



Strategies for International Development

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

I. SOIL EROSION AND RURAL POVERTY

Bolivia is one of Latin America's poorest countries. Approximately 40% of Bolivia's 8.7 million people still live in the rural areas, and nearly 90% of them live in poverty (INE, 2001). Much of the poor rural population inhabits the Altiplano, a high plain between two parallel mountain chains that run along the western coast of South America. Unfortunately, more than 80% of the Altiplano is eroded – sometimes lightly eroded, but more often moderately and severely eroded – and more and more land is being permanently lost to erosion. Family plots range from 1 to 3 hectares (2.5 to 7.4 acres) in the Northern Altiplano and from 3 to 5 or more hectares (7.4 to 12.4 acres) in the Central and Southern Altiplano. The growing population places great stress on the land, and farming cycles have dropped from 15 years, with 2 to 3 years of cultivation and 12 of fallowing, to 7 or 8 years with only 4 or 5 years of fallowing. Cropland is often left to fallow without vegetation, and the wind and rain wear away the soil. Livestock are put to pasture when grasses are flowering; they eat the seed as well as the grass, and pastures do not reseed naturally. Soils in many areas have become compacted and impermeable to water, gullies are growing, and dunes are appearing in the Southern Altiplano.

Until recently, the majority of governmental projects and those of Non-Governmental Organizations (NGOs) focused on increasing crop production without addressing the farmers' means of production, their soils and pastures. They helped construct irrigation systems, greenhouses for growing vegetables, and access roads. They also provided credit for improved seed, fertilizers, and insecticides. However, production often did not increase, and when it did, the additional income did not cover the increases in production costs. The Altiplano is a huge natural grazeland, and farmers can make a good living from their animals – alpaca for wool, llama for meat, and cattle for milk and meat – if they first reclaim their soils and pastures.

II. SID's RESPONSE

Innovations. SID approaches the dual problems of soil erosion and rural poverty with the understanding that neither can be resolved without simultaneously addressing both. It is with this understanding that SID has developed its innovative strategy for reclaiming soils and pastures while increasing income at the same time.

SID promotes several innovations for solving both problems together: (1) making simple, sustainable soil reclamation techniques part of standard agricultural practice; (2) using competitions among communities to encourage participation and recognize

farmers who have the most success in reclaiming land and increasing productivity; (3) using successful farmers as extension agents; and (4) giving women equal attention and employing female, as well as male, agronomists.

Farm families reclaim land by digging water retention ditches, damming gullies, constructing slow formation and bench terraces, re-seeding pastures, planting bushes and trees, and creating pasture reserves. They reclaim pastures with some remaining grass by fencing them off and leaving them to fallow, flower, and re-seed themselves naturally. They maintain the productivity of all pastures, once reclaimed, by establishing and adhering to strict rotation schedules. They are cutting water retention ditches in cropland that is being fallowed, so that moisture and vegetable matter collects in the ditches and the organic content of the soil is restored. They make optimum use of irrigation water by irrigating several furrows at a time. They improve the productivity of their animals by digging farm ponds and cutting and storing fodder for year-round watering and feeding, improving the selection and health of their animals, and constructing rustic stables for dairy cows.

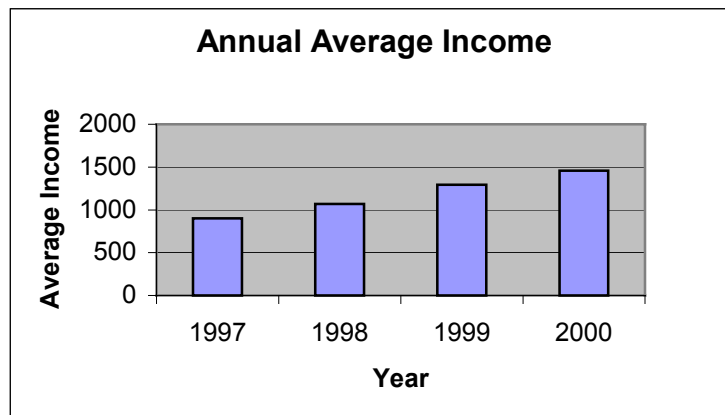
SID helps farmers organize competitions which mobilize labor for doing some of the demanding chores such as digging retention ditches, damming gullies, or constructing terraces. When everyone is taking part, the work seems less onerous. The competitions also encourage farmers to work together on practices such as immunizing cattle that are more effectively done by all members of the community at once. These competitions last for approximately five months, and they are held every rainy season and dry season in the practices which are appropriate to the season. The competitions provide a structure by which farmers create and apply the knowledge that reclaims their soils and pastures and increases their productivity. Everyone participates in the judging, the best knowledge is shared, and other farmers adopt that knowledge and work to improve upon it, with the hope of winning the next time. The winning communities and families receive farm tools, seeds, and animals as prizes. Good practices are recognized and rewarded and become part of general farming practice.

