

# Strengthening climate resilience from the traditional knowledge of Indigenous Peoples.

## MODULE 3

CIRCLE  
of the  
WORD



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# CIRCLE of the WORD

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### **Guiding Committee members**

Myrna Cunningham Kain  
Hussein Isack  
Teresa Zapeta  
Vicky Tauli - Corpuz  
Rukka Sombolinggi  
Melissa Nelson  
Joan Carling  
Gun Britt Retter  
Namaka Rawlins  
Danil Mamyeu

### **Executive Team**

Oscar Aguilar  
Carla Bush  
María José Salinas  
Nidia Bustillos  
Emma Pineda  
Edna Kaptoyo  
Luchie Maranan  
Juan David Burbano

### **Ideated by:**

Feeling

### **Editorial design:**

Feeling

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## • To learn



- The importance of intergenerational knowledge transfer
- Self-governance and Indigenous Peoples' Rights in the face of Climate Change
- Building local strategies for resilience

## • To make



- We develop the guide we do



# To Learn





In this document you will find these symbols that represent:



## TIPS

Particular advice on the subject under discussion.



## REMEMBER

Key issues that need to be remembered.



## GET TO KNOW

Extra help to research and learn more about the topic.

# Introduction

*"To resist is to remember who we are, and to walk together towards where we want to go."*

*Rosalina Tuyuc*

Ancestral knowledge is not only in agricultural practices or in the use of medicinal plants. It is also in the way we organize ourselves, in how we make decisions, in how we share knowledge and defend our territories. Therefore, to talk about climate resilience, it is not enough to understand the climate or conserve biodiversity. It is necessary to strengthen the community, protect identity, defend the territory and transmit the living memory to new generations.

This module is an invitation to look inward. To recognize that resilience is also born from the pride of being indigenous, of speaking our language, of knowing where we come from and where we want to go as a people. Because when a community is united, organized and connected to its roots, it is stronger to adapt, resist and create its own alternatives to climate change.

Here we will discuss three fundamental issues:

- The intergenerational transmission of knowledge: how grandparents, wise women, mothers, leaders and children connect in order not to let knowledge die. How stories, songs, seeds, rituals and daily experience are transformed into a living school.
- The right to land, territory and self-government: because there cannot be resilience if there is no territorial security, if collective rights are not recognized, if decisions are made from outside without listening to the communities.
- Local adaptation and resistance strategies: how communities are organizing their own plans to respond to climate change, how women, youth and local authorities are articulating to take care of their environment, their health and their autonomy.

This module does not provide recipes. It brings questions that invite community dialogue, collective reflection, and exchange among peoples. Because resilience is also a political, cultural and spiritual decision. It is to recognize ourselves as Indigenous Peoples with history, with wisdom, with the power to propose.





# The importance of intergenerational knowledge transfer



## The importance of intergenerational knowledge transmission.

Indigenous Peoples around the world are known for transmitting their ecological knowledge from generation to generation through orality, community practice and the stories of their elders. This intergenerational transmission is fundamental for climate resilience, as it preserves adaptive knowledge and techniques accumulated over centuries. It should be noted that much of this knowledge is communicated orally, which means that if it is not shared among grandparents, parents and youth, it risks being lost.

For example, in the Mazahua Indigenous People of Michoacán (Mexico), "each generation passes on traditional knowledge on how to protect their forest, thus ensuring long-term sustainability.

This cultural continuity strengthens the community's capacity to manage its environment sustainably even in the face of new climate threats. Indeed, the 2015 Paris Agreement explicitly recognized that traditional and indigenous knowledge is central to climate change adaptation, underscoring the global importance of keeping this intergenerational heritage alive.



## Indigenous soil management and biodiversity practices

Traditional techniques emphasize soil care and coexistence with wildlife. Many communities use organic fertilizers (composts, manures), periodic fallowing of plots (letting them rest) and crop rotation so as not to deplete the soil of nutrients. They also tend to maintain strips of natural vegetation or polycultures that attract pollinators and control pests naturally, avoiding the need for chemicals. An outstanding example occurs in the South American Andes, one of the world's richest centers of agrobiodiversity: there, Quechua-Aymara families have conserved thousands of native varieties of potato, quinoa, maize and other crops over generations.

