



*Strategies for International Development*

**COMBATING SOIL EROSION AND RURAL  
POVERTY IN GUATEMALA  
& HOW YOU CAN HELP**

**I. SOIL EROSION AND RURAL POVERTY**

Guatemala has a total population of 14 million people, and nearly 8 million live in the rural areas. The majority of the rural population lives in the Western Highlands. Most of the inhabitants of the Western Highlands are Mayan Indians, who fought for civil rights, education, and economic opportunity in a civil war that lasted thirty-six years. Peace accords were signed in 1996, and the Mayan population must now fight for civil rights, education, and economic opportunity by working harder and smarter than others who already have these rights and opportunities.

75% of Guatemala's population lives below the poverty line, and the percentage is higher in the Highlands. Approximately 35% of the population of the Western Highlands fails to satisfy basic nutritional requirements and over 40% lacks basic health care (UNDP, 1998). Farm plots range from 0.5 to 2 hectares (1.2 to 5 acres) per family, and annual family income ranges from \$500 to \$1,000 for a family of seven.

Deforestation has put even further pressure on the land and caused severe erosion in the upper reaches of the watersheds of the Western Highlands. The main culprit is the demand for firewood. Nearly three quarters of all Central American households use wood for fuel, and per capita consumption of firewood is approximately 2.5 kilos per day (CATIE, 1993). Approximately 388,000 hectares (959,000 acres) of forests are lost each year, and the majority of the watersheds, which produce 70% of electrical energy, are seriously deteriorated (CCAD, 1998). Two-thirds of Guatemalan families burn wood for cooking and other energy needs. Researchers have found that 90% of the population depends on wood as their main energy source (World Policy Institute, 2000).

Soil degradation and erosion are severe, and current conservation methods are not sufficiently stopping the erosion. Changes in farming practices can, however, bring about dramatic changes in loss of soil and land. In a study conducted in the highlands of Honduras, where conditions are similar to those in Guatemala, soil loss during rainy years was 92 tons per hectare per year on hillside plots when brush was burned each year to clear the land for planting. However, soil loss was only 43 tons per hectare per year when brush was not burned. Soil loss fell to 2 tons per year on land where farmers had constructed slow-formation terraces by planting rows of reeds every 10 or 15 years across the contours of the slope (Thurow, Texas A&M, 1998).

## II. SID'S FARMING PRACTICES FOR 2004

In early 2002, SID began a demonstration area in 19 communities in the Department of Chimaltenango in the Western Highlands of Guatemala. We work in these 19 communities helping farmers reclaim eroded farmland and watersheds, increase their productivity of traditional crops (corn and beans), diversify their production to include higher-value crops, and increase their income. The farmers in these communities have selected the following practices to adopt or improve in 2004.

Dry Season: February to May	Rainy Season: July to December
<b>Making Better Business Decisions</b>	
<ul style="list-style-type: none"> <li>Identifying buyers</li> <li>Making and applying business plans</li> </ul>	<ul style="list-style-type: none"> <li>Identifying buyers</li> </ul>
<b>Reclaiming Eroded Land and Watersheds</b>	
<ul style="list-style-type: none"> <li>Folding dry plant material into the earth rather than burning it</li> <li>Digging water retention ditches along the contours of the hillsides</li> <li>Minimum tilling of dry and fragile soils</li> <li>Grow forest, fruit trees in simple nurseries</li> </ul>	<ul style="list-style-type: none"> <li>Sowing live barriers, "barreras vivas" (lines of reeds in contour that terrace and hold hillside land)</li> <li>Plant trees in the upper reaches of the watersheds</li> </ul>
<b>Increasing Productivity and Income</b>	
<ul style="list-style-type: none"> <li>Preparation of "abono verde" (compost)</li> <li>Preparation of "Bocashi" fertilizer</li> <li>Begin/expand production of eggs and chickens</li> </ul>	<ul style="list-style-type: none"> <li>Apply green fertilizer and "Bocashi"</li> <li>Sow corn and beans in "surco ancho"</li> <li>Begin/expand production of amaranth</li> <li>Increase the productivity of fruit trees</li> </ul>

**Results from 2002 to Mid-2004.** The achievements in farming practices that reclaim land and increase income are as follows.

