

On behalf of:



of the Federal Republic of Germany

Enhancing people's livelihoods in High Mountainous Regions of Central Asia through Adaptation to Climate Change

Climate informed stabilization of services provided by nature as the basis for ecosystem-based adaptation

Context

The ecosystems in high mountainous regions of Central Asia are characterized by a unique diversity of flora and fauna. In addition, they are the foundation of the livelihoods of the local population, not simply from an economic perspective. Specific benefits include clean water, pasture, forest products, protection against floods and landslides, maintenance of soil fertility, and ecotourism. However, the consequences of climate change such as melting glaciers, changing river runoff regimes, and weather anomalies including sharp temperature fluctuations and non-typical precipitation result in negative impacts on these ecosystems. Coupled with unwise land use, these events damage fragile mountain ecosystems and reduce their regeneration ability undermining the local population's livelihoods.

Therefore, people living in rural areas and directly depending on natural resources must adapt to adverse impacts of climate change. This can be done through a set of measures, known in the world practice as ecosystem-based adaptation (EbA) approach. It promotes the sustainable use of natural resources to sustain and enhance the livelihood of the population depending on those resources.

Central Asia has had experience in applying measures of this approach in practice, but the identification of the ecosystem-based measures was not climate informed and were mostly not part of an overall adaptation strategy to help people to adapt to

Project name	Ecosystem-based Adaptation to Climate Change in High Mountainous Regions of Central Asia (EbA)
Commissioned by	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Countries	Kazakhstan, Kyrgyzstan, Tajikistan
Main partners	Line ministries and departments, non-governmental organizations
Duration	2015 - 2019

the adverse effects of climate change. This bears the risk of maladaptation.

EbA needs to be incorporated into national policies and international climate debate as key element to meet the adaptation efforts agreed on in the last climate conference in Paris.

Our objectives

We are committed to helping national partner organizations in Kazakhstan, Kyrgyzstan and Tajikistan to test successful EbA approach and climate adaptation strategies, and integrate them into national policies. Our efforts are intended to promote a common understanding of advantages created by this EbA approach; broadening and strengthening of intra- and inter-sectoral collaboration and cooperation between the countries; and supporting the planning efforts of international development partners.



Slopes of hills affected by soil erosion due to heavy rains in the Khatlon region, Tajikistan.

Juniper tree on land affected by soil erosion in the Sarkent national park in the Batken region, Kyrgyzstan.

Agricultural land affected by a mudslide in the Rasht Valley, Tajikistan.



Conducting a sociological survey of the residents of the Bash-Kaindy and Bolshevik villages to assess awareness on issues of the environment and climate change. Naryn region, Kyrgyzstan.

Official signing of the project implementation agreement in Dushanbe, Tajikistan.

Our measures

We work in two pilot watersheds in Kyrgyzstan and Tajikistan, with the support of official partners in implementing the project.

They include CAMP Alatau / CAMP Tabiat Public Foundation, Mountain Societies Research Institute of the University of Central Asia (UCA), Michael-Succow-Foundation, German Research Centre for Geosciences (GFZ), and UNIQUE Forestry & Land Use GmbH. We are also successfully cooperating with the World Wildlife Fund US (WWF US) and UNEP.

We started our work with a comprehensive assessment of the status of the most important ecosystems of the pilot regions and the interaction of plants and animals inhabiting these regions. Experts of the Michael-Succow-Foundation have analyzed possible changes in ecological conditions resulting from climate change. In the future, a vulnerability assessment, i.e., a determination of the degree of security of the population and ecosystems against climate threats, will be updated and supplemented by data on the study of the forces and phenomena of nature.

The German Research Centre for Geosciences supplemented this analysis with a study of the movement of glaciers and,

consequently, on the increase or decrease of the volume of water on which the residents of pilot villages are directly dependent. Scenarios of possible climate change have also been developed based on the vulnerability assessment.

Together with local communities, we are launching innovative processes of adaptation planning for climate change, during which we develop and test cost-effective strategies and appropriate measures. These include the efficient use of nature while maintaining and developing the ecosystem services provided to rural populations.

Ecosystem services are benefits provided by nature to the human population. They are divided into provisioning, regulating, supporting, and cultural services (see List of ecosystem services).

Typical outcomes of the EbA approach are the climate informed management of forest, land and water resources and the introduction of alternative sources of income.