This agricultural diversity acts as a buffer against climate variations - if a frost or pest affects a certain variety, others can survive - and is the result of a deep ecological knowledge of their land. Thus, indigenous soil management goes hand in hand with the conservation of cultivated and wild biodiversity, maintaining productive but heterogeneous landscapes (mosaics of farms, pastures, forests and wetlands) that are more resistant to extreme climatic events.



In various regions, the stories, advice and practices passed on by elders provide guidance to new generations on how to cope with climate variations. In the Andes of Chile and Argentina, it has been observed that indigenous families who returned to their communities after the pandemic have recovered traditional agricultural knowledge to adapt to emerging droughts and plagues; in this process "the grandparents, who still preserve traditional knowledge, are the born leaders who lead intergenerational teaching processes", sharing their expertise in native crops and medicinal plants with young people.

In Pacific island nations, collaboration between generations is also key: "in the Pacific, community resilience took center stage, combining the wisdom of elders with the proactive engagement of youth to address challenges," where youth leaders are merging modern technology with traditional practices. This fusion of ancestral knowledge and new tools in intergenerational spaces not only improves local decision-making, but even contributes to modern climate science research.

In Africa, Fulani herders and other pastoralist communities rely on thousands of environmental indicators (animal behavior, stars, winds, etc.) to predict weather and seasons - an accumulated knowledge traditionally passed down from elders to juniors. Studies show that these pastoralists possess detailed knowledge of microclimates, to the point that they "can teach scientists" about local weather patterns.

In short, intergenerational transmission - through stories, community practices and oral education - is vital to keeping indigenous adaptation strategies alive. By connecting the past with the future, communities are better prepared to resist and adjust to the impacts of climate change using the wisdom of their ancestors combined with the innovation of their youth.





# Self-governance and Indigenous Peoples' Rights in the face of Climate Change



The right to land and territory of Indigenous Peoples is the basis of their climate resilience. Having control over their territories allows communities to apply their traditional sustainable forest, water and ecosystem management practices, which are fundamental to mitigating and adapting to climate change. Although indigenous people represent less than 5% of the world's population, they help safeguard around 80% of global biodiversity on their lands. This statistic, cited by the United Nations, reflects that where Indigenous Peoples have autonomy over their territories, ecosystems tend to remain healthier and more resilient. This is no coincidence: their traditional forms of governance are often based on respect for nature and community norms that prevent overexploitation. UN Climate Change Executive Secretary Patricia Espinosa emphasized that "Indigenous Peoples must be part of the solution... they possess traditional knowledge from their ancestors whose important value should not be underestimated".

Therefore, respecting indigenous territorial rights and ensuring their participation in climate policies is "fundamental to achieving the goals of the Paris Agreement... and building climate resilience". In other words, indigenous self-governance - backed by legal recognition of their lands and traditions - is a pillar for addressing the climate crisis effectively and justly. Numerous studies and field experiences confirm that when Indigenous Peoples have secure title to their lands, they achieve positive outcomes for both their communities and the planet. Their ancestrally managed territories act as barriers against deforestation and environmental degradation, reducing emissions and protecting watersheds.



**TIPS**

*These floating gardens, made of water hyacinth and other plant materials, allow vegetables to be planted on the water during the flood season.*



For example, the practices of the Kayapó people in Brazil have conserved one of the largest indigenous-managed rainforests, storing approximately 1.3 billion tons of CO<sub>2</sub> through their sustainable land management. This type of community leadership demonstrates that the recognition of rights not only benefits indigenous peoples, but also provides climate solutions with global reach. Inspired by this understanding, countries such as Bolivia, Ecuador or New Zealand have incorporated indigenous visions into their legal frameworks, even recognizing the rights of nature in their constitutions and laws - a legal philosophy based on ancestral cosmovisions. Likewise, the effective participation of Indigenous Peoples in the formulation of climate policies has been increasing, showing successful cases at different levels of government. Below are some examples of indigenous self-governance and climate policy partnerships that have strengthened resilience to climate change:

