignty, stability, and improvement of social-environmental and even economic conditions (through the generation of surpluses for exchange and commercialization).

The local Intercultural Team and its selection

Most of the current local team (7 men and 3 women between 20 and 42 years old) is made of people who were interested in the work and began organically helping years ago as volunteers, and became permanent members. The rest joined by responding to an open application process, which was shared in community meetings, and through the National Institute of Indigenous Nations' (INPI) network. The current members will become the base of the local team of coordinators from which we will expand to up to 40 local technicians for installation and promotion tasks. All the technicians and promoters are and will be hired directly by us. In the medium-term, we expect to expand this team and eventually offer more work opportunities.

Based on previous experience and emphasizing the intention of providing an opportunity for all new people who want to be part of this work team, we will design an open call that will be directed to the general population. This call will be distributed throughout the Sierra *Wixarika* using different means of communication within the region, relying on people from the community, local authorities and formal institutions such as the National Institute of Indigenous Peoples (INPI) and the State Indigenous Commission (CEI) of the State of Jalisco with whom we have had previous communication. With the advice of specialized individuals and organizations, the open call will be designed based on a strategic plan for the integration of women, given the complexity of socio-cultural conditions that limit the participation of women.

K. Overview of the environmental and social impacts and risks identified

The environmental risks are many, given that the region is already vulnerable: droughts are already the main source of forest fires. Changes in the rain patterns are also one of the main concerns, given that they can increase the negative impact of these droughts. The project does not contribute to these risks, in fact, it should reduce them significantly and mitigate them through the increased availability of water. In the same line, regenerating the forest and soils and creating new water bodies can increase overall humidity and stabilize rain patterns.

The main environmental impacts we hope to achieve relate to the landscape-scale work of soil and rainwater retention, by which we intend to fight the trend towards desertification, promote the recharge of springs and water holes, and assist in increasing vegetation cover.

In terms of social impacts, the detonation of participation and community involvement spaces, sensitive to the cultural context, can greatly improve social dynamics in place. Further, the promotion of local work opportunities, with professionalized technicians and promoters, can be of great help in the detonation of a local economy that can impact many families' incomes. There is also the topic of gender, where we seek to integrate women more and more and initiate conversation about gender equity issues, without disrupting the traditions and social structures in place. Therefore, the project allows us to create new spaces where women can integrate the participative processes and facilitate their involvement, and in particular cases find work opportunities that can be adapted to their specific roles within their families and communities.

The Ha Ta Tukari project falls under “Category B” of the International Fund for Agricultural Development Social (IFAD), Environmental and Climate Assessment Procedures (SECAP).

Risks and impacts according to the ESP

Principle 1: Compliance with the law (low level of risk)

1.1 There are no identified major risks in terms of compliance with the law.

1.2 There is a risk relating to Mexico’s strict accounting regulations governing non-profits. These require all expenditures to be backed by fiscal receipts, which can only be emitted by people and businesses registered in the National Tax Administration Agency. Mexico has a massive, unregistered informal economy, and in the *Wixárika* region, there are almost no people or businesses registered. This means that complying with administrative regulations involves a great amount of work when trying to hire locally, as the project intends on doing. This is a manageable risk but is likely to entail a very considerable amount of work.

Principle 2: Access and Equity (low level of risk)

2.1 The project’s primary goal is to achieve universal water access, so in principle, there should be no one excluded. The more water-scarce villages and hamlets would be given priority and attention first, but all interested communities and persons would become beneficiaries.

2.2 There are risks in terms of secondary benefits of the project, particularly around employment. The *Wixárika* region has minimal access to paid work, and stable, formal employment is almost non-existent. This project will generate local paid jobs in the forms of rainwater harvesting technicians, community workers, landscape workers, etc. It is easy for the more vulnerable or marginalized members of the communities to be excluded from accessing these positions for various reasons, including living in particularly remote spots, lacking basic necessary technical, organizational, or language skills, being overwhelmed by childbearing duties, not being allowed to participate by a controlling partner, or simply not having the self-confidence to apply. Mitigating these risks will require the careful design and execution of application, recruiting, training, and support procedures that allow equitable access and participation in the project.

2.3 The organization is fully committed to serving the communities and integrating its work teams with no favoritism or discrimination, except for the prioritization of participation by women, whose general conditions of greater marginalization requires some preferential attention.

2.4 There is a risk that the absolute most vulnerable people may be left out from receiving rainwater harvesting systems when they do not have homes of their own on which they can be installed. This is a very difficult risk to mitigate. All attempts will be made to include these most vulnerable people, by hiring them, or by ensuring they have access to water through the schools or other public systems.

