Forest land renewal: a simulation & optimization software

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Abstract:

This research project is a simulation and optimization software inspired in Mexico's Mixteca region land recovery success experience led by Leon Santos and the Center for Integral Small Farmer Development in the Mixteca.

The software will be instrumental in the restoration of deforested and eroded areas. Reforestation and forest land remediation projects are to be simulated and their future development is to be displayed. Both successful and poor restoration projects evolution will be shown. The software optimization function, in turn, is to determine optimum land restoration projects design specifications. Optimisation is considered in terms of net forest development versus human and material resource expenditure.

This software is to support local communities, county or municipal governments, state governments and the federal government in their efforts to recover former forest environmental conditions. Among the results of this research the project hypothesis will be proved, namely, the relevance of the discrete elements approach for the representation of forest soil evolution and its applicability for land recovery programs simulation, the successive tuning approach effectiveness to determine optimum restoration project specifics.

The present project will be carried out as a result of the researcher's interest in forest environmental conservation and recovery. The researcher has a background at the Mexican Federal Government Forest Conservation and Development Commission as well as experience in information technologies.