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REAL IMPACT: NEPAL

SMALLHOLDER IRRIGATION MARKET INITIATIVE

USAID's **Real Impact** series highlights examples of water sector projects around the world. Each case example provides from-the-field insights about successful approaches, challenges faced, and lessons learned.

CHALLENGE

Nestled between the borders of India and China, Nepal continues to struggle with the consequences of a decade-long insurgency that ended in 2006 but has resulted in a number of development challenges, including stagnant economic growth, food shortages, climate change risks, and high child malnutrition, among others. Nepal's mountainous terrain coupled with frequently changing governments and interest groups vying for power have contributed to the country's lagging development and growth, with an estimated 31 percent of Nepalis living below the poverty line.

More than 80 percent of the poor depend on farming for subsistence and income. According to the World Bank, the agriculture sector contributed the largest share—about 38 percent—to the Gross

Domestic Product in 2011. Despite the topography of hills, which could yield high value agricultural outputs, elevated transactional costs from lack of connectivity and weak capacity, among other factors, have prevented its full potential from being realized. Many farmers struggle to produce sufficient food on their small plots of land. The population continues to grow, yet employment opportunities in the rural areas remain limited, forcing family members to seek opportunities in cities or overseas to earn enough to simply feed their families. Furthermore, smallholder farmers have traditionally relied on water-intensive crops that lack sufficient back-up when water is scarce. The combination of these elements has contributed to low crop yields and incremental agricultural growth.

While much of the country grapples with lagging growth, Nepal's agriculture

sector is unique in that it has the potential to reduce rural poverty by rapidly producing jobs and increasing incomes given the appropriate economic or social development scheme.

SIMI



LOCATION: Nepal
DURATION: 2003-2009
FUNDING: \$9.02 million
IMPLEMENTING PARTNER:
 Winrock International

APPROACH

To address productivity, growth, and development in Nepal, USAID's Smallholder Irrigation Market Initiative (SIMI) aimed to improve smallholder farmer income through the production and promotion of high value goods, such as vegetables, spices, non-timber forest products, small livestock, fisheries, coffee, and tea. The project utilized locally appropriate and affordable micro-irrigation technologies; improved value chains; built capacity of all value chain actors; and engaged a range of public-private partnerships. Inherent in SIMI's effort to promote stability in rural areas was the inclusion of disadvantaged groups, such as the *Dalits* (a low caste group considered 'untouchable'), *Janajati* (marginalized indigenous people), orphans and vulnerable children, and women, throughout project implementation.

Appropriate Technologies:

Irrigation technologies such as Multiple Use Water Systems (MUS), storage tanks, sprinkler systems, local water storage technologies, and treadle pumps

(foot operated pumps) were introduced to help smallholders to continue production when faced with challenges such as marginal land and lack of water during the offseason. The project integrated affordable and local appropriate technologies, including locally-produced storage tanks, called Thai Jars, which cost half as much as plastic tanks.

Value Chains: USAID's value chain approach aimed to improve input, production, output, service markets, and connections between small holders and service markets and dealers and suppliers. This approach involved combining interventions from agricultural inputs to market support. At the input level, the project developed the capacity of service providers and helped establish nurseries to provide ongoing farmer access to seedlings. At the production level, USAID provided technical capacity building to farmers. Finally, at the output level, the project supported and enhanced the farmers and traders learning through trainings, exposure visits, interaction, and workshops. At every level, farmers received skills

training and technical supervision from SIMI staff.

Capacity Building: USAID worked to build government capacity in micro-irrigation and market-led agriculture, thereby developing enabling policies for smallholder farmers. The project also worked with the Government of Nepal to build its capacity as a facilitator to coordinate groups (farmer groups, Marketing and Planning Committees, traders) input suppliers, micro-irrigation technology manufacturer and assemblers, activities (training and technical assistance, exposure visits and technology transfer), and outputs (increased production, market linkages and incomes. USAID also provided technical assistance and a range of training and learning programs to expand farmers' capacity throughout the value chain.

Market Development: USAID worked with local committees and collection centers, to aggregate smallholder produce to attract better prices, link member farmers to markets, help farmers plan market-led production, and make affordable financing available.



Photo Credit: Gautam Bajracharya

Public-Private Partnerships:

Public-private partnerships also aggregated production efforts. USAID worked with local governments, NGOs, the National Agriculture Research Council, the Federation of Nepalese Chambers of Commerce and Industry, and other institutions at all levels in order to coordinate their respective capacities.