Principle 3: Marginalized and Vulnerable Groups (low level of risk)

3.1 The entire project takes place in the context of a highly marginalized indigenous nation, so the entirety of its impacts will be felt by them.
3.2 The *Wixárika* people live in conditions of high marginalization from the broader Mexican national community, with minimal public services. It is precisely this lack of access that the project seeks to address.
3.4 Within the target population, there are groups that are particularly vulnerable, among whom are women, single mothers, and young adults, all of whom have little power or clout in the communities relative to other sectors of the population. The project seeks to integrate these parts of the population especially, by intentionally recruiting them into the teams that will work on project implementation. The main risk is that these vulnerable people might not be easily integrated into the project teams because of various factors (such as being prevented from doing so by a controlling spouse, by shyness or lack of confidence, etc). Mitigating this will require intentional outreach, training, and support.

Principle 4: Human Rights (low level of risk)

4.1 No risks identified

Principle 5: *Gender Equality and Women's Empowerment* (low level of risk)

5.1 Women tend to be the more vulnerable or marginalized members of Wixárika communities, particularly when they are single mothers or have alcoholic and/or abusive spouses. Women will not be excluded from the project's primary benefit of providing water access in the homes. On the contrary, women will be among the main beneficiaries of this, since the task of water collection and hauling falls primarily on them.
5.2 There is a real risk that women could be excluded from participating fully as employed members of the project, for various reasons mentioned earlier. Mitigating this risk will require carefully designing the recruiting, application, training, and support processes to facilitate their participation. The Project executing team is fully committed to making this happen.

Principle 6: Core Labour Rights (low level of risk)

6.1 No risks identified. All hiring of community members by the project will be done in observance to national labor laws, ILO standards, and ethical practices.

Principle 7: Indigenous Peoples (low level of risk)

7.1 The entirety of the project takes place within the territory of the Wixárika Nation, an indigenous group that maintains a high degree of self-governance. The Wixárika community will be the beneficiaries of the project, and Wixárika people will make up most of the team. Already, the team currently working in Ha Ta Tukari (the existing program that this project will greatly scale up) is made up by approximately 60% Wixárika persons.
7.2 At each step in its development, the current program has been and will continue to be carried out in consultation with local Wixárika authorities. Every time it has been extended to a new village or hamlet, it has been after the direct request of the local authorities, and after a community meeting in which the work has been presented and explained, and the community accepted. These meetings are led by Wixárika members of the Ha Ta Tukari team and are done in both Spanish and Wixárika. The project will continue working in this manner, with explicit and informed consent from local authorities, and every individual beneficiary family.
7.3 The Project also counts on support from the Institute of Indigenous Peoples of Jalisco State, which includes Wixárika staff, and maintains constant communication and relations with the Wixárika traditional government.

7.4 The central traditional government of San Andrés Cohamiata will be consulted at every stage of the development of the project, as well as in the final design of the proposal, as they have been.

7.5 The Local authorities of San Andrés Cohamiata have produced and published a written set of guidelines and procedures for organizations wishing to work within the territory. The chief writer of this document is a close ally of the current project, and will provide his support in ensuring that these procedures are perfectly understood and followed by the team.

7.6 The team will do everything to be fully consistent with UNDRIP and work with FPIC at all stages.

Principle 8: Involuntary Resettlement (low level of risk)

8.1 No resettlement whatsoever, voluntary or not, is anticipated in the execution of this project

Principle 9: Protection of Natural Habitats (low level of risk)

9.1 Part of the Project involves landscape water harvesting work intended to allow greater water retention and infiltration, and reduction of soil loss and erosion. This involves some alteration of the terrain, but not any conversion of natural habitat to other land use. It does include the digging of keylines and other types of trenches for water and soil retention, and improvement of agricultural lands by the planting of vegetation lines along swales and trenches, in order to combat the desertification that threatens the region.

9.2 In order to avoid causing unwitting harm to the local ecosystems, interventions in the landscape will focus on already degraded lands, and will be designed with experts on landscape water management, ecology, and with the local population, taking into full consideration biological diversity and habitats, as well as culturally and spiritually important sites and features.

Principle 10: Conservation of Biological Diversity (low level of risk)

10.1 No negative impacts on biological diversity are anticipated. On the contrary, the project will seek to rehabilitate degraded lands and soils, regenerate local ecosystems, and increase the populations of native species that have been pressured by desertification and land degradation over the past decades.

10.2 No invasive species will be introduced, and all reforestation-revegetation efforts will focus on native species and possibly non-invasive agricultural plants, where appropriate, selected in consultation with the local population, ecologists, and agronomists with a strong understanding of the local biome.

10.3 It is worth noting that two current members of the team are scientists with advanced degrees in ecology, who know the region well and have a solid understanding of the biodiversity present. The team also maintains contact with the National Forestry Commission of Mexico (CONAFOR) who are available to support with recommendations on species selection.

