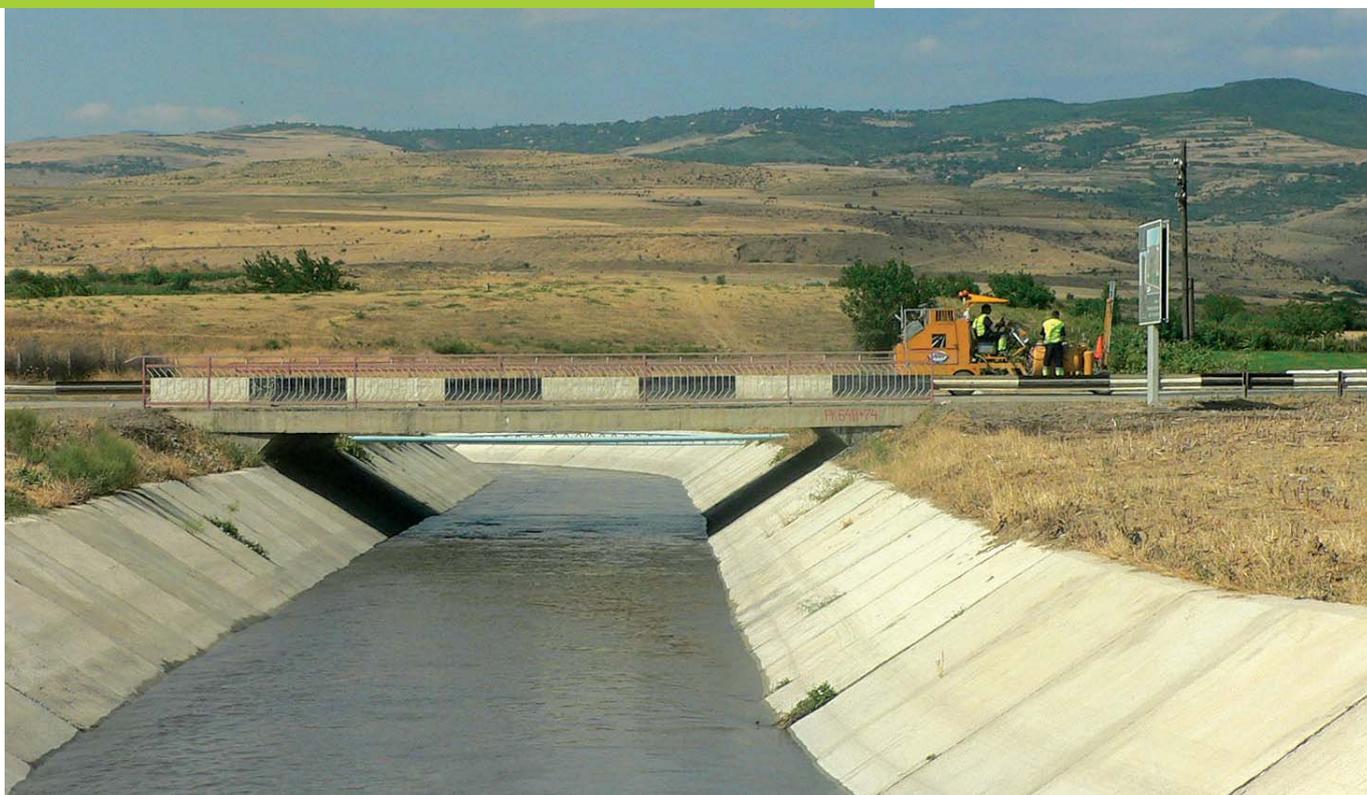


# Khanarc Canal transforms agriculture in northeast Azerbaijan



Islamic Development Bank

*Together we build a better future*



Built around 70 years ago, the Samur-Absheron Canal carries water from the Samur River to irrigate farms in northeastern Azerbaijan and supply the national capital, Baku, with drinking water. Years of neglect meant that the canal was inefficient – it lost much of the water it carried – and did not have the capacity to meet existing demand for irrigation or, still less, to allow for expansion. Rehabilitating the canal was a priority for the Government of the Republic of Azerbaijan.

With a loan from the Islamic Development Bank (IDB) the Government built the Khanarc Canal. The new canal is a vital part of the plan to rehabilitate the entire Samur-Absheron Canal system.

The Khanarc Canal provides all the water farmers need for irrigation and has allowed the area of irrigated agriculture to expand, enhancing food production and food security. Potable water supplies for Baku are secure. Policy and practice in water management is improving, and the number of water users associations is growing.