Research: USAID's adaptive research program worked with national research institutions and farmers in order to find and share solutions for challenges faced by Nepalese farmers. This involved disseminating technologies developed by research institutions and farmers themselves. The project worked with the National Agriculture Research Council (NARC) to conduct field research on hailstone and monsoon protection. SIMI provided research and identified and developed appropriate inputs for goat production and pasture and forage development. In addition, USAID worked with NARC to develop a hybrid tomato variety that is resistant to blight and wilt.

Education/Training: An orphan and vulnerable children program worked with households to reduce malnutrition and improve health and sanitation. This program's unique approach involved integrating income generation with increased family knowledge and access to health services, participatory learning groups, and improved nutrition. The classes trained mothers how to spot symptoms of illnesses as well as appropriate treatments.

IMPACT

USAID's integration of affordable and locally appropriate technologies resulted in not only tangible outputs such as agricultural productivity and incomes, but also positive impacts in terms of resilience.

From 2003-2008, USAID increased the incomes of 72,760 households (about 500,000 people) by an average



Photo Credit: Gautam Bajracharya

of \$209 annually through the sale of vegetables. Fifteen new technologies were introduced in Nepal, which helped increase productivity for smallholder farmers. This increased productivity generated more than \$30 million in agricultural sales.

To provide clean water and enable water storage for off-season use, USAID assisted in the construction of 70 MUS, including modified storage tanks (Thai Jars), drip and micro sprinklers systems, low-cost diesel, and electric water pumps, and helped sell and install 1,469 locally produced Thai Jars. When farmers utilized drip systems, they were able to use 50 percent less water and irrigate between 80 to 2,000 m² (total land), improving yields by 30 percent. The project facilitated the sale of 38,000 treadle pumps, allowing farmers to irrigate an area up to 2,000 m². These irrigation technologies have helped households decrease water con-

sumption by 50 percent while increasing yields by 30 percent.

The orphan and vulnerable children program increased family awareness of and access to education, health services, and improved nutrition. From 2006-2009, the program formed 438 group discussion clusters with mothers who had children under age 5 to reach 14,386 households, to reduce malnutrition and improve health and sanitation. Families that grew high value crops became aware of how to utilize their increased income for health and nutrition.

USAID's successful approach is serving as a model for ongoing projects, such as the recently ended USAID Education for Income Generation Project and new Feed the Future activities. Building on this baseline of improved capacity resulting from the project, many new projects and programs in Nepal have been created by the Asian Development Bank and the World Bank. The impacts of SIMI have played an important role in strengthening the agricultural sector of Nepal and have propelled the government and donors to continue to invest in effective approaches to development.

KEYWORDS

Agriculture **Education**
Irrigation **Health**
Water **MUS**
Technology **Sanitation**



LESSONS LEARNED

Of paramount importance was the sustainability of the interventions. Improved organizational capacity, affordable and locally appropriate technologies, strengthened input and output markets, and newly created linkages between value chain actors were essential components to ensure sustainability. SIMI focused on including stakeholders, including local NGOs and agencies, in program planning and project activities. The broad-based support of these stakeholders helped ensure sustainability. Furthermore, USAID's positive relationship with the Government of Nepal played a central role in advancing 15 new government policies to benefit smallholder farmers.

- ◆ Access to appropriate inputs, technologies, irrigation, knowledge, and markets increased smallholder incomes and facilitated competitiveness.
- ◆ Access to clean water and increased income can be achieved in a cost effective manner.
- ◆ Service providers need to be established in local communities near producers in order to maximize impact.
- ◆ Partnership at the district and village level can result in agricultural investment in piped irrigation systems and finance for micro-irrigation technologies.
- ◆ Integration of donor projects with government planning needs to be improved.
- ◆ Strong linkages between farmer groups and government agencies are essential to further improvements.
- ◆ Private sector development and export/market potential improvement projects need to be strengthened.
- ◆ Given a strong demand for agricultural products domestically and in nearby areas in India and Bangladesh, export promotion, improved branding, marketing, and quality control systems have great potential to benefit Nepali producers.

ADDITIONAL RESOURCES

To learn more about the SIMI project, contact:

Nepal SIMI completion report:

http://pdf.usaid.gov/pdf_docs/PDACP099.pdf

Multiple Use Water Systems Video:

<http://www.youtube.com/watch?v=pIp5EpuzjIg&feature=endscreen&NR=1>

Multiple Use Water Systems Video 2:

<http://www.youtube.com/watch?v=SWUs8NJ4Ho8&feature=related>