Principle 11: Climate Change (low level of risk)

11.1 The project will not result in significant emissions or other drivers of climate change, but rather seeks to combat the desertification that is being driven by climate change as well as land use changes, through the rehabilitation of degraded lands.

Principle 12: Pollution Prevention and Resource Efficiency (low level of risk)

12.1 The Project does not involve significant use of polluting chemicals or products. The installation of rainwater harvesting systems involved the use of plastic components, such as geomembranes, pipes, and other components, but these will be long-lived and low toxicity plastics, mainly UV treated, food grade polyethylene, which has a very long lifespan, and very low toxicity, being the type of plastic used for water storage around the world.

Principle 13: Public Health (low level of risk)

13.1 The principal risk to public health would be failure of the rainwater harvesting systems to produce drinking water of acceptable quality, or the contamination of the water in any given tank from bird droppings, or the entry of animals. This risk is mitigated by the use of well tested rainwater harvesting system designs, known to be able to produce quality drinking water, by the testing of water quality throughout the project, by training the beneficiary population on best practices for safe water collection and storage, and by the addition of filters where needed. Best practices on water harvesting and storage laid out by the Secretary of Social Development, the WHO, the American Rainwater Catchment Systems Association, and the National Water Commission will be taken into account.

13.2 It is worth noting that, although poorly stored or harvested rainwater presents a real health risk, the current state of affairs, in which untreated surface water is hauled for human consumption from open and unprotected sources, often shared with animals, is potentially a much greater risk, and the use of safely harvested and stored rainwater in the homes is much more likely to reduce health risks than to produce them.

Principle 14: Physical and Cultural Heritage (low level of risk)

14.1 No cultural or historic objects, sites, buildings, etc., will be removed or destroyed in the realization of this project. All restoration and water retention work that affects the landscape itself will be designed and planned in close collaboration with the local authorities and community members to ensure that no sacred places are inadvertently altered.

Principle 15: Lands and Soil Conservation (low level of risk)

15.1 The *Wixárika* region has a rocky landscape with thin soils, steep inclines, and receives torrential rains during a monsoon season, followed by intense drought. These factors contribute to a high degree of vulnerability to erosion and desertification. Productive land is scarce, with few arable spaces. The traditional model of land use, in which forest would be felled and converted for agriculture, used for a few years, and then allowed to be reclaimed by the forest, are no longer sustainable with the much larger populations present today. Much of the territory has been significantly degraded, both by this type of conversion from forest to marginal agricultural land, as well as from massive logging ventures that were imposed decades ago on the *Wixárika*, and from which the local forests have never fully recovered.

15.2 This project seeks to begin a process of landscape rehabilitation, in order to combat the erosion and desertification that affect the area. The project will carry out works designed to retain water and soil through the digging of trenches, swales, and ponds, and through the reforestation of native tree and shrub species. It will also work to increase the soil and water retention of the agricultural lands, in order to improve their overall health and fertility and allow them to remain viable long term and not erode down to the underlying clay and rocky layers.

15.3 There is risk that in intervening the landscape, local erosion can be made worse, for example by the digging of keylines and trenches with excessive grades. The project will seek to mitigate these risks by working with highly experienced landscape water management experts, and by closely monitoring the changes in water and soil flows.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law	X	
Access and Equity	X	

Marginalized and Vulnerable Groups	X	
Human Rights	X	
Gender Equality and Women's Empowerment	X	
Core Labour Rights	X	
Indigenous Peoples	X	
Involuntary Resettlement	X	
Protection of Natural Habitats	X	
Conservation of Biological Diversity	X	
Climate Change	X	
Pollution Prevention and Resource Efficiency	X	
Public Health	X	
Physical and Cultural Heritage	X	
Lands and Soil Conservation	X	

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[2]

Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:

Laura Elisa Aguirre Téllez *Director General* *Secretariat of Finance and Public Credit (Unit of Public Credit)*	Date*: August 18th, 2023*

B. Implementing Entity certification

Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans in Mexico, in line with the Special Programme on Climate Change, as well as federal programmes and priority projects. and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
Dr. Adrián Pedrozo Acuña *General Director* *Mexican Institute of Water Technology*	
Date: *August 18th, 2023*	+52 777 329 3600 direccion_general@tlaloc.imta.mx
Project contact person: Enrique Lomnitz Climent Legal Representative of Lluvia para Todos A.C: General Director of Isla Urbana	
Email: enrique@islaurbana.org Telephone: +52 55 41885382	

[2] Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

ADAPTATION FUND

SHCP
SECRETARÍA DE HACIENDA Y CRÉDITO PÚBLICO

Letter of Endorsement by the Government of Mexico
Ministry of Finance and Public Credit

August 18th, 2023

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: afbsec@adaptation-fund.org
Fax: +1 202 522 3240/5

Subject: Endorsement for Project **Ha Ta Tukari, "Water our Life": Towards Universal Drinking Water Coverage for 21 Communities of the Wixarika Nation.** In my capacity as National Designated Authority (NDA) for the Adaptation Fund in Mexico, I confirm that the above national project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Mexico.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by the Mexican Institute of Water Technology (IMTA) and executed by **Lluvia para Todos A.C.**

Likewise, let me inform you that in case the Board approves the project, I will be working closely with the IMTA during the project design and implementation process, as NDA for the Adaption Fund in Mexico.

