



## CBA Success Stories

### CBA Kazakhstan - Astana

It is increasingly recognized that small communities are likely to be the most severely affected by climate change impacts, and yet least equipped to cope and adapt. The Community-Based Adaptation (CBA) project, a five-year United Nations Development Programme (UNDP) global initiative that is funded by the Global Environmental Facility (GEF), has been designed to pilot community-based projects that seek to enhance the resiliency of communities, and/or the ecosystems on which they rely on, to climate change impacts. In ten participating countries (Bangladesh, Bolivia, Guatemala, Jamaica, Kazakhstan, Morocco, Namibia, Niger, Samoa, and Vietnam) small-scale 'project/policy laboratories' are created to build the resilience and adaptive capacity of local communities to climate change. Partners include the GEF Small Grants Programme (SGP), the United Nations Volunteers (UNV), and the Governments of Japan, Switzerland, and Australia.



*Before the CBA project*  
Photo: Katerina Yushenko/UNDP CBA

In Northern Kazakhstan, the CBA project **"Adaptation of farmers' agricultural practices in response to intensified climate aridity in Akmola Oblast"** is located in the Arnasay settlement, which is 50 kilometers away from the country's capital, Astana. The project site is the nation's agricultural center, but its steppe ecosystem is fragile and subject to harsh weather conditions. Winters are long and cold with heavy winds and summers are hot and with both droughts and heavy rains. The harsh climate conditions have increased soil erosion and land degradation, resulting in damage to the local economy and reducing farmers' production and incomes. Having observed the negative impacts of climate change upon farming productivity, the residents of Arnasay village have begun to implement adaptation measures to prevent climate change from further threatening their livelihoods. The project was prepared

through a participatory process carried out by Akbota Public Foundation, a local NGO. It is being implemented within the local community to help residents improve the sustainability of their livelihoods. This CBA project started in April 2009 and closes in August 2011.

Long-term climate change projections for Kazakhstan forecast rising temperatures and declining average rainfall. Overall, temperatures are expected to increase 1.4°C by 2030 and 2.7°C by 2050. All seasons will be warmer, but winter months will likely see the greatest temperature increases. Rainfall patterns are also projected to change. The arid climate traditional in south of the country is expected to expand northward into historically wetter areas. The cumulative effect of these factors will be increased aridity across the whole of Kazakhstan. The project area is threatened by increased summer evaporation and drying winds that weaken already fragile soils and diminish

water resources. Winter snows are melting faster, posing an additional risk when accompanied by strong winds that dry out soils and cause erosion. It will become increasingly difficult for farmers to preserve winter moisture for agricultural use and they will be less able to rely on the nearby Astana Reservoir as its reserves are shrinking. The combination of greater precipitation with warmer winters, earlier snow melting, and spring night-frosts will impact traditional farming practices and calendars. Changes in planting practices and timing will be necessary to adapt and maintain agricultural activity in the region.



*After the CBA project*  
Photo: Katerina Yushenko/UNDP CBA

The Small Grants programme (SGP) is the delivery mechanism of this project. The SGP National Coordinator oversees the day-to-day management activities. Additionally, the SGP National Coordinator has actively

pursued national policy influence in Kazakhstan thru round-table meetings with government officials and other experts thru demonstrations of the CBA projects. Exchange visits and lessons learned have also been shared with other Central Asia countries. Funding from the Government of Switzerland has helped in capacity building and knowledge product development in Kazakhstan, and has allowed policy influence activities in Kazakhstan and Central Asia.

The Arnasay village, consisting of 2100 participants or 220 households, have directly benefitted from the adaptive practices introduced in this CBA project. From the effective water management activities, the total irrigated area is approximately 7000 hectares. Demonstration plots of 12 local members are now equipped with the drip irrigation system due the project, and 24 local community members' households have used the drip irrigation system (12 items were installed by the local members by themselves based on knowledge received from the project.). The yield has increased twice on the backyards with the drip irrigation system. At the same time water consumption has decreased twice.



*Innovative water-saving irrigation technologies such as drip irrigation, installed in local communities' backyards have led to increased yields.*

*Photo: Katerina Yushenko/UNDP CBA*

Additionally, the area of winter wheat growing in Arshaly area is about 5000 hectares, and cereal crop for wheat production, using the technology of winter crop cultivation, has increased by 15%. All these environmental benefits have increased the producers' incomes by 30% as compared to their income level in 2008, before the CBA project.

The GEF Strategic Priority on Adaptation (SPA) grants, for the implementation of this CBA project, has increased the resiliency of the Arnasay village residents to climate change. With the adaptive practices in effective irrigation and land management learned from the project, irrigated lands and crop production have both increased. These have led to the local communities' resiliency to climate change as well as to increased security in their livelihoods. Additionally, the funds from GEF contribute towards securing climate change resilient global environmental benefits, focusing on sustainable land and water management.

The CBA project introduced a new system of agriculture for the region based on the combination of the summer grain crops and winter wheat production. For crop and wheat production, planting of drought-resistant crops of winter wheat was implemented based on topography. In places with natural snow accumulation in the early spring season, but disappears 10-12 days later, a relief is used to retain water and to prevent runoff. These practices have led to reduced topsoil risks and soil erosion. This approach allows the use of available natural water from snowmelt which has reduced the dependency of local farmers on other water sources. Additionally, in order to prepare the soil for sowing winter crops, it is processed in view of the recommended dates phosphorous and nitrogen fertilizers are entered. Selection of crops of winter wheat was carried out based on the resistance to the arid climate in the zone of risky agriculture.



*Use of drip irrigation allows the most efficient use of available water for irrigation with minimal costs.*

*Photo: Katerina Yushenko/UNDP CBA*

Additionally, the project has acquainted the local community members to innovative water-saving irrigation technologies, such as drip irrigation and surface irrigation. For more efficient use of water, drip irrigation systems were installed on the local members' backyards. This system can be easily installed and be easily collected from water filters, fittings, and drip tapes. Drip irrigation system allows for maximum results and the

most efficient use of available water for irrigation with a minimal cost. For major agricultural producers, the transition to a ground-level irrigation from the soil surface irrigation have led to saving water consumption as well as switch to high-quality watering at a lesser costs. By converting sprinkler height t -2.5 to -3.7m from the soil surface, evaporation of water has decreased by 30% and has protected the sprinkler water jets from being demolished by strong winds.

For the sustainability of the project, new adaptive farming systems and its real benefits are shared with other local community members. The benefits which include saving money thru cost reduction on irrigation water and electricity, reducing physical labor due to automation of irrigation, increased yields and profits from sale of crops. Thru demonstration plots, organized within the project from the involvement of the Arnasay local members, knowledge-sharing on the effective water saving technology and experiences gained will be shared. In addition, powerful economic incentives to continue to use the new adaptive approaches to agriculture will be developed. In this regard, a collective transition to drip irrigation in the villages of the district will be included in state budgets starting 2011.



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