

Seeds of Resilience – How seed diversity strengthens climate resilience in one Andean community

Watch [Seeds of Resilience](#), the 9 minute documentary accompanying this article.

After a four hour journey from Cochabamba city - much of it on a bumpy, winding road - and a slightly nerve-racking river crossing, our bus pulled into Camani, a smattering of adobe dwellings on a hillside. The area is Norte Potosí, Bolivia, 3,900 meters above sea level in the Andes. I was here to join in a *Fiesta de las Semillas* or seed fair, organised by [Pusisuyu](#), a Bolivian NGO working through schools to *revalorizar* - 'revalue' - local seed varieties.



Some of the children displaying the variety of local seeds. Photo: Sian Cowman

On this mid-winter day in June the schoolyard filled with chattering children lent an air of vibrancy to the community. As we piled out of the bus our eyes were drawn to the tables surrounding the yard, filled with the bright colours of corn, potatoes, grains, and oca, a type of tuber. Children had come from 18 nearby communities to display their seeds, as well as from some communities and villages closer to Cochabamba. The NGO hasn't always worked through schools. Johnny of Pusisuyu, who spends half his time living and working with people in the area,

explained: "we started to do the seed fair with the adults, but then we realized that the tradition of passing knowledge onto children isn't there anymore, because of the rupture that exists between the school and the culture."

Now that kids are in school more than half their time, knowledge of traditional varieties doesn't get passed on as easily. Working through schools is a way to make sure that knowledge isn't lost. As we looked around the schoolyard, the beauty of many of the seeds was striking, and I started listening in as children told the visitors the names of different varieties.

There were many types of potato: *yanaruna*, *waych'a*, *yungay*, *koyllo*, *sany*; and of Andean tubers: *oca*, *isaño*, and *papalisa*. There was an amazing range of cereals and legumes as well: *tarvi* (a type of bean), peas, oats, barley, broad beans, quinoa, and many types of corn. One boy had bread he had made from home-grown wheat, milled locally.

Andean farmers have domesticated and bred crops for many years and it is an area well known for its thousands of varieties of [potato](#).



Some of the many varieties of Andean tubers. Photo: Pusisuyu

Crop diversity provides resilience in the face of climate variations, or changes to soil quality or water availability. Resilience, in this context, is the ability of an ecosystem, or a community, to bounce back after shocks such as flooding, drought, or crop failure.

Seed diversity is an important facet of resilience; growing a wide range of crops and crop varieties means some will always survive in the case of a shock. Control over their own seeds also gives farmers freedom over their planting decisions, known as [food sovereignty](#), as well as keeping monetary exchange at a minimum.

The area has seen some changes over the past number of years, including climactic changes. Don Eduardo, from the community of Sut'awaña, told us that “the weather is crazy now, changeable, and it's warmer. It used to rain calmly, softly, but now we get heavy rains that wash away our potatoes and soil.”

The warmer weather brings challenges: “in the warmer areas, the bugs are getting at our oca.” It is a problem for making the staple ‘chuño’, dehydrated potato which needs freezing temperatures to be successful. When we spoke to Don Segundino, elected leader of the community Sut'awaña, he told us, “I've just come from making chuño at a spot higher up and far from here, we can't make it here anymore because it's too warm.” And it is taking longer, up to a couple of weeks versus the few days it used to take.



Don Segundino. Photo: Anders Vang Nielsen

But climate change is providing opportunities too: new types of crops can grow in the warmer conditions. Don Olimpio, who is one of the older men in the community, told us “we used to grow crops only in the river valleys, but now we grow on the high parts.” While the warmer temperatures may provide opportunities, the unpredictability of the rains and frosts can be [disastrous](#): heavy rain will destroy seedlings, or recently harvested crops.

One solution to these changes, developed between the locals and PISISUYU, is to make simple adobe and plastic greenhouses. These take advantage of the warmer temperatures, and protect crops from heavy rains. They've also developed a DIY irrigation system that [doesn't use](#) electricity, is very cheap to make, and can be easily repaired.



An adobe greenhouse. Photo: Anders Vang Nielsen

Don Segundino explained that with the simple irrigation system and the greenhouses it was possible to grow all kinds of vegetables that they hadn't planted before “because we didn't have water for irrigation, or a way to water; now we have hoses.”

These communities, now dealing with the impacts of climate change, have already come through the challenge of globalization. Don Olimpio told us how in his youth they used to exchange

foodstuffs with other communities, but that doesn't happen now. He lamented: “Young people go to the cities now. When I was young I remember my father giving me sheep's wool so I could weave *cobijas* (blankets) or *costales* (sacks), now young people don't remember something like that even in their dreams.”

Despite this loss of culture to migration, some traditions remain strong. For example, Don Olimpio tells us “we have *chok’ota* (like work exchange); when someone sows seed I go to help, and when I sow others come to help me.”

The communities around Camani have remained resilient in the face of marginalization, globalization, migration and climate change. But their capacity for change does not mean people are endlessly adaptable.

The possible future loss of chuño, caused by warmer temperatures, is serious. Chuño is important for resilience because its long term storage capacity provides insurance in case of food shortages. Don Olimpio recalled: “it would freeze, and in one night we’d make the chuño. It used to be smooth and floury like a potato, now it doesn’t come out right because it’s not cold enough.”

These kinds of challenges are why it is so important to maintain diverse varieties, so that communities have access to seeds that will grow, and thrive, in these changing conditions. On a visit to one community, we spent an afternoon planting potatoes on the grounds of a school – around 60 or so varieties. The idea is to work with the children to document which potato varieties do better in local conditions, and use this to inform planting decisions.

As a local teacher told us, “these old customs [of seed-saving] are being lost little by little, and it shouldn’t be so. We need to rescue our values, our customs.” Events like the seed festival can play a role “to help the community strengthen this tradition, and regenerate diversity.”



Seed potatoes ready for planting. Photo: Anders Vang Nielsen

In the Andes, the biggest challenge of our times is hitting some of the most vulnerable communities on the planet. But the roots of local seed diversity – people’s ability to understand the principles of ecology and use them to survive and thrive – can help these communities to remain resilient in the face of climate change.

By Sian Cowman

*This resource forms part of the **Democracy Center's work on climate resilience**. See [this page](#) for all of the materials available including the [Seeds of Resilience video](#) and this [photo-documentary on resilience, climate change and gender](#).*