- Co-designing national climate plans in Africa: During an international event, it was highlighted how Indigenous Peoples from Chad, Burkina Faso, Benin and Niger "came to the table to work with governments on the development of key climate policy documents, such as Nationally Determined Contributions (NDCs) and National Adaptation Plans". This initiative, coordinated by the pan-African IPACC network, allowed indigenous leaders to bring their knowledge and priorities to bear on national climate strategies, ensuring that adaptation and mitigation measures take into account local realities. IPACC (Indigenous Peoples of Africa Coordinating Committee) is the largest indigenous organization in the world, with a network of 135 organizations in 21 countries, which shows the self-organizing and networking capacity of these communities to influence public policies.





- **Indigenous rights in climate legislation (Europe):** In Finland, the Sámi people - the only indigenous population in the European Union - were instrumental in improving the Climate Change Act. The Sámi Parliament worked together with the Finnish government to strengthen the protection of Sámi rights within the national climate law, ensuring that their cultural and territorial rights are recognized in the face of climate actions. In addition, the Sámi people collaborated with the government on Finland's medium-term Climate Action Plan. This case exemplifies a constructive partnership: Sámi self-government (through their autonomous Parliament) influencing state policies to ensure that the response to climate change does not infringe on - but rather integrates - the rights and knowledge of Indigenous Peoples.
- **Indigenous climate decision platforms (Latin America):** In the Peruvian Amazon, the Regional Government of Ucayali approved the creation of the Regional Platform of Indigenous Peoples to address Climate Change, a formal space where indigenous representatives participate in the formulation and decision of policies, plans and programs to address global warming. This pioneering initiative at the subnational level aims to enable local communities to co-design adaptation and mitigation strategies together with the authorities, articulating traditional knowledge with government planning. It is a concrete example of shared governance, where the indigenous right to territory and self-determination is translated into voice and vote in climate decisions that directly affect them.

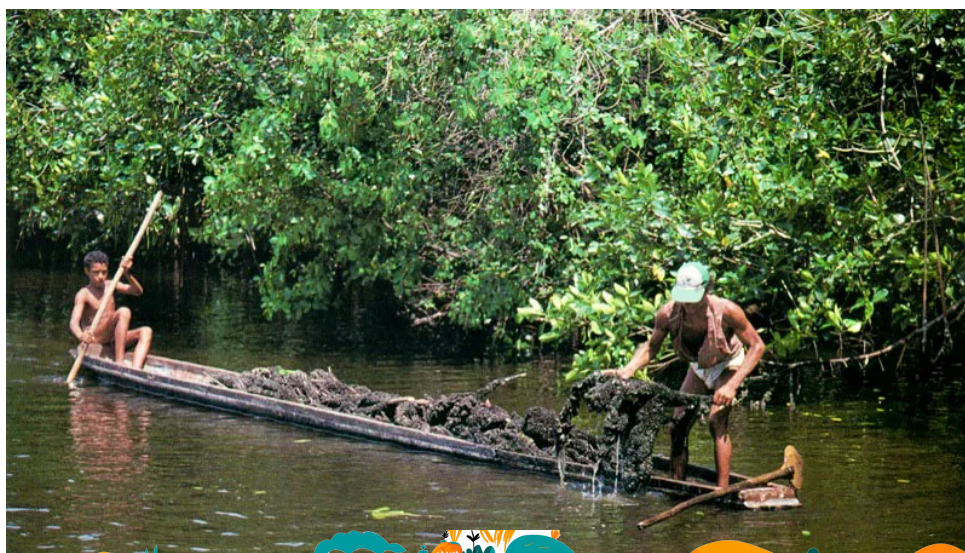


**REMEMBER**

*By raising crops above the water level, communities ensure food security even in flooded areas, demonstrating an ingenious indigenous adaptation to the flood regime. This ancestral method, recently revitalized in the face of increased flooding, reflects how local knowledge can provide resilient solutions to extreme weather.*