The Khanarc Canal irrigates over 67,000 hectares and is part of the Government's effort to transform agriculture in Azerbaijan.

### Precious water lost

By the 1990s, the Soviet-era irrigation system in Azerbaijan, long neglected and poorly maintained, had become extremely inefficient. The Samur-Absheron Canal in the northeast of the country was in such poor shape that a great deal of precious water was being wasted.

The Government of the Republic of Azerbaijan drew up plans to minimise water losses, including a major overhaul of the Samur-Absheron Canal system. Farmers supplied by the system were not receiving enough water to irrigate their crops. Rehabilitating the system would provide farmers with a reliable supply of water, allow the area that could be irrigated to expand, and secure water supplies to the capital city, Baku. Building the Khanarc Canal was a vital part of the overhaul.

The Bank provided a loan for 77% of the US\$22.28 million needed to build the Khanarc Canal and the Government of Azerbaijan financed the other 23%.

### Step-by-step

The Samur-Absheron Canal irrigates 120,000 hectares of Azerbaijan on the western shores of the Caspian Sea and supplies drinking water to Baku. Part of the Government's step-by-step plan to rehabilitate the entire Samur-Absheron system was to build a new canal alongside part of the old one. The new canal, the Khanarc Canal, would increase the supply of water for agriculture in the upper reaches of the Samur-Absheron system.

The first step was to build a 37.5 kilometre section of the new Khanarc Canal parallel to the old Samur-

Absheron Canal starting at the Samur River diversion dam. The second step was to extend the Khanarc Canal a further 29.7 kilometres to join the Samur-Absheron Canal at Devechi. The total length of the new canal is 67.2 kilometres. A road along the entire length of the new canal provides access for operations and maintenance, and improves communications for rural areas bordering the canal.

Before the new canal was built the old Samur-Absheron Canal did not supply farmers in the Khachmaz, Devechi and Gusar districts with enough water. Now they receive all they need and irrigate nearly 10% more land.

### Greater efficiency

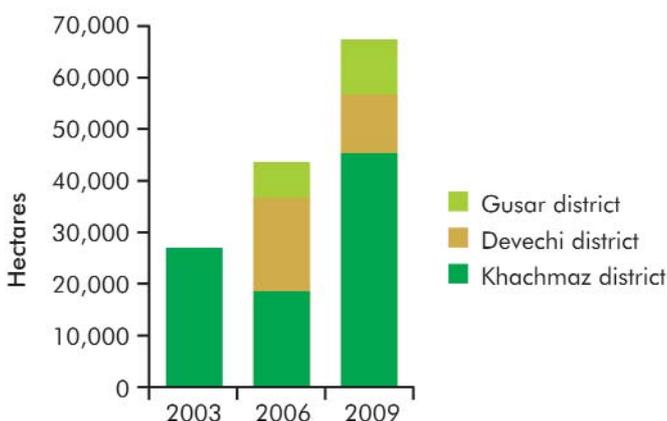
In 2009 the intake of the Khanarc Canal was 168 cubic metres a second (m<sup>3</sup>/sec). Nearly half of this, around 80 m<sup>3</sup>/sec, irrigates farms in the Khachmaz, Devechi and Gusar districts. The rest flows on into the lower section of the Samur-Absheron Canal to supply the Baku area and irrigate other regions. As well as preventing loss of water, the new canal reduces soil salinity and water logging.

*"In the past, nearly half of the area was cultivated but now we have the full land area under irrigation. ...Before this project, there was great loss of water..."*

Mr. Feyrouz Huseynov, Executive Director, Kikilkishlak Water Users Association

The new canal is much more efficient than the old one. Water losses from evaporation, seepage and other factors are only 15%, which is considered very good. The canal design eliminates the need for pumping as the water flows under gravity. The Khanarc Canal more than doubled the total area under irrigation to 67,150 hectares (Figure 1).

Figure 1. Khanarc Canal doubles area under irrigation





The Khanarc Canal was designed so that water flows under gravity, saving the expense of pumping.

### Boost to agriculture

By making more water available for irrigation, the Khanarc Canal has boosted agriculture and contributed to food security. Agricultural production in Khachmaz, Devechi and Gusar districts has increased and new agricultural areas have opened up. More cattle are being raised, and more meat and milk are being produced.