	2002	2003	2004 *
<b>Physical Reclamation of Land</b>			
Water retention ditches, planting live barriers (meters)	1,361	18,963	23,632
Construction of bench terraces (meters)	20,522	6,237	
<b>Reclaiming Soil Fertility</b>			
Composting of vegetation, animal waste (cubic meters)	164	310	
Production, use of liquid organic fertilizer (gallons)	1,218	572	
Production, use of "Bocashi" fertilizer (pounds)			46,000
Ditches to bury crop waste rather than burning it (meters)			2,336
<b>Increasing Productivity, Diversifying Production</b>			
Ditches for fertilizing the root ends of coffee trees (ditches)	32,864		
Production of organic coffee (number of families)		73	
Vegetable and herb gardens (number of gardens)		237	
Production of amaranth, rosa jamaica, linseed (families)		285	
Construction of stables (number of stables)		15	
Production of eggs and poultry (number of families)			316
<b>Making Better Business Decisions</b>			
Identifying buyers (number of families)			36
Making and using business plans (number of families)			597

\* 2004 figures are for the first six months (January through June) of 2004. 2002 and 2003 figures are for the entire calendar year.

**New Approach to Forestation.** The farmers in the 19 communities included reforestation of the upper reaches of their watersheds in the farming practices to be emphasized during the winter season from July to early December 2004. However, they are very frank about their reluctance to do this work. They understand the need, but it is too far from their fields and it is too much additional work. We have worked out a compromise, and we have begun to apply it in 4 of the 19 communities that have rural academic and vocational high schools (*telesecundarias*) in which students from 13 to 17 years of age receive practical education using satellite TV and educational videos. The communities (and schools) are Patzaj, Panabajal, and Xiquin Sanai in the Municipality of San Juan Comalapa and Tierra Colorada in the Municipality of San Martin Jilotepeque.

The students work on the farm plots of their families in the morning, and they study from 12:30 to 6:00 p.m. in the afternoon. Two or three teachers are there to reinforce the lessons in the videos. The parents have agreed to take charge of choosing the sites for reforestation, which is particularly important, since nearly all the land is privately held and the adults need to agree on the best places to reforest in order to protect the farmland below. Students in each school will plant and then protect at least 2 hectares of trees each rainy season. SID has begun applying this strategy. So far 129 students and 12 parents are participating, and they have planted 2,200 trees covering 4 hectares.

**Technical Assistance to NGOs.** SID formally began the technical assistance to NGOs on August 11, 2004. Six Guatemalan NGOs, working in the Department of Chimaltenango, will attend a one-day workshop to solve common problems that thwart the implementation of their projects and limit the achievement of their goals. The NGOs are COMKADES, Asociación de Desarrollo Comunal Cacchikel, Fundación Kaslen, Asociación Integral de Agricultores Comunes YUMC KAX, Fundación Integral de Desarrollo Sostenible y Medio Ambiente (FIDESMA), and the Asociación Campesina Coj Samaj Junam (Trabajemos Juntos). Staff from these organizations are now discussing the problems that they would like to address during the one-day workshop. The aim is to leave the workshop with ideas that they can immediately implement at least partially, if not fully, to solve their most pressing operation problems. The participants will choose their next technical assistance activities during the workshop, and we anticipate that we will conduct two more technical assistance workshops during the year.

### III. NEXT STEPS IN GUATEMALA

SID has made solid advances in the Chimaltenango demonstration area. However, the demonstration area is still not exhibiting all the things it could or should; the technical assistance to NGOs needs to be significantly expanded in order for it to have a recognizable impact on reclaiming land and increasing the productivity, diversification, and income of the farmers.

SID will make the work in the 19 communities a better demonstration by:

- Expanding the work on identifying buyers, making and using business plans, and other business practices
- Solving the problems which are blocking the adoption of the practices of burying, rather than burning, plant waste and reforesting the upper reaches of the watersheds
- Using the demonstration area as a site for solving problems identified during the provision of technical assistance to NGOs

SID is expanding the technical assistance to NGOs so that it begins to have a significant impact on the land and income of the beneficiaries of the NGOs by:

- Gradually building the technical assistance in Chimaltenango to include additional activities, as well as increasing the number of participating NGOs
- Establishing some exchange of information with NGOs operating in other departments of the Western Highlands

#### **IV. WHAT CAN YOU DO TO HELP?**

**You Can Help by Joining SID's Guatemala Support Network.** As a member of SID's Guatemala Support Network, you will receive (1) SID's newsletter twice a year, (2) semi-annual and annual reports on progress in Guatemala, and (3) email updates on special needs and opportunities in Guatemala.

In return, as a member, you will (1) explain the needs and opportunities of Guatemala to members of your community, school, church or other institution, (2) advocate for more foreign aid, especially for Bolivia, and (3) make financial contributions on behalf of Guatemala to the organization and program of your choice.

**You Can Make a Financial Contribution to SID's Program in Guatemala.** It costs approximately \$100 per year to help a Guatemalan farm family identify buyers and make business plans, reclaim eroded farmland, increase productivity, diversify production, and increase income. In addition, it takes approximately three years to help farmers make and sustain these increases.

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