Sincerely,

Laura Aguirre Téllez

Laura Elisa Aguirre Téllez
Director General for International Fora and Sustainable Financing
Ministry of Finance and Public Credit
(Public Credit and International Affairs Unit)
+52 55 3688 1873
laura_aguirre@hacienda.gob.mx

ADAPTATION FUND

Project Formulation Grant (PFG)

Submission Date: August 18th, 2023

Adaptation Fund Project ID: AF00000328
Country/ies: Mexico
Title of Project/Programme: Ha Ta Tukari, "Water our Life": Towards universal drinking water coverage for 21 communities of the Wixarika Nation

Type of IE (NIE/MIE): NIE
Implementing Entity: Instituto Mexicano de Tecnología del Agua
Executing Entity/ies: Lluvia Para Todos, A.C.

A. Project Preparation Timeframe

Start date of PFG	**May 2024**
Completion date of PFG	**November 2024**

B. Proposed Project Preparation Activities ($)

Describe the PFG activities and justifications:

List of Proposed Project Preparation Activities	Output of the PFG Activities	USD Amount
Stakeholder consultancy Inclusion of all existing interested parties for project presentation and preparation according to each parties' roles, analysis and inclusion of potential new collaborators, and correct integration of all stakeholders at a local and regional level. This includes a planification of security protocols through the integration of relevant stakeholders (National Guard, State Police) given the recent increase of cartel violence in the area.	Stakeholders' inclusion and participation	$8,000
Technical consultancy Improvement of technical capacity for the project's scaling (improving the manufacturing processes of geomembrane cisterns),	Technical adaptation of proposed eco-technologies and improvement of local capacity	$10,500

planification for the transportation of materials and people to the Sierra (transport, storage and accommodation), and enhancement of local technical capacity for RWH systems installation and hydrological and socio/ecological management practices performance of the landscape		
Demographic analysis and financial consultancy Thorough analysis of demographics in the localities of San Andrés Cohamiata and gender analysis. Determination of the budget in terms of potential resulting changes in the activities (number of RWH systems, for example) and the resources needed for the project (human resources, facilities, etc.)	Demographic and gender analysis and financial plan	$6,500
Economic consultancy Analysis of the project through a cost-benefit point of view, as well as the economic outcome of the project at the local level. Integration of new practices relevant to the new tax and NGO regulations.	Cost-benefit analysis and economic evaluation	$3,000
Cartography and participatory mapping of the territory In-depth review of the background of cartographic data and land management in the region, review of literature on hydrological management and failed projects carried out in recent years. Presentation of a document with the results of the analysis of the information. Integration of local information using participatory methodologies.	Demographic, cartographic and land management analysis in the Sierra Wixarika.	$10,000
Proposal preparation	Final proposal	$12,000

- Integration of the information generated from the different analyses - Drafting of the final proposal - Preparation of main document and annexes. - Translations (Wixa-Spanish and Spanish-English)		
Total Project Formulation Grant		$50,000

C. Implementing Entity

This request has been prepared in accordance with the Adaptation Fund Board's procedures and meets the Adaptation Fund's criteria for project identification and formulation

Implementing Entity Coordinator, IE Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Dr. Adrián Pedrozo Acuña Instituto Mexicano de Tecnología del Agua		August 18th, 2023	Enrique Lomnitz Climent	+52 55 41885382	enrique@islaurbana.org

LLUVIA PARA TODOS A.C.
IslaUrbana RFC: LTO100729KP7
(55) 54464831 · www.islaurbana.org · Dakota 45 B301, Parque San Andrés, Ciudad de México, Coyoacán, CDMX, México 04040

Annex 1
Executing Entity declaration letter

The executing entity for the Ha Ta Tukari project will be Lluvia para Todos A.C., a non-profit based in Mexico City that operates within the Isla Urbana project.

Isla Urbana is the brand name for a hybrid organization that includes a social business (Solución Pluvial SA de CV) and a non-profit NGO (Lluvia Para Todos AC), as well as a c503 based in the United States, Isla Urbana USA. The Social Business focuses on the development of rainwater harvesting products and services, and carries out rainwater harvesting projects funded by sales, often to local governments, while the Non-Profit NGO carries out community projects, generally in contexts of high marginality, funded by grants and donations. The c503's goal is to raise funds for specific projects (mostly in rural and indigenous communities) and organize exchange student programs and internships between the USA and Mexico, mainly.

