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STORY  
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## New technology brings opportunities for rural poor in Armenia

For six months every year, Robert Karapetyan trades the home he shares with his wife and son in Armenia's bustling capital city for a 35-acre farm in the rural village of Pokr Vedi. He spends those six months on his small farm, growing wheat and tomatoes to support his family back in Yerevan.

Robert's operation received a boost when Millennium Challenge Corporation (MCC) investments brought laser leveling technology to Pokr Vedi for the first time. A staple of field preparation in wealthier nations, the leveling system allows farmers to smooth out their fields with unmatched precision. This allows irrigated water to be distributed evenly across entire fields, instead of flooding some patches and leaving other areas dry. The technology saves farmers money and improves yields by an average of 30 percent.



A farmer uses the laser leveling system to smooth out his fields with unmatched precision. This allows irrigated water to be distributed evenly across entire fields.

Taking the advice of other farmers, Mr. Karapetyan tried the new laser leveling system on one-third of his land. Now, on that land, he uses less water for irrigation, and tomato and wheat yields have increased. He has plans to level another 25 acres and is spreading the word to his fellow farmers. For the Karapetyan family, new laser leveling technology means increased income and a more promising future.

Stories like this can be found across Armenia today because of MCC's \$177 million compact,<sup>1</sup> which focused on boosting the productivity of Armenia's agriculture industry, and the introduction of technological tools has proven to be critical to achieving the compact's goal.

<sup>1</sup> The Compact amount is USD 235.65 million. However, as result of the June 2009 meeting of MCC's Board of Directors, MCC did not resume funding for the Compact's Rural Road Rehabilitation Project (RRRP). Excluding the remaining RRRP funds, MCC's investment is approximately USD 177 million.



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## Modernizing irrigation

Before the MCC compact was signed, Armenian farmers depended on a Soviet-era irrigation system that was inefficient and poorly maintained. Managers had no effective way to control water levels in irrigation canals, and farmers usually improvised by making their own modifications, like hauling debris and even old cars into the waterways to direct the water's flow. This often left those downstream with nothing but a trickle, creating conflicts that pitted neighbor against neighbor for limited water resources.

In place of broken concrete and rusted cars, Armenia's irrigation canals are now equipped with well-designed structures that maintain desirable water levels both upstream and downstream at all times during the growing season. These new designs help eliminate waste and ensure managers can get water where it's needed, when it's needed.

Transforming this failing system is a key part of the MCC compact. Revitalizing Armenia's irrigation infrastructure, however, is about more than concrete and mortar; the compact also introduced new technological tools and modern design principles that made the system a stronger asset for Armenia's farmers.

The MCC compact funded rehabilitation of 17 pumpstations, improving and modernizing their capabilities. Each station has been equipped with state-of-the-art pumps and engines, and automated systems

will monitor the irrigation system for potential problems when operators are not available. The modern equipment will reduce energy costs, expand the land under irrigation, and deliver water to farmers more reliably. Reliable delivery of water is critical to encouraging farmers to increase their investments in higher value crops, which in turn raises incomes and improves system sustainability. As farmers earn more, they are more able to afford paying the water user fees necessary to operate and maintain the irrigation system in the future.

Water user fees are collected and managed by formal Water User Associations (WUAs) across Armenia. In these WUAs, MCC funded the installation of new water management software that uses geographic information system (GIS) technology to monitor the system and its users. In the past, managing the payments by farmers was confusing and difficult to monitor. The new GIS-based system allows the associations to visually map and track all of the plots of lands being irrigated and easily determine which farmers have paid their water fees. This improved technology will increase the capacity for the new, more efficient irrigation system to sustain itself for years to come.

## Cutting out the middle man

In Armenia, as in many low-income countries, cell phone use has expanded dramatically in recent years. This phenomenon offered an opportunity for MCA-Armenia, the government of Armenia entity primarily responsible for implementing the compact, to address a long-standing problem in the nation's agriculture industry: informing farmers about crop prices.

Like any business, a farmer depends on accurate, up-to-date market information to price his or her products in the marketplace. But for many Armenian farmers, especially those who live in remote areas separated from commercial centers by long distances and substandard roads, finding information as simple as current crop prices can be a challenge.

Seeing an opportunity to level the playing field for rural producers, MCA-Armenia established the Armenian Agricultural Market Information System, or ARMIS, in December 2008. For the cost of a text message (a few cents), farmers can request daily fruit and vegetable prices from large markets in the regions of Yerevan, Armavir, Lori, and Shirak. The system is automated, so farmers receive up-to-date prices immediately, giving them a stronger hand when negotiating with retailers and potential customers. Private sector investors are further enhancing the system.

“Thanks to this system, I was able to sell my cucumbers at a much higher price,” said Armenian farmer Rafik Smbatyan, who has used ARMIS. “Before this, I wasn’t aware of prices and was constantly losing.”

Across the globe, agriculture has become an increasingly high-tech endeavor. Armenia is an ancient country with a long and rich history, but its citizens have been eager to adopt 21st-century approaches. For the more than 400,000 people who are expected to benefit from MCC's compact with Armenia, this promises an opportunity to build a better life.