

ENVISIONING A CLIMATE CHANGE-PROOF FUTURE

Infrastructures and technology changes are positively perceived by the communities

Kolla-Atacameños people and local communities in Antofagasta de la Sierra acknowledged infrastructures and technology as the main drivers improving their livelihoods and living conditions. Better transport routes and communication services have improved also small farmers for trade and new opportunities and jobs for young generations.

Mining, benefits and trade-offs of a traditional activity

Mining has been historically present in the territory, offering an alternative livelihood activity in this arid region. Thus, it is not a new driver and is already embedded in their local culture. However, the magnitude and speed of current mining activity make constant of mining impacts necessary due to the environmental characteristics of the region.

Climate change makes everything harder

The ongoing aridization of the region, due to decreasing rainfall trends and longer drought periods, are putting on risk *las vegas*, the main source of water in the region, being the limiting factor of all the livelihoods of the region.

TRADITIONAL HERDING ON THE TIGHTROPE

Traditional livestock practices should be protected as fundamental management elements to preserve the integrity of the region's ecosystems. Maintenance of pasture areas ensures water and food, livestock and wild species. New technologies can help to better monitor hydric resources and engage the young generations on this traditional livelihood.

SUSTAINABLE ADAPTATION PLANS ARE NEEDED IN ARID REGIONS

In this context, it is crucial to implement sustainable water management and strike a balance between the impacts of modernization, lithium mining activities, and the preservation of traditional practices to safeguard the well-being of local communities while respecting their cultural heritage and way of life. These measures will not only secure the long-term availability of water, but also minimize conflicts, and promote responsible mining practices.

LEARN MORE



LICCI is a European Research Council (ERC) funded project aiming to bring Indigenous and local knowledge to climate change research. Visit the project website for more details and research results. www.licci.eu

Field work conducted by Andrea E. Izquierdo

Credit: Andrea E. Izquierdo

Project hosted by:



Research led by:



Funded by:



LICCI

Local Indicators of Climate Change Impacts



Rural and Kolla-Atacameño communities, Antofagasta de la Sierra, Catamarca, Argentina



Increased temperatures and reduced rainfalls impact Antofagasta de La Sierra's wetlands, vital oases for wildlife and people in the High Andean plateau of the Argentine Puna. Rural and Kolla-Atacameño transhumant pastoralist communities are highly dependent on them for water and

Credit: Andrea E. Izquierdo

THE RURAL AND KOLLA-ATACAMEÑOS PEOPLE

Rural people and descendents of Diaguitas and Kolla-Atacameños have lived in this region for millenia with a current population of around 2,100 people. Traditionally transhumant and subsistence agriculture communities.



ACTIVITIES



Livestock: llamas and sheep. Transhumance is decreasing. "Chaku" –sharing wild camelid vicuña herding– is still preserved.




Agriculture: Potatoes, corn, beans, and quinoa




Mining: Traditionally salt, gold, silver, and copper. Now mainly lithium.

TERRITORY AND CLIMATE

Semi-arid steppe CLIMATE*

 Ranges between -6° to 24°C

 100-400 mm/year

*Average altitude of 3,500 m.

Changes in the climate

Since the 1970s, there has been a positive trend in temperature.

Drying trend over the past 30 years, and longer dry seasons.

ACCESS TO NATURAL RESOURCES



The vegas, essential wetland ecosystems which provide water, agricultural areas and grasslands for people, livestock, and wildlife. They represent less than 1% of the areas of the ecoregion.



Mining, historically developed due to the presence of salt, metals and minerals in the region.

Changes in the territory

There are profound land use changes in the territory which are affecting natural resources and livestock of the people. Political changes have driven changes in transport and communication infrastructures, and increased public employment resulting in shifts in traditional livelihoods. While new lithium mining activities are increasing social and environmental pressures.

VOICES OF LOCAL KNOWLEDGE

Local people identified enhanced transportation and communication as crucial factors and accessibility as crucial factors influencing their livelihood transformations. These changes are linked to the expanding mining, which attract both public and private investments. However, mining also exacerbates the negative consequences of aridification generated by climate change.

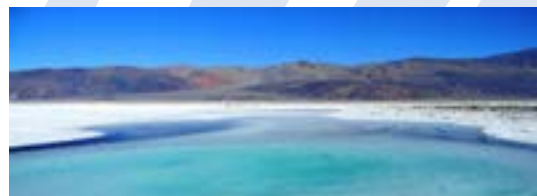


Credit: Andrea E. Izquierdo

"Before, we relied on donkeys or llamas' caravans to transport our necessities. Now, everything is transported using vehicles."

"Now we can stay connected with our family. If we need anything, they will quickly be informed through WhatsApp."

"Now, with the new routes, it has become easier to get there. It benefits us because we have more access to outside things; but there is also a lot of traffic...it's not as quiet as before."



Credit: Andrea E. Izquierdo

Technology and infrastructure

Mining

Climate change

"The vega (i.e., wetlands) no longer yields as before, the grass is not enough for the animals."

"It doesn't snow like before. And if there is no snow, there is no water in the summer because the snow waters the vegas."



Credit: Andrea E. Izquierdo

"With mining there are more employment opportunities for young people. But once they leave, they often hesitate to return to work with the livestock."

"Mining may provide work today, but it brings hunger and uncertainty for tomorrow."



Credit: Andrea E. Izquierdo



Drivers of change

IMPACTS ON LIVELIHOODS AND CULTURE



Credit: Andrea E. Izquierdo

Greater accessibility and better communications

The region has experienced great government investments focused on improving road networks and communication infrastructures, such as internet coverage, increasing access to markets, services, and employment opportunities.



Credit: Andrea E. Izquierdo

Loss of ancestral livestock management and pastoralists' way of life

Chaku, the traditional communal herding of wild camelid vicuña, and transhumance moving animals to higher and more isolated plains during the austral summer are decreasing. Most livestock are raised on lowlands on public or community land.



Credit: Andrea E. Izquierdo

Reduced rainfall trends and lithium mining expansion

Mining has put in crisis the pasture areas, many of them degraded. Local people report that extension of many vegas (wetlands) is decreasing quickly, due to the decrease of precipitation, increase in temperature, and mining pressures.