"Isla Urbana" has no legal personality of its own. The organization, when originally founded, called itself Isla Urbana, but the name was already registered in Mexico, and thus when the NGO and the Social Business were legally constituted, it was under the names Lluvia Para Todos AC and Solución Pluvial SA de CV respectively. The name Isla Urbana continued to be used however, and it is the name by which the organization is commonly known.

There is no legal relationship between the business and non-profit, but there is collaboration, largely in the form of donated labor, office space and infrastructure from the business to the non-profit.

Enrique Lomnitz
General Director of Isla Urbana
Legal Representative of Lluvia para Todos AC

Annex 2
Initial Gender Assessment of the *Wixárika* Communities belonging to San Andrés Cohamiata

Intro

This assessment of the gender dynamics and context in the Wixárika mountains (better known as the Huichol) was prepared by Shiara Gonzalez, Teresa Lobo, and Enrique Lomnitz, who have been principal executors and coordinators of Ha Ta Tukari, the program through which Lluvia Para Todos (Isla Urbana) and allied organizations, specifically La Ventana Infinita, have carried out 13 years of work in the area. It is based on observation, years of dialogue with community members, including local program staff and collaborators, villagers, local authorities, plus multiple long-form, semi structured interviews with women in communities belonging to San Andrés Cohamiata, principally the villages of La Cebolleta and La Laguna, Jalisco state.

The trust we have cultivated throughout these 13 years opened for us an intimate window into the life and culture of the *Wixárika*, including the complex realities and dynamics involving gender. It is from this place that the observations and interviews upon which this assessment is based were made. They do not pretend to be a comprehensive analysis, but rather a summary assessment of a nuanced and complex reality.

Context

The Sierra *Wixárika* region was one of the last areas to become effectively integrated into the nation-state, and remains highly marginal in terms of state presence, infrastructure, and services, with coverage still thin and patchy at best. Centuries of near-total isolation allowed the *Wixárika* people to remain culturally distinct, preserving a traditional lifestyle based on subsistence agriculture and the observance of a complex religious-spiritual system that revolves around natural deities and forces. To understand the gender dynamics in the *Wixárika* community is to recognize the degree to which they were, until quite recently, a deeply traditional, Indigenous society that existed at the extreme edges of the more westernized, mestizo México.

Gender in the *Wixárika* communities

The *Wixárika* are a very gendered society, in the sense that roles and expectations for women and men are distinct. In most areas of life, from the domestic and mundane, to the political, religious, and spiritual, women and men each have specific roles, tasks, and responsibilities. Childrearing, Nixtamalization, tortilla making, water hauling, and sewing/weaving/embroidering all fall principally to women, while gathering firewood, housebuilding, and hunting are generally done by men. Growing corn and other crops is done by both men and women. The spiritual life of the *Wixárika*, which involves performing multiple pilgrimages, ceremonies, fiestas, and sacrifices, and entails extraordinary amounts of work and time, involves both men and women whom fulfill essential functions and take on “cargos” or mandates of 5-year commitments to a specific ceremonial center or group of pilgrims. Men, however, make up the vast majority of *Mara’akames*, the spiritual leaders or shamans who are at the top of the *Wixárika* social order.

The spiritual practices of the *Wixárika* seem to reinforce a hierarchized gender dynamic, with women generally performing supporting roles. But, it would be simplistic to write off their importance within “*El Costumbre*” - the system of spiritual beliefs and practices. In the political realm, men occupy most positions of power within their largely autonomous local government. Sheriffs, traditional governors, municipal agents, etc, were, until recently, almost exclusively men. In more recent times, women have taken on some important positions as well, through essential roles and obligations in the ritual and ceremonial sphere, and important leadership positions. Still, as with all things, there is complexity and nuance.

Change is clearly happening in the *Wixárika* Nation insofar as gender roles are concerned, and the subject of women’s rights and inclusion are being brought up by the *Wixárika* themselves. We hear the issue increasingly

come up in our conversations with *Wixárika* people of both genders, and in the latest general assemblies, where all the villages converge on San Andrés to discuss and make decisions, women's rights have been one of the subjects included in the program.

The changes towards greater gender equity occurring are real, but do not negate the reality that women are still generally subjected to rigid expectations in the roles and types of work they perform and are often subjugated by male partners or family members who give or deny them permission to do many things: to meet with specific people, travel, or work. We have spoken directly to many *Wixárika* women and several men about these issues who describe their society as being very "*machista*". Young *Wixárika* of both genders, with whom we have spoken and conducted separate men and women's circles, have proven quite open in recognizing this issue and expressing frustrations with it.