These cases demonstrate that when the autonomy and rights of Indigenous Peoples are respected, more comprehensive and equitable climate solutions are enhanced. As Pacific activist Malia Bohuelumi said, "Climate governance tends to be exclusive... We need to push for Indigenous Peoples' representation. [Participation] means joint decision-making: we must be equal partners in climate policy development. In short, indigenous self-governance and full participation - from the community to the international level - are critical factors for robust climate resilience. Ensuring their territorial rights and leadership in environmental policy not only corrects historical injustices, but enriches the global response to climate change with proven local approaches and a long-term vision based on harmony with nature.



# Building local strategies for resilience





Faced with increasingly intense climate impacts, Indigenous Peoples are developing local adaptation strategies based on their traditional knowledge, while incorporating innovations when necessary. These strategies are based on community diagnostics: the communities themselves identify climate hazards in their environment - droughts, floods, changes in seasonal cycles, disappearance of species - and also identify local opportunities to address them, drawing on their resources and knowledge. Unlike uniform external approaches, indigenous solutions are often contextualized: they respond to the specific conditions of their territory, culture and livelihoods.

A common element in building local resilience is the constant observation of the environment. Many Indigenous Peoples act as "climate change sentinels" by quickly noticing alterations in rainfall patterns, animal migration or forest and water health. This traditional monitoring allows them to anticipate risks. For example, in the African Sahel, nomadic pastoralists such as the Mbororo Fulani use natural indicators (such as the behavior of livestock, flora or stars) to predict droughts or difficult seasons, and adjust their grazing routes accordingly. Similarly, indigenous fishing communities can interpret signals in rivers or fish behavior to prepare for floods. These local forecasting capabilities, based on accumulated experience, are invaluable for designing early responses. However, Indigenous Peoples also recognize when conditions exceed their previous knowledge - for example, Inuit in the Arctic have seen accelerated melting ice break the reliability of old weather patterns - and instead of giving up, they seek to combine their knowledge with new scientific information to adapt to "the unknown. In essence, they identify emerging threats but also draw on their cultural strengths to address them. After recognizing the challenges, communities develop local action plans for climate change adaptation. These plans often involve the entire community in practical solutions, from land-use planning to modifying production techniques.



**REMEMBER**

*In the Andes, for example, Quechua and Aymara farmers traditionally predict the arrival of rains, frosts or droughts by observing local bioindicators:*



Some concrete examples of resilience strategies led by indigenous communities are described below, showing the creativity and effectiveness of local actions based on traditional knowledge:

- Relocation and water systems in the Bolivian Amazon: The indigenous community Asunción del Quiquibey, in the Bolivian Amazon, was forced to face extreme weather events - severe droughts followed by devastating floods. Identifying the threat of flooding from the Quiquibey River, which repeatedly destroyed their homes, school and health post, they decided to act. In recent years, the 36 families of the community "have moved, little by little, to the higher area of their territory", moving their belongings and rebuilding their village there to avoid future flooding. At the same time, they recognized the opportunity to guarantee safe water: although the river flooded them, in the dry season they lacked drinking water. Therefore, they implemented a community water project by capturing a spring in the hills. They "made improvements to the water system themselves... with a 5000 liter tank, rebuilt the water intake with a sludge cover, and upgraded the pipe network (almost 1 km) to the new community". This comprehensive strategy - relocation plus appropriate water infrastructure - was decided and implemented by the community itself with the support of technical partners, reducing their vulnerability to both floods and droughts. They now have a safer settlement and reliable access to clean water, strengthening their resilience to an increasingly variable climate.



