



A small group of university students in two critical agricultural areas of Uruguay facing increased rain variability and droughts have decided to take climate change into their own hands.

Through a project funded by the Adaptation Fund, they are establishing a weather monitoring station and conducting research into the effects of climate change on natural grazing pastures in Basaltic Cuesta and East Hills - two large, rural areas serving as home to many small family cattle producers that have been hit hard in recent years by water scarcity and extreme weather. The regions are burdened by hilly, hard surfaces with little capacity to retain water and forage, further elevating drought risks.



Most of the students belong to families that raise cattle and sheep in open air natural pastures, which occupy over 75% of Uruguay's territory and are a major production source for the economy.

The project offers small, up to \$8,000 grants to local producers to increase water harvesting and management practices, improve production and

maintenance of natural grazing pastures, and enhance livestock shelters and shadow areas. "These regions are very vulnerable because of climate change," said Beatriz Prandi, Executive Secretary of the Agencia Nacional de Investigacion e Innovacion, which implements the project. "This project will help small farmers have better lives because of the better production of their farms."

Direct support is also provided for training, technical assistance, and strengthening local groups and agricultural opportunities for women and young entrepreneurs. The students became involved within this context in 2015 when the project launched a campaign for groups of young people ages 14-29 who live, work or study in Basaltic Cuesta or East Hills and were interested in entrepreneurship, research or training.

Nine students from the Universidad del Trabajo of Cerro Pelado in northern Uruguay responded with a climate change research proposal to involve all 50 students in the university's Agrarian School. They would build a meteorological station to monitor the climate, since they come from family producers who already work in the region and can register precipitation recordings directly. They would also measure forage, production quantity and cattle growth rates through the use of 'exclusion cages', observing changes related to climate data they collect. The cages permit study of small pastures to extrapolate data to the larger region.

The hope is the project will transform the university into a community center of excellence for monitoring climate information.



Lower left: Photo by Hugo Remaury, Adaptation Fund. All other photos by Uruguay Ministry of Agriculture, Livestock & Fisheries

PRIMARY goals

- Build resilience and reduce vulnerability to climate change and extreme weather variability of smallholder cattle producers in drought-sensitive Basaltic Cuesta and East Hills through sustainable development-driven activities
- Enhance grasslands, shade trees, animal management and agro-forestry
- Establish better infrastructures for water supply and management
- Improve pasture management practices
- Enhance biodiversity conservation
- Develop local climate change monitoring network that involves youth to manage climate change awareness, risk and response
- Share knowledge, lessons and best practices on climate change impacts on agriculture and adaptation solutions
- Strengthen local institutional networks and improve responses to droughts; link small organizations to work hand-in-hand to identify climate threats and innovative resilience management practices

Co-Benefits:

- Enhancing soil fertility of grasslands, biodiversity & afforestation increases carbon sequestration
- Sustainable use/management of natural pastures & improved cattle-raising systems productivity enhances soil carbon capture



“ We wanted the school to function as a center of reference and to buy a meteorological station to control the climate variables. ”

— Nicolás Álvarez, teacher, Universidad del Trabajo, Cerro Pelado

Albeit on a small scale, the students are looking to help solve a bigger issue. More than 75% of the total value of Uruguay's exports come from agriculture and cattle-raising and with only three million habitants, it produces enough food for 30 million people. Forming the backbone of Uruguayan agriculture, smallholders represent nearly two-thirds of all farmers, but lag behind their larger counterparts in productivity, ideal cattle



stocking rates, sustainable use of natural resources and development of smart-agricultural systems. Nowhere is this more apparent than in Basaltic Cuesta and East Hills, where 85% are smallholders (about 14,000) dependent on subsistence farming. With

climate change bringing increased rainfall variability and drought, their vulnerability rises even higher.

It has ripple effects, too. Water stress impacts not only cattle farms but related industries such as those specializing in fattening and others. Further, isolation from urban centers and access to services and education is more acute among small rural ranchers, who are prone to poverty when extreme weather hits. Although focused on building the adaptive capacity of these two smallholder sectors, the project involves all local stakeholders by validating technologies and tools that can also be applied to other area farmers.

Growing the capacity to learn and adapt to sustain livelihoods is central for stakeholders. Reinforcing "systems resilience" by maximizing water supply, grasslands and trees to sustain the local ecosystem's ability to cope with future climate change impacts is essential. Smallholders, local organizations, female leaders and student groups are pivotal in identifying climate threats and resilient practices, while combining local and scientific knowledge. The students in no small way are contributing by building needed information to help address climate change head-on for generations to come.

BY THE NUMBERS

US\$9,967,678

IN ADAPTATION FUND GRANT FINANCING

30% OF URUGUAY'S LIVESTOCK PRODUCERS BASED IN BASALTIC CUESTA AND EAST HILLS

\$1 BILLION

OVERALL ECONOMIC IMPACT OF 2008-2009 DROUGHT, WITH DIRECT LIVESTOCK LOSSES ESTIMATED AT US\$342 MILLION

1,340

SMALL FAMILY CATTLE FARMERS IN BASALTIC CUESTA AND EAST HILLS BENEFITTING FROM WATER SUPPLY, NATIVE GRASSLANDS, SHADOW TREES & ANIMAL MANAGEMENT IMPROVEMENTS

100

YOUNG PERSONS ARE BENEFITTING FROM PRODUCTION OR RESEARCH INITIATIVES

10%

GOAL INCREASE IN PRODUCTIVITY OF LIVESTOCK SMALLERHOLDERS

20%

GOAL CALF MORTALITY INCREASE LIMIT DURING MODERATE & SEVERE DROUGHT

35%

OF PROJECT INVESTMENTS IN 2015 DEDICATED TO WATER STORAGE AND AVAILABILITY SOLUTIONS

6

ORGANIZATIONS/SCHOOLS INSTALLED METEOROLOGICAL EQUIPMENT & DATA COLLECTED REGULARLY

AT LEAST 25%

OF PROJECT BENEFICIARIES IN BASALTIC CUESTA AND EAST HILLS ARE WOMEN HEADS OF HOUSEHOLD

59%

OF PROJECT INVESTMENTS IN 2015 DEDICATED TO INCREASE FORAGE AVAILABILITY

2

LOCAL NETWORKS WITH AT LEAST 28 ORGANIZATIONS ESTABLISHED TO MANAGE CLIMATE RISK

14

YOUTH PROJECTS IMPLEMENTED WITH GENDER EQUITY