

Technical Solutions



Country: Mexico

Organization: IRRI Mexico – Instituto Internacional de Recursos Renovables A.C.

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Integrated waste management system to promote food and energy security among Mayan indigenous women

Description of the project: The project benefits 2,454 women (and their families) of the indigenous Mayan communities in Yucatan, Mexico. Energy security, food sovereignty and agricultural sustainability are achieved through an anaerobic digester, treating animal waste, that produces biogas and biofertilizer. Women get training on the use, management and maintenance of the biodigester. The digester reduces soil and water contamination, airborne pathogens causing diseases, and provides energy security. The biofertilizer, combining the functions of fertilizer, pesticide and soil regenerator, aids food sovereignty. The project promotes women's capacities for inclusion in decision-making at all levels.

Climate impact: Project achieves over 99% pathogen reduction. Biogas displaces liquid petroleum gas and woodfuel. Organic fertilizer displaces synthetic fertilizers, eliminating environmental impact (775 MT CO₂/year). The system, designed with local materials, requires low maintenance. No need for external technical assistance, repairs, fossil fuels, fertilizers; pesticides are eliminated. Children and youths learn to promote sustainability while adults are trained in forest management.

Gender impact: Women are healthier and are able to take up more income generating activities, such as embroidery. They have extra time for family and for themselves, or participating in community activities. Other impacts include: reduction of burden of cleaning pig waste; significant health impacts from substitution of woodfuel and plastic; more spare time (previously used to collect wood); more varied, nutritious and organic diet with own produce; women are able to participate in decision-making processes.

Scalability / replicability: The project is easy to replicate and upscale. Trained users handle and teach others how to install, manage and repair the system. It uses easily available material. The educational component includes a children's tale to make the technology more understandable and easily transmitted. The project works closely with community members; the technology is specially designed for harsh rural conditions. The small-scale biodigester is a high quality durable good, easy to package, distribute and install.



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