- **Floating gardens in Bangladesh:** In the floodplains of Bangladesh, Indigenous Peoples and local communities have revitalized an ancient agricultural practice called "Baira cultivation". It involves the construction of floating gardens on layers of water hyacinth and other plant materials, where vegetables and tubers are planted. This traditional technique, passed down for generations, was being lost but has re-emerged in response to flooding intensified by climate change. Floating gardens adapt to rising and falling water levels, allowing food production to continue even during long periods of flooding. As a result, rural communities in Bangladesh are ensuring food security in areas that are becoming increasingly vulnerable to extreme rainfall. Today, they are combining their traditional knowledge with certain improvements (e.g. structural reinforcements or new crop varieties) to optimize the yield of these floating gardens. This local adaptation strategy, recognized even by FAO and other agencies, shows how a solution based on indigenous wisdom can be scaled up or replicated in other climate-affected deltaic or swampy regions.



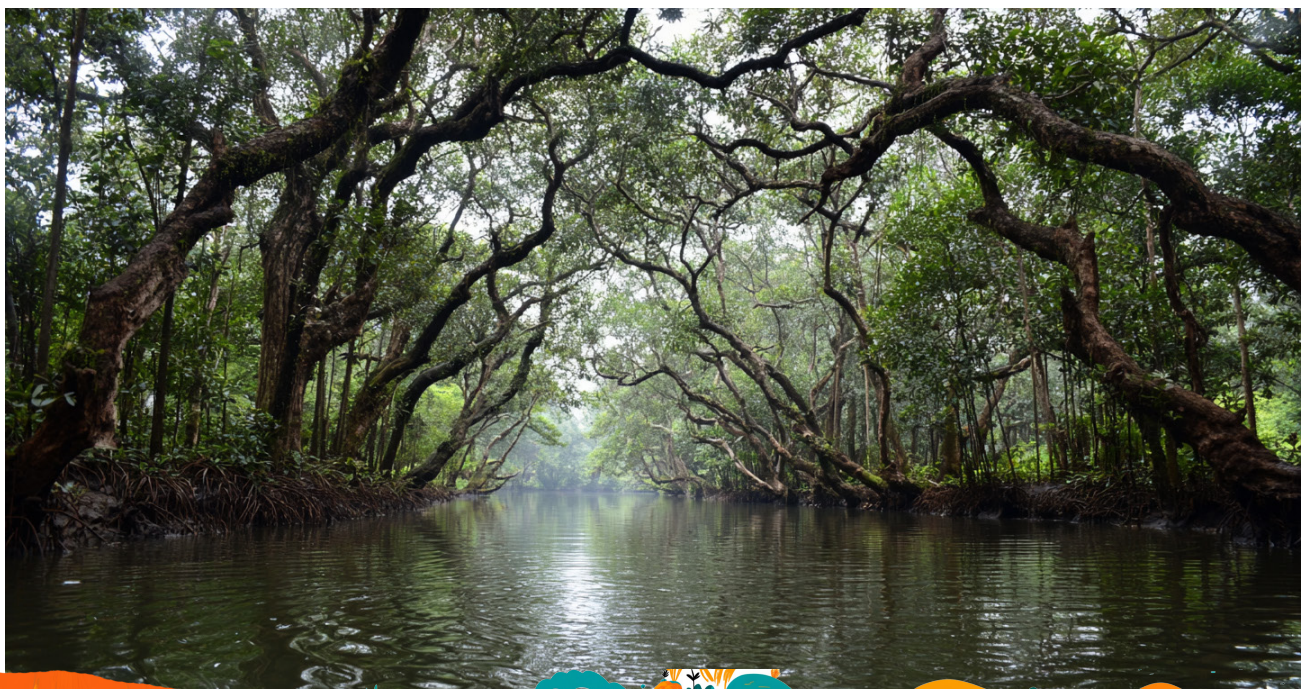
**TIPS**

*The conservation of forests in upper watersheds mitigates landslides and mudslides during heavy rains, as the roots hold the soil and the trees regulate runoff.*