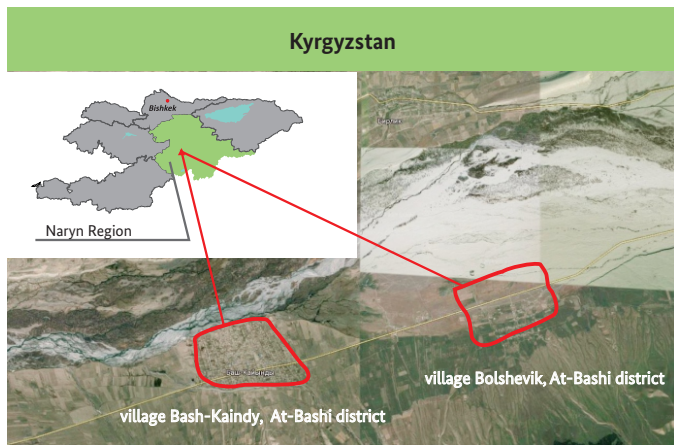
This is why we also work on improving the level of knowledge of local authorities, specialists of public sector institutions, and the local population.

List of ecosystem services according to / based on the Millennium Ecosystem Assessment (2005)

Provisioning Services are ecosystem services that describe the material or energy outputs from ecosystems. They include food, water and other resources.		Regulating Services are the services that ecosystems provide by acting as regulators eg. regulating the quality of air and soil or by providing flood and disease control.		Cultural Services are the non-material benefits people obtain from ecosystems. They include aesthetic experiences, spiritual enrichment, and psychological benefits.		Supporting services are necessary for the production of all other ecosystem services. Ecosystems provide inhabited space for plants or animals. They also support a variety of different species of plants and animals.	
food		local climate and air quality regulation		tourism		habitats for species, nutrient cycle, photosynthesis	
raw materials		Co2 sequestration and storage		spiritual experience and sense of place		conservation of genetic diversity	
medicine		erosion prevention, maintenance of soil fertility		recreation, mental and physical health			
water		pollination		aesthetic appreciation, inspiration of art culture and design			

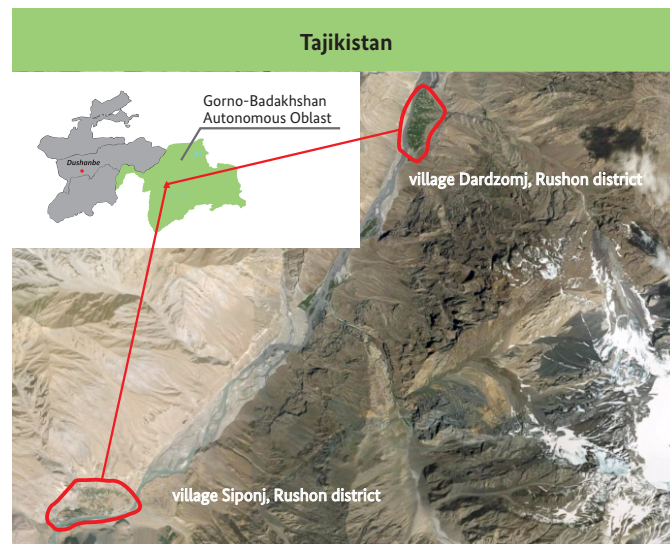
Training sessions and seminars, and the study of successful international experience with the help of international experts, help these groups to become familiar with the features of decision-making under conditions of a changing climate and to adapt these features to the local environment.

For example, an interactive workshop was held in the pilot villages, Bash-Kaindy and Bolshevik of Naryn region of **Kyrgyzstan**. The local population together with experts of CAMP Alatau and World Wildlife Fund US, and the project team considered two future climate scenarios and analyzed most negative climate impacts on their livelihood. Then villagers identified measures (such as improving water management or introducing better livestock rotation) that will help people to adapt to these and any other development scenarios in the best way. An established Rural initiative group will support testing and implementation of adaptation measures and monitoring of their successful implementation - even after completion of the EbA project.



A particular emphasis in our work is placed on environmental education of children and youth through so-called “citizen science” - when volunteers and enthusiasts are involved in research and help to collect important environmental information utilizing accessible and affordable means. The UCA Mountain Societies Research Institute, in cooperation with CAMP Alatau, introduces affordable courses at schools in mountainous communities, where teachers and pupils conduct, for example, monitoring of water quality in water bodies. Also, students of local university will be able to analyze and process

information on the environment and communicate the results in an open data network.



Together with CAMP Tabiat, a special range of adaptation measures is developed for the pilot villages, Saponj and Dardzomj in Bartang Valley of the Gorno-Badakhshan Autonomous Oblast (GBAO) of **Tajikistan**, affected by an earthquake in December, 2015, taking into account the seismological situation in the region. As a result of these efforts, people will be better prepared for climate change and natural disasters.

In **Kazakhstan**, we have supported the capacity building of national partner organizations to help them implement adaptation measures. In doing this, we follow the principles of the EbA approach and the “green economy”.