Gender dynamics and *machismo* in the Sierra manifest in multiple ways. Many women from more conservative families will not speak to or even look at strangers, for fear of being reprimanded, or simply from a painful level of timidity borne from isolation and exclusion from life outside the home. Women becoming pregnant and then being left to raise the child alone is a fairly common phenomenon which leaves them in conditions of great economic precariousness. In the worst cases, women are the subjects of serious intrafamily violence and submission which can occur with little interference from the wider community, which tends to not involve itself in such private affairs. In the most extreme cases, this sometimes goes so far as to result in femicides, with women killed by irate or jealous partners, who often face little or no punishment.

These dynamics are all in a moment of flux and change, tending towards greater empowerment, freedom, and agency for women. This also generates pushback from many men, and at present we are observing clear tensions among families, partners, and especially young people, as they maneuver the shifting ideas about their roles and expectations with each other.

To summarize a simple assessment of gender conditions in the Sierra, the *Wixárika* are a highly traditional Native American society with set gender roles that generally confer greater power to men, and often relegate women to the domestic sphere. Gendered violence is a very real problem, and many women suffer all manner of abuses at the hands of their male partners or relatives, with little community support or recourse. Still, a great deal of nuance and variation exists and there are several examples of *Wixárika* women who have social, spiritual, and political power within the community. Younger generations are increasingly vocal in questioning the traditional gender roles and dynamics. The subject of gender equity is decades behind the rest of the country, but things are changing with considerable speed. We believe this issue requires thoughtful, sustained, and context-sensitive work and support as the new generation of *Wixárika* people question the expectations and rigidity of traditional roles and work to allow women greater freedoms and position.

Annex 3
Examples of the Consultative Process

Dates of consultations: ongoing since 2013 and through present

Main stakeholders consulted:
- *Wixárika* community members
- *Wixárika* traditional authorities
- the Intercultural Team
- local teachers
- Isla Urbana and La Ventana Infinita AC
- State of Jalisco government and other authorities (including doctors and nurses from the Jalisco State Secretary of Health)
- he National Institute of Indigenous Peoples (INPI)
- project funders and collaborators.

1. Summary of the consultation process

There has been a very serious consultative process specific to this proposed project, through our broader and longstanding collaboration with the communities involved. The present project was not ideated by an outside group and then taken to the community for consultation: it was born from its beginning in response to a direct request from *Wixaritari* individuals for support in addressing the extreme water scarcity problems in the village of La Cebolleta. It has since then developed in continuous consultation and collaboration with the local communities and authorities, working exclusively in places that have explicitly requested to work with us. Communities that request the extension of the project do so based on the potential benefit they see in collaborating with us. Any concerns that arise are taken care of during the diagnostic phase in the Community Meetings, where co-participation agreements are met.

The team that executes the entire program is made up in its majority by local *Wixárika* persons who have been involved in the development of this proposal from the onset. They have been, for the past two years, installing RWH systems in schools and clinics throughout the region. The team established that they feel ready to expand the reach of the work to the scale contemplated in this proposal; this the main factor to begin seeking funding to work on achieving universal water access in the region.

In April of 2022 we presented, together with the local team, our intention to expand the work with rainwater harvesting to all interested villages. This was done during a **General Assembly of San Andrés Cohamiata**, in which the local team presented themselves before the Traditional Governor and his team, the local authorities, and over 300 representatives from all of the villages in the region. We presented our intention to work with RWH in the entire region, and the commissioners from each of the villages were invited to submit letters of interest (see examples below) if they wanted to collaborate with the project and bring RWH systems to their respective localities.

So far, 16 formal requests from the governing committees of each village have been submitted to us, asking that the project include them. The local team has already physically visited each of these 16 communities, and held meetings in all. These meetings have served to explain how the RWH systems work; they have included participatory community mapping exercises to understand the current water resources and situation of each village; and crucially, they involved discussing and reaching agreements on the types of co-participation that each place could provide in terms of labor, food, and lodging for the local installer teams.

Further consultations carried out more recently include a team meeting in the Sierra in August 2023 with the entire local staff present in which we outlined the details of the current proposal and discussed the expected challenges related to installing such a large number of RWH systems and implementing landscape scale RWH. Concerns brought up by the team included the need for more vehicle support, the challenges that the inexistent electricity supply would present to being able to install in the most remote villages, and questions around how the team would need to be expanded to the necessary size to carry out the work. The necessary planification participative work is undergoing.

