Micro-dams for rain water catchment and reclamation of degraded areas

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The accelerated and disorganized deforestation in Central Brazil and the transformation of these natural ecosystems into crop land or pastures, without adequate technologies, resulted in irrecoverable damages to the environment, especially with respect to water and soil conservation, with particular mention to compactation. As a consequence, the soil intake rate decreased and surface runoff increased, thus causing laminar erosion, low soil quality, silting up of rivers, floods and decreased sustainability of family properties. With the objective of reverting this scenario, a demonstrative unit was implemented in Sete Lagoas MG, (1,350 mm rainfall per year) in 1995, in a property of 70 ha, where 30 micro-cachments ("barraginhas") were built to contain surface runoff damages.These micro-cachtments also retain pollution sources carried by the waters and favor the recharge of good quality water tables, by means of improving soil intake rate, recovering water sources and alleviating droughts.

Reclamation of land degraded by tin mining

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The feasibility of reclaiming land degraded by tin mining was investigated. The initial phase of the investigation involved laboratory characterization of the chemical and physical properties of the tailings collected from abandoned tin mined land in Phuket Province, Southern Thailand. The results indicated that both sand and slime tailings possessed several limitations to plant growth. Nitrogen and phosphorus deficiencies were limitations in both types of tailings. Low water holding capacity may pose additional limitation to the establishment of vegetation on sand tailings. Glasshouse and field trials illustrated that sand tailings, which make up 80 percent of the tailings areas, can be ameliorated to the point where they will support satisfactory plant growth. Chemical limitation of nutrient deficiency can be effectively corrected by the application of fertilizers whereas physical limitations in the form of low water holding capacity can be overcome by recombining slime into sand tailings and by creating a layer of slime within the sand tailings profile. The use of a slime layer has an advantage over the mixing of sand and slime tailings, as it requires smaller amounts of slime and cost less to achieve.