



Livestock refuge mounds to strengthen resilience against natural hazards in Bolivia

Protecting livestock and agricultural production during floods and droughts



→ Context

In Bolivia, seasonal flooding is common in the lowland and low slope (1 percent) department of Beni, where some of the most important rivers converge. The Food and Agriculture Organization of the United Nations (FAO) identified the important practice of livestock refuge mounds to prevent disasters in tropical lowland areas. Livestock refuge mounds are used to protect livestock and safeguard agricultural products in times of floods as well as droughts. Currently, livestock refuge mounds are used in 11 highly vulnerable communities of Beni.

→ Challenges

The construction of livestock refuge mounds has two key objectives aimed to address local challenges:

- Reduce the impacts of floods and droughts on livestock; and
- Implement fodder banks for the provision of forage (hay) for a period of four months of flooding and lack of pasture.

→ Methodological approach

The following activities are implemented:

- **Conduct the design and construction** of ridges and channels for livestock refuge (cleaning and clearing, designing of channels and development of the maintenance plan);
- **Develop a maintenance plan** at community level;
- **Organize a training** on production management and maintenance of the livestock refuge mounds for beneficiary to communities; and
- **Strengthen community capacities** for the construction and maintenance of livestock refuge mounds.

Key facts

Background → Livestock in Beni represents 43% of the national cattle production, raising more than 3.8 million of the 8.8 million heads of cattle in the country.

Donors → European Union, Italian Cooperation in Bolivia, United Nations Trust Fund for Human Security.

Gender → In 2012, the municipality of Santa Ana del Yacuma was the first beneficiary of the project. The construction of 11 mounds benefited 1 016 families in the department of Beni, where the population involved in cattle production was 65% women and 35% male with different responsibilities. This had a positive impact for women.

Nutrition → 11 meat driers have been built for the discarded cattle after floods. 900 hectares of agricultural land belonging to 1 163 families have been rehabilitated by planting different vegetable crops and pastures.



What is a livestock refuge mounds and how does it contribute to the resilience of livelihoods ?

An alternative agricultural technique taken from the pre-Hispanic culture of the Moxos, a livestock refuge mound is a heaped pile of soil with adjacent crop parcels (with a total area ranging from 0.5 to 1 ha, and a height from 1.80 to 2.20 m) that lessens the impact of flood events. In addition, mounds confront dry spells and droughts due to the surrounding peripheral canal that has a storage capacity of approximately 13 000 cubic metres of water. In times of drought, the channel is used to supply water to livestock. Furthermore, the channel allows the generation of complementary feeding strategies, horticultural production and fish farming, which in turn diversifies sources of food security and ultimately strengthens vulnerable communities' livelihoods.

→ Impact

Refuge mounds complement livestock management strategies by preventing flood and drought risks, to not only save livestock, but also preserve their weight and physiological conditions. This practice has served as a model and has been replicated by the departmental and municipal governments, as well as by private breeders, demonstrating its efficiency and value for building public policy.

→ Sustainability

Sustainability is ensured by strengthening local capacities through:

- Maintenance of the refuge mound by the municipality;
- Empowerment of social organizations;
- Strengthening social and institutional networks;
- Appropriation of the good practice option by the communities; and
- Generation of a complementary and productive food strategy of easy applicability.

→ Replication and upscaling

FAO has built 15 refuge mounds in several areas of Beni including the communities of Loreto, Camiaco, Argentina, San Pedro Nuevo, Fátima, San Lorenzo de Moxos, San Andrés and San Juan de Mocovi. FAO has also built a livestock refuge mound for sheep and camels in the Toledo municipality in the highlands of the department of Oruro. Presently, there are 21 artificial refuge mounds in Beni, some of which have been built by different communities, replicating the successful experiences of FAO's work.

As a result of the incorporation of the construction of refuge mounds in departmental and national plans, the use of livestock refuge mounds is forecasted in other flood-prone areas and municipalities.

The mounds not only allow to save livestock, but also to preserve their weight and physiological conditions.

At present there are 21 artificial mounds in Beni, some of these have been built by different communities, replicating the successful experiences of FAO's work.

Authors

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PRACTICAL EXAMPLE

Argentina community, San Ignacio de Moxos municipality:

54 livestock breeder families.

During the 2014 floods, the 0.5 ha of livestock refuge mound helped save not only the cattle of the community, but a total of 2 000 cattle from other communities during the three months of flooding.

In addition, about ten families of the community found shelter in the refuge mound.



→ More information

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On resilience good practices:

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→ References

<http://teca.fao.org/read/8829>
<https://issuu.com/ucerbolivia> (in Spanish)

On good practices methodology:

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