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Bolivians look to ancient farming

The project may help to cut down on the need to clear forests

By James Painter
BBC News, Trinidad, Bolivia

Poor farmers in the heart of Bolivian Amazon are being encouraged to embrace the annual floods – by using the centuries-old irrigation system for their crops.

They are experimenting with a sustainable way of growing food crops that their ancestors used.

It could provide them with better protection against the extremes of climate change, reduce deforestation, improve food security and even promise a better diet.

These are the bold aims of a two-year-old project being carried out by a non-governmental organisation near Trinidad, the capital of the department of Beni.

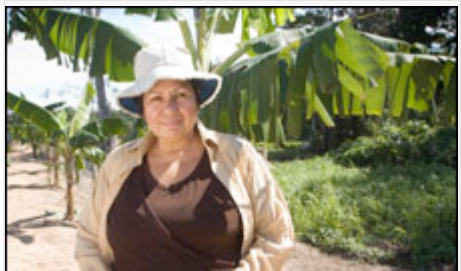
The system is based on building "camellones" - raised earth platforms of anything up to 2m high, surrounded by canals.

Constructed above the height of flood waters, the camellones can protect seeds and crops from being washed away.

The water in the canals provide irrigation and nutrients during the dry season.

See the idea behind camellones

Pre-Columbian cultures in Beni from about 1000BC to AD1400 used a similar system.



"One of the many extraordinary aspects of our camellones project is that poor communities living in the Beni today are using a similar technology to that developed by indigenous pre-Columbian cultures in the same region to solve a similar range of problems," says Oscar Saavedra, the director of the Kenneth Lee foundation.

He experimented for six years in his own garden to develop the complex system of hydrology.

Ancient and modern communities face the same problems - regular flooding followed by drought.

"The floods were the basis for development and the flourishing of a great civilisation," says Mr Saavedra.

There were bad floods in 2006 and 2007, but last year the region saw the worst flooding in at least 50 years.

The floods affected some 120,000 people - a quarter of Beni's population - and caused more than $200m (£119m) of damage.

That experience prompted many local women to enlist in the camellones project.

"I had planted rice, maize, bananas and onions on my plot of land. But the water left nothing," explains Dunia Rivero Mayaco, a 44-year-old mother of three from Puerto Almacen near Trinidad.

"I lost my house too. We had to live three months in temporary accommodation on the main road. The children got ill there.

"So that's why I am working here on the camellones. I didn't want to lose everything again."


The canals remain full after the floods recede

About 400 families are now enrolled in the project in five locations, growing mainly maize, cassava and rice.

Many of the sites are still in an experimental phase, but the early signs are promising.

Productivity appears to be on the increase.

"These camellones will help us when the floods come," says Maira Salas from the village of Copacabana, a 20-minute boat ride down the river Ibare.

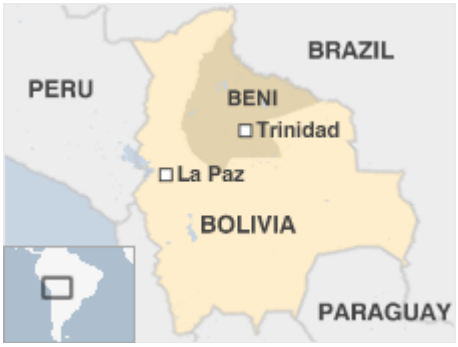
"Crops like bananas that die easily have a better chance of survival. We are only just now learning how our ancestors lived and survived.

"They did not have tractors to build the camellones, and they survived for years. It's incredible."

Villagers are encouraged to embrace the floods and see them as a blessing, not a curse.

During the rainy season, large expanses of land in Beni are under water for several months - except for the raised areas.
When the water recedes into the tributaries that run into the Amazon, it takes nutrients with it leaving a sandy brown soil in which it is difficult to grow crops.
But in the camellones project, the water left by the floods is harnessed to bring fertility to the soil and irrigation during times of drought.
In short, from being victims of the floods, poor people could become masters by turning the excess water to their advantage.

Extreme weather events



International charity Oxfam is supporting the project in part because it offers poor people the possibility of adapting to climate change.
If, as predicted by many experts, the cycles of El Nino/La Nina are going to increase in intensity and frequency, then the project has the capacity to help poor families cope better with the extreme weather events and unpredictable rainfall that are to come.
"It should not matter when the rains come as the water can still be managed at whatever time of the year," says Mr Saavedra.
Other potential advantages of the scheme include:

- The system uses natural fertilizers, and in particular an aquatic plant in the canals called tarope which both purifies the water and acts as a fertilizer when spread over the soil
- The canals can also provide fish stock, animal fodder and nutrients for the soil
- The camellones can act as a natural seed bank which can survive flooding
- The system can reduce the need to cut down the forested areas around the communities. This is because the soil on traditional plots of land is often exhausted after two to three years. This forces the farmers to clear more land for planting by cutting down the forest.

All this seems too good to be true.
Some of the women say the real test will come when there is a bad year of flooding or a severe drought. So far, 2009 has not been one of the worst.
There are other huge challenges ahead. One is to try to provide the families with an income from tomatoes or garden produce.
Another is to overcome the scepticism from some local people about the time and physical effort invested in the camellones compared to other sources of local employment.

Mr Saavedra is convinced the camellones project can be expanded, even to other countries.

"This process could be repeated in various parts of the world with similar conditions to the Beni like parts of Bangladesh, India and China.

"It could help to reduce world hunger and combat climate change," he says.

Turning excess water to advantage