Forest conservation and diversification in Mesoamerica: Many indigenous communities have responded to climate pressures by strengthening local management of their forests and diversifying their economic activities in a sustainable manner. For example, the Mayan Q'eqchi' community in Guatemala identified the threat of erratic rainfall affecting their milpas (maize crops) and the increased incidence of pests. In response, they developed a community adaptation plan that included reforestation with native species to protect watersheds and regulate the microclimate, the introduction of home agroforestry gardens (combining fruit trees with annual crops) and the recovery of more drought-resistant native seeds. These measures, led by local authorities and wise community members, are increasing the food supply in difficult times and reducing soil erosion. Similarly, in Mexico's Monarca biosphere reserve, the indigenous Mazahua community organized to recover their ancestral forest when it was threatened by logging for cash crops. Together, they replanted thousands of trees and restored the ecosystem, thereby not only protecting the habitat of the monarch butterfly but also ensuring water and a stable climate for their traditional crops. This local reforestation and forest monitoring plan, combining traditional ecological knowledge (what species to plant, how to care for them) with technical support, has restored the forest to its pristine state in just a few years, creating a natural buffer against extreme weather events and pests.





Another crucial piece of indigenous climate resilience is the knowledge-sharing networks between communities and with their allies. Indigenous Peoples do not act in isolation; on the contrary, they collaborate regionally and globally, sharing learning and inspiring each other. There are indigenous cooperation networks and platforms specifically dedicated to climate issues. For example, the IPACC in Africa serves not only for advocacy but also to exchange adaptation strategies between communities in different areas (savannahs, deserts, mountains), disseminating successful practices from one to another. In the Amazon region, national indigenous organizations have joined together - with the support of international allies - in the Amazon Regional Platform of Indigenous Peoples on Climate Change, to integrate and scale up local solutions at the basin-wide level. At the global level, following the Paris Agreement, the Local Communities and Indigenous Peoples Platform (LCIPP) of the UNFCCC was established, which promotes knowledge sharing, capacity building and collaboration between Indigenous Peoples and States. Thanks to these spaces, knowledge such as traditional climate indicators, resilient agricultural techniques or forms of community governance are shared beyond each community, weaving resilience networks. One example was the project "Knowing our Changing Climate in Africa" coordinated by UNESCO, where indigenous researchers from several countries (Burkina Faso, Chad, Kenya, Tanzania, etc.) documented and shared with Western scientists how they interpret the climate, achieving dialogues of knowledge presented even to IPCC authors and meteorological experts. Initiatives like this allow indigenous knowledge to circulate and be strengthened, while academic or governmental partners provide additional tools (such as seasonal forecasts) that communities integrate into their plans.



# "If the grandparents, the tatas, go away, we are going to stay"

*Intergenerational transmission of traditional knowledge to confront climate change" implemented by the Center for Indigenous Communication and Research "Chaski Nayrampi";*



Latin America is the most urbanized region in the world. In the last decade, already 80% of its population lived in urban areas. By 2021, 35% of the population will live in cities of 1 million or more inhabitants. The high rate of migration to cities also makes it the most unequal region in the world.

Our story refers to two indigenous border communities of Chile and Argentina, which share traditional knowledge: one Aymara and the other Quechua. The Aymara community lives in the north of Chile, in Arica, in the Tarapacá region, where the Parinacota National Park is located. The Quechua community is located in Jujuy, in the Humahuaca region.

In the last three years, the pandemic, the economic crisis and inflation have generated a lot of shortages in urban migrant families, which has motivated them to return to their communities of origin to alleviate their needs. In other words, a process that is the reverse of the trend in the region. The project: "Intergenerational transmission of traditional knowledge to confront climate change", executed by the Center for Indigenous Communication and Research "Chaski Nayrampi", involved young people, women and leaders of the Omapuaca, Kolla, Aymara and Lickanantay indigenous peoples of northern Chile and Argentina.

Thus, the families that have returned to their communities have promoted the recovery of traditional knowledge in agriculture and the management of medicinal plants to face the effects of climate change. Grandparents, who still preserve traditional knowledge, are found in rural areas and are the natural leaders who lead intergenerational teaching processes.

