Stabilization of hillsides with Techniques of Bioengineering and Soil Conservation under an Integral Agro-Ecological Approach

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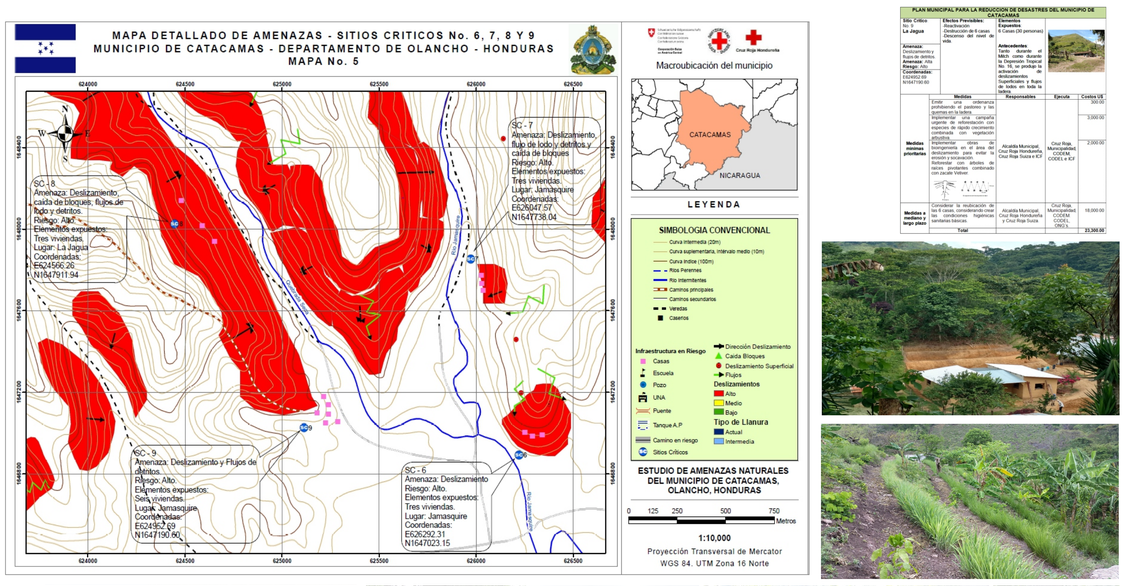
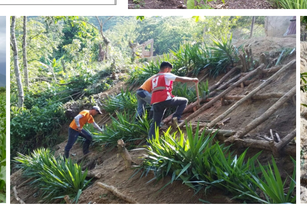
I Introduction

The Olancho Resilience project is implemented by the Honduran Red Cross with technical and financial support from the Swiss Red Cross in 3 municipalities in the department of Olancho, Honduras .

The stabilization of Critical Sites exposed to landslides through soil bioengineering is a successful component of this project. Critical Sites have been identified based on technical - scientific risk studies. Based on these, and with the technical support from the project, the beneficiary families defined the bioengineering and soil conservation measures to be applied on the unstable slope affecting them..





Approaches and Technologies.

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Soil bioengineering consists of a range of structures making use of vegetative materials to prevent erosion and landslides on hillsides.

The vegetative material regenerates and serves as an anchorage and protection (drainage fence, retention fences, slope scaling, curves at the level, cover crops, etc.).

Tthe structures often create spaces that can be used as orchards. Following an agro-ecological approach, fruit, ornamental, medicinal plants and vegetables are planted. Plant growth is supported through locally produced organic fertilizers.

Results

The implementation of bioengineering and soil conservation measures reduced the exposure of Critical Sites.

The bioengineering measures reduce runoff, facilitate sediment retention and formation of terraces, encourage water infiltration and drainage.

The integrated agro-ecological gardens contribute to the improvement of food security and food sovereignty, nutrition and health of the families. The sale of surpluses generates additional income.

Conclusions

- Bioengineering and soil conservation technologies are effective measures to stabilize slopes and reduce risks
- A highly participatory and holistic approach enables the implementation sustainable land management technologies
- Synergies between DRR, CCA, food security, health and nutrition are crucial for the adoption and maintenance of the measures by the beneficiaries
- The approach empowers families and encourages community cohesion
- The approach and technologies have a high potential for replication, wherefore they have been documented in the WOCAT database
- The approach and technologies contribute on the local level to the achievement of the SDGs