Members of each community appoint a male and a female farmer to organize the technical assistance in their community. SID hires farmers who are skilled in one or more reclamation practices as part-time staff. Farmers visit communities that have done outstanding jobs in reclaiming land, and they learn from farmers one to two steps ahead of them. The use of farmers as extension agents improves the technical assistance, reduces project costs, and increases the sustainability of the practices.

Typically, women take primary responsibility for grazing animals and producing milk, cheese, and wool. They also play key roles in producing crops. Men often tend to get most of the technical assistance provided by projects because they dominate contact with institutions from outside the community. However, SID gives equal or even greater attention to women, and this strengthens their equality as well as their role in reclaiming and maintaining natural resources and increasing income.

Results. In mid-1997, SID began using these and other innovations to help 1,630 farm families in 50 communities in the Patacamaya region of Bolivia's Altiplano to reclaim their land and increase their income. After three years, farmers had reclaimed 1,593 hectares of land by digging water retention ditches, damming gullies, and reseeding pastures, and another 70 hectares by constructing terraces. They reclaimed another 14,307 hectares by creating reserves in which the land was not touched for at least five years. They put 27,341 hectares of land in use under strict rotation.

Farmers also increased the productivity of their dairy cows from 5.3 to more than 10 liters a day by vaccinating them against hoof and mouth disease, treating them for internal parasites, cutting and storing fodder for good year-round feeding, and digging farm ponds for good year-round watering. They also increased their production of beef cattle from one to two cows a year by vaccinating them, treating them for parasites, and grazing them on the improved pastures. The average increase in income for the 1,630 families was 64%. Participation in the project was 80 to 90% of families in the 50 communities.



SID's project was recognized as one of the most successful in Latin America in a contest sponsored by the World Bank, the United Nations Development Program, and the Inter-American Foundation. A study of the project found that women strongly approved of it because it focused on their problems, gave them an opportunity to express and act upon their own ideas and experience, gave them an important role, and made them proud of their identity as Aymara women. (Van Turnhout, Luella; *The Pachamamam Urupa Makes Us Remember: Aymara Women, Project Intervention and Native Identity in Bolivia*, University of Amsterdam, 1997.)

III. SID's NEXT STEPS IN BOLIVIA

Demonstration Areas. We are completing work with 1,150 farm families in 40 communities in Viacha in the Northern Altiplano. The Viacha project only lasted two years, but the results in reclaiming land, increasing productivity, and increasing income were nonetheless impressive. We began two new demonstration areas in November 2003 – one in Pucarani in the Northern Altiplano, working with more than 880 families in 26 communities, and the other in Sica Sica in the Central Altiplano, working with 1,250 families in 40 communities. Both are planned for three years, and they give us – the farmers and SID's staff – the opportunity to add some new innovations in farming practice as well as methods of extension. For example, we are adding two micro-enterprise or business practices to the program. We are helping farmers assess markets by meeting with buyers and seeking information on market volume, price,

product quality, packing, and transportation. We are also helping the farmers make business plans in which they assess the risk and return of producing and selling different products. These two practices, taken together, help farmers make much better business decisions.

These projects help farmers reclaim land, increase income, and sustain the increase. They also serve as sites for demonstrating the utility of the innovative methods to staff of other NGOs, such that they employ these and other innovations in the communities in which they work.

Technical Assistance to NGOs. Non-Governmental Organizations (NGOs) have become the delivery system for both environmental and agricultural projects, and they are the organizations that will help farmers reclaim natural resources and increase productivity and income. In 1997, SID began helping NGOs make reclamation of soils and pastures on the Altiplano part of their programs.

In 2000, SID began a major three-year program to provide technical assistance to 32 NGOs in Bolivia. Over the three years of the program, SID provided technical assistance to 35 NGOs, working in 1,184 rural communities, with 30,246 farm families. During the course of the technical assistance, the NGOs were able to help these farm families increase their annual income by an average of 23.3% and their productive crop and pastureland by an average of 0.93 hectares.

The technical assistance is very useful, and SID would now like to focus on organizing and helping staff periodic workshops in which NGOs share information on lessons learned, best practices, and solutions to common problems.

IV. HOW YOU CAN HELP

Join SID's Bolivia Support Network. As a member of SID's Bolivia Support Network, you will receive (1) SID's newsletter twice a year, (2) semi-annual and annual reports on progress in Bolivia, and (3) email updates on special needs and opportunities in Bolivia.

In return, as a member, you will (1) explain the needs and opportunities of Bolivia 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 Bolivia to the organization and program of your choice.

Invest in Reclaiming the Altiplano and Eliminating the Poverty of Her Farmers. It costs approximately \$100 per year to help a Bolivian 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.

Visit www.sidworld.org, or email us at sid@sidworld.org, to learn how you can contribute.