Most recently, we have met in October 2023 with the **newly elected local government officials** for the entire San Andrés region, who are highly motivated to see this project take place, and agreed to support the work in whatever ways are necessary. Their letter of support is attached below, and reads: “Those that subscribe, the agrarian authorities of the agrarian *Wixárika* community Tetei Kie, San Andrés Cohamiata, Mezquitic, Jalisco, together with regards, through this means consent and

support the project “Ha Ta Tukari (Water our Life): RWH for the human right to water in the *Wixárika* Sierra”, to address the water issue and improve the access to the resource through rainwater harvesting, in the 21 commissaries that are part of our community”.

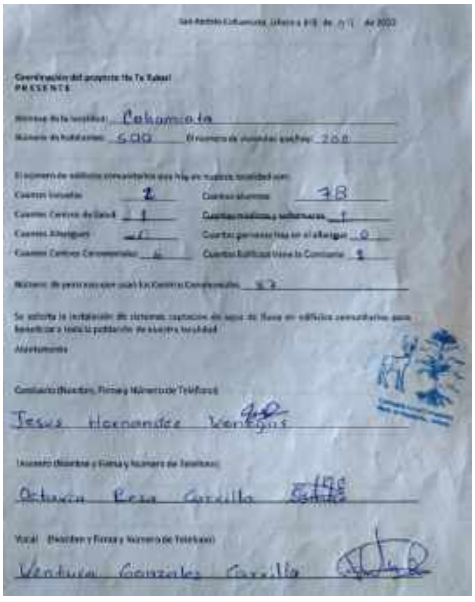
Other consultations with stakeholders (Lluvia para Todos [Isla Urbana] and La Ventana Infinita staff, INPI, State authorities, funders, etc.) are done on a regular basis and as the need arises during planning and implementation.

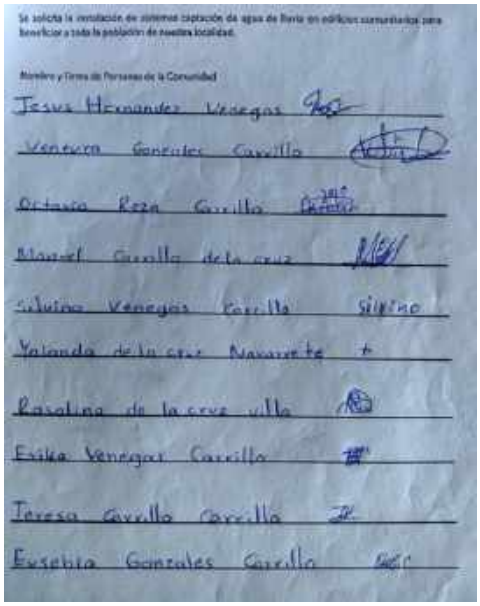
2. Interviews with community members and project stakeholders

Dr Shiara Gonzalez, who serves as Program Director for Ha Ta Tukari within Lluvia Para Todos, performed several dozen long-format interviews in *Wixárika* communities while conducting research for her PhD Thesis, an article in the Journal Sustainability, and the STEPS Center Pathways to Sustainability Blog. These interviews cover a broad and diverse range of actors, and focused on the ways that improved water access acquired through rainwater harvesting was or was not contributing to broader transformations in living conditions in the Sierra.

Teresa Lobo Yurén, who heads the education initiatives within Ha Ta Tukari, has performed over 100 interviews in these communities, from which she produced three separate works: a study funded by the National Institute for Social Development that analyzed the articulation of NGOs and community members in *Wixárika* communities, a Manual on best practices for NGOs working in indigenous communities published by the National Secretary for Social Development, and a book on the Ha Ta Tukari project itself, funded by the PepsiCo Foundation, that describes 10 years of work on water access in *Wixárika* communities.

3. Examples of the consultative process


Cohamiata
Jesus Hernandez Venegas
Octavio Roza Carrillo
Ventura Gonzales Carrillo


Jesus Hernandez Venegas
Ventura Gonzales Carrillo
Octavio Roza Carrillo
Manuel Carrillo de la cruz
Silvino Venegas Carrillo
Yolanda de la cruz Navarrete
Rosalina de la cruz Villa
Erika Venegas Carrillo
Teresa Carrillo Carrillo
Eusebia Gonzales Carrillo


COMUNIDAD WIXARIKA, TATEIKIE
SAN ANDRÉS COHAMIATA, MEZQUITIC, JALISCO
OFICINA AGRARIA DE BIENES COMUNALES

A 13 de mayo de 2020

A LLUVIA PARA TODOS A. C.
ISLA URBANA
RED HA TA TAKURI

Los que suscriben, las autoridades agrarias de la comunidad agraria Wixarika Teteí Kie, San Andrés Cohamiata, Mezquitic, Jalisco, aunado a un cordial saludo, por este conducto damos nuestro consentimiento y apoyo para que se lleve a cabo el proyecto "Ha Ta Takari (agua nuestra vida): Captación de agua de lluvia por el derecho humano al agua en la Sierra Wixárika", para atender la problemática del agua y mejorar el acceso a este recurso mediante la cosecha de agua de lluvia, en los 21 comisarios que son parte de nuestra comunidad.