*"...the regional economy has flourished and grown, agriculture productivity increased, all of the land area is now cultivated, and the forgotten, abandoned areas have come back to life..."* Mr. Azer Azizov, Shabran Devechi Irrigation Department

### Farmers better off

Farmers are better off because the yields of major crops such as wheat, and other crops such as fodder beet, fruits, grapes and vegetables, have improved. They can sometimes grow three crops a year and high-value vegetables even in the dry season. The boost to agriculture has created more jobs. Better incomes and less unemployment mean improvements in living standards, children's education and family health.

*"On average, production of each crop has increased by at least 30% a year."* Mr. Feyrouz Huseynov, Executive Director, Kikilishlak Water Users Association

*"The area of fruit increased from 120 ha to 970 ha. Before the Khanarc Canal was built no grain was grown here. Now we can produce three grain crops a year as we have sufficient water for irrigation."* Mr. Dashdasir Hajir, Chairman Water Users Association

### Food security on target

The increase in agricultural production means that the Government is on track to meet its food security targets. Plus, exports of produce are bringing in considerable amounts of foreign exchange.

*"We have reached self-sufficiency in agriculture and achieved our food security...as a result of the new canal..."* Mr. Vaqif Salimov, Manager, Khachmaz Irrigation Department

### Sustainable water resources management

For the new canal to continue to operate efficiently it needs to be managed properly. This is the responsibility of the Azerbaijan Amelioration and Water Farm Company (AAWFC). As well as operating and maintaining canals, and distributing irrigation water throughout the country, AAWFC also develops strategies and policies for irrigation, land reclamation and water. AAWFC has established units in each of the three districts served by the Khanarc Canal to manage operations.

*"...the number of complaints for water loss has decreased considerably."* Mr. Rafiq Taghiev, Deputy Head of Executive Power for Khachmaz Agriculture Matters

### Water users associations

The project also influenced the Law on Amelioration and Irrigation 2004 (amended) that established water users associations (WUAs) in Azerbaijan. WUAs allocate water to members, collect water fees and resolve water related disputes. They also enhance social cohesion in rural villages and communities. The number of WUAs grew from 18 in 2005 to 23 in 2009.

*"We buy the water from the government at 0.5 Azerbaijani Manat<sup>1</sup> and sell it to the farmers at 3.8 Manat for each 1,000 cubic metres. In this way we look after the canal, maintain and clean the canal, pay the salaries of the hydro-engineers, and cover all our expenses. This is a good sustainable project as everyone is involved in it..."* Mr. Feyrouz Huseynov, Executive Director, Kikilishlak Water Users Association

<sup>1</sup> 1 US\$ = 4015.5 AZM June 2011

## Success factors

### Strategic importance

The Khanarc Canal was a Government priority for national economic development and the Government strongly supported the agency responsible for overseeing the construction of the canal and managing operations. The project was consistent with IDB's strategic agenda for agricultural development and food security in member countries.

### Partnership

The World Bank, the Saudi Development Fund and the OPEC Fund for International Development (OFID) collaborated with IDB on a series of canal projects to achieve food security in Azerbaijan. The partnership between government agencies, donors, contractors and consultants meant that projects were carried out successfully.

### Good project design and implementation

The canal was designed so that water flows under gravity, eliminating the need for pumping and keeping running costs down. The high standard of design and construction mean that water losses are kept to a minimum. Good quality materials for building the canal were available locally and imports were not necessary.

### Water charging and sustainability

The introduction of water fees that are set at a fixed rate per hectare and take into account economic and social considerations means that farmers contribute to the costs and sustainability of the system.

### Ownership

Involving water user associations fostered participation, a sense of ownership and a willingness to accept responsibility for operating and maintaining the canal to use irrigation water efficiently.

## Building on progress

Engineers involved in the project developed considerable expertise and skills in implementing irrigation projects. A Project Management Unit, set up by AAWFC to implement and monitor projects, has successfully realised subsequent projects financed by the Bank – the Main Mill Mughan Drainage Canal and Velvelichay-Takhtakorpu Canal. AAWFC also manages the Irrigation Distribution System and Management

Improvement Project financed by the World Bank to promote the development and sustainability of water users associations.

Compared to the sum invested in the Khanarc Canal and the amount it costs to operate, the economic gains – the increase in agricultural productivity and growth in farmers' incomes – are enormous.



The Khanarc Canal feeds into the Samur-Absheron Canal, securing water supplies for Baku .

## Acknowledgements

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