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**THE SYSTEM:** Quesungual Slash and Mulch Agroforestry System (QSMAS) has contributed to a successful development strategy in improving rural livelihoods in the Lempira Department, Honduras. This alternative to slash and burn agriculture strongly builds on local knowledge and has been a major production system to achieve food security by resource poor farmers. Farmers practicing this system reported less soil, water and crop losses as a consequence of the “El Niño” drought event in 1997 and the Hurricane Mitch in 1998.

**THE PROBLEM: Severe seasonal water scarcity**

- Decrease in water availability and water quality for human consumption and economic and social growth in sub-humid hillsides.
- Water scarcity is increasing because of deforestation and lack of adequate soil and crop management practices.
- Particularly acute for rural poor that need safe water to meet their daily requirements.

**PROJECT GOAL:** To use the QSMAS to improve livelihoods of rural poor through increased water resources and food security in sub-humid hillside areas, while maintaining the soil and plant genetic resources for future generations.

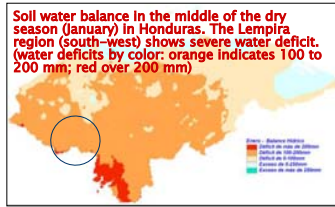


**SPECIFIC OBJECTIVES:**

1. To assess socioeconomic and biophysical context of QSMAS and to assemble information into database.
2. To define QSMAS management concepts and principles and to develop relevant tools to monitor soil and water quality.
3. To evaluate and document potential areas suitable to QSMAS.
4. To develop tools for dissemination, adaptation and promotion of the QSMAS management strategies

**PROJECT BENEFICIARIES AND IMPACT:**

Knowledge synthesized in the form of key principles and concepts of QSMAS would facilitate adoption by small farmers with a resulting change in natural resource management with benefits to water access and quality for upstream and downstream users in several regions across continents.



**QSMAS AS A SOLUTION:**

**The Hypothesis:** Tree density, soil mulch, root distribution and biomass, soil organic matter quantity and quality, and soil biological activity contribute markedly to the resilience of QSMAS to environmental constraints while conserving the capacity to provide agricultural goods to local communities and clean water and other environmental services to downstream users.



Maize crop



Bean crop



Validation in Nicaragua

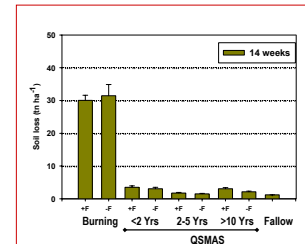
Interaction between farmers (practitioners and those interested in the validation of the system) allowed to identify the main short-term and long-term benefits of the system: reduced soil and water losses, increased crop yields, steady fuel wood supply and reduced labor

Flow diagram showing the links among outputs and the participation of different socioeconomic and biophysical disciplines in the project



**QSMAS RESULTS:**

- 59,000 ha under no burning, permanent soil cover & regrowth of native trees
- 6,000 farmers have adopted the QSMAS system
- Maize yields improved by 1,300 kg/ha while bean yields improved by 475 kg/ha
- Farmers from Nicaragua visited Honduras
- QSMAS is being validated in Nicaragua



Compared with control plots, QSMAS with different ages markedly reduced soil losses