La comunidad está dispuesta a colaborar en el proyecto, brindando ayuda para el equipo que implemente en proyecto, brindando mano de obra y asistencia para el hospedaje y la alimentación en las comisarías.

Sin otro asunto, agradecemos su atención y reiteramos nuestros saludos cordiales.

ATENTAMENTE
"2020, AÑO DE LA ACCIÓN POR EL CLIMA, DE LA ELIMINACIÓN DE LA VIOLENCIA CONTRA LAS MUJERES Y SU IGUALDAD SALARIAL"
MESA DIRECTIVA DEL COMISARIADO DE BIENES COMUNALES, A 13 DE MAYO DE 2020

C. Patricio Ortiz de la Cruz — Comisariado de Bienes Comunales
C. Lino López De La Cruz — Gobernador tradicional de San Andrés Cohamiata
C. Isidro Roza Carrillo — Delegado Municipal de San Andrés Cohamiata

DELEGACIÓN COMUNAL SAN ANDRÉS COHAMIATA MUNICIPIO DE MEZQUITIC JALISCO

1. Cohamiata formal request for the extension of the Project to their locality (left)
2. Formal request letter from the Commissioner for Community Property for the RWH project Ha Ta Tukari to operate in the San Andrés Cohamiata Region (right)

Annex 4
Lessons learned

The current project design draws from 14 years' experience implementing rainwater harvesting programs throughout Mexico, and takes several lessons learned into account, including for example:

1. Our organization's first large project, in 2011, involved installing 300+ RWH systems. These were very basic, prototype designs installed by multiple local plumbers whom we trained and supervised, in homes in communities which had been defined by the local government. In follow-up and evaluation visits, we found over 60% of these RWH systems abandoned or unused. This experience prompted a dedicated effort to understand key factors that influence adoption, and led to an ongoing, iterative process of designing implementation methodology reflected in the current project in *Wixárika*, through aspects that include:
   a. Having a small, dedicated, highly supported team of local installers that work long-term, instead of training larger numbers of local plumbers that work on a single project only.
   b. Working only in communities that have directly and formally requested it, defining the location where each RWH system will be installed together with the local population in a public meeting and after a diagnosis of existing water sources and conditions has been carried out.
   c. Installing RWH systems in schools and other public buildings first, with explicit responsibilities and commitments from the beneficiary population, and only moving on to install in homes when good adoption of these public systems has been demonstrated.

2. We have been operating in the Mazateca region of north Oaxaca for over 8 years where we have learned valuable lessons related to installing RWH systems and working with local plumbers/installers in very remote regions. Many of these lessons apply directly in the *Wixárika* Sierra, for example:
   a. In these contexts, materials, tools, and equipment must be delivered to isolated villages with great effort, sometimes on foot and by pack animals. Mistakes in the type or amount of any given material delivered, or any missing components, create serious complications. Work in these contexts has taught us valuable lessons related to logistics, collaborating with local materials providers, project planning, and managing inventories in isolated regions.
   b. Training local plumbers/installers in remote places and where an indigenous language is spoken as the primary mother tongue has been an interesting challenge, which has led us to develop training and certification methods and materials intended to effectively teach RWH installation.

3. Rain Schools is a program we have created to install RWH systems and teach sustainable water practices in schools throughout the country. This program, which has already reached close to 600 schools, has provided us considerable experience in installing community managed RWH systems in a far-flung diversity of places. Some important lessons this has involved which apply to the current project include:
   a. Community RWH systems often suffer from not having a committed, trained, and organized committee in charge of their maintenance and upkeep. This can result in total or partial abandonment, dilapidation, or disrepair. In order for community systems to work and last, we have established protocols for establishing maintenance committees drawn from the school community, which we train and then support to ensure solid adoption.
   b. Installing systems in schools also involved developing education materials and programs for the students. In the current project with the *Wixárika*, installing RWH systems in schools establishes the platform from which to teach and organize with the communities to expand RWH systems further. RWH systems installed in schools, along with the community organization that comes with it, are an essential part of the strategy for building Universal Water Coverage in the region.

Annex 5
Photos

RWH in the Palma Chica Station

Participative cistern installation

Community posing with their of RWH system

RWH system in the INPI shelter, Las Tapias

Intercultural Team training (left: diagnostic and mapping, right: water quality testing)

Group training on use and maintenance of the RWH system, by César of the Intercultural Team

Alejandra and Azucena of the Intercultural Team

RWH system in preschool in Huamuchililllo

Participative cistern installation

Trucks preparation for implementation