Their leadership is manifested in their actions as healers, as producers and connoisseurs of community history. The elders know how and where traditional foods and medicinal plants are grown, harvested and preserved. They are the teachers who, with the help of the younger ones, are willing to share their knowledge so that it does not fade away. The villagers worked on practical cases, such as the production of chuño. What is chuño? In the Andes there are agricultural areas at high altitudes, between 3,500 and more than 4,000 meters above sea level. One of the main products of the Indigenous Peoples of the Altiplano is the potato, from which chuño is made during the winter, based on a dehydration process that allows it to be stored for decades, preserving its nutritional properties.

A producer explains: "It can last for years, as long as they are kept in dry places. For example, I have some chuños stored that are more than 15 years old, they are still intact. They have to be kept in dry places. [...] it can last for years and it will never lose its quality, [...] the stored fruit does not lose its nutritional flavor and vitamins. We will always be storing, with this chuño we will always live well, you see that scientifically they are already authorized to store or for human consumption".





To do this, the potato is exposed to the intense winter frosts in the Altiplano. During the night, the potato freezes and during the day, in a collective process, the families trample the potato to extract the water inside the tuber. This process is repeated until the chuño is obtained. The elders teach the young people how to process the chuño, separating it by quality and size, one part of which is destined for family consumption and the other for the market.

This is the immense contribution of the ancestors who developed this technology! Today, through biotechnology, it is being perfected for use in a process called freeze-drying. In other words, frozen products are dried; the food industry is initiating a large-scale process to freeze not only potatoes, but also vegetables, fruits and meats without a cold chain.

The territories where the work was carried out have the autonomy to decide how to organize themselves at the community level, which allows for the establishment of internal agreements. In these indigenous communities, leadership falls on male and female elders and healers. They show the importance of recovering seeds, medicinal plants and waste management, because they see the importance of achieving harmony in the communities' environment.

While producing food is important, it is more important to preserve it. Therefore, in an inhospitable environment such as the altiplano, the recovery of chuño processing technology is fundamental because it contributes to food security and the care of life and health.

The change in diet, which has introduced processed products such as carbonated beverages with excess sugar, oils and fats, rice and refined flours, has generated health problems such as diabetes and hypertension. Therefore, recovering and revitalizing healthy ancestral foods is an invaluable achievement.





# To Make



# Guide We make



1

## Strengthen

What could we do as a group to strengthen the resilience of our territory in the face of climate change?

2

## Transmission

What would you like to learn or teach to help your community better adapt to the changing climate?

3

## Alliances

What alliances could be built (youth, women, elders, governments, schools, organizations) to protect life and knowledge?







# Guía Hacemos

## 1 Strengthen

What could we do as a group to strengthen the resilience of our territory in the face of climate change?

We could recover and take care of our water sources by planting native trees around the springs. We could also do community mingas to clean the streams and build water reservoirs. It is important to return to the practice of chagra and diversified crops, using native seeds and lunar calendars to plant in harmony with nature.

## 2

### Transmission

What would you like to learn or teach to help your community better adapt to the changing climate?

I would like to learn more about how to protect soils and prevent erosion, and teach younger people how to read nature's signals, such as the behavior of birds, the color of clouds or the cycles of plants.

## 3 Alianzas

What alliances could be built (youth, women, elders, governments, schools, organizations) to protect life and knowledge?

We could form an intergenerational council with the participation of grandmothers, wise men, youth and school teachers. From there we could invite environmental organizations and local government representatives.







# Guide We make

## 1 Strengthen

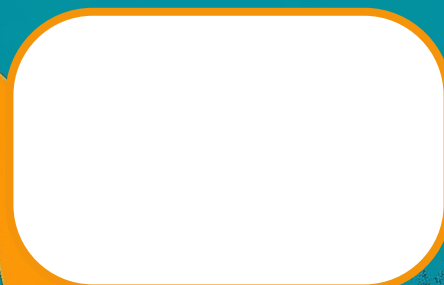
What could we do as a group to strengthen the resilience of our territory in the face of climate change?



## 2

### Transmission

What would you like to learn or teach to help your community better adapt to the changing climate?



## 3 Alliances

What alliances could be built (youth, women, elders, governments, schools, organizations) to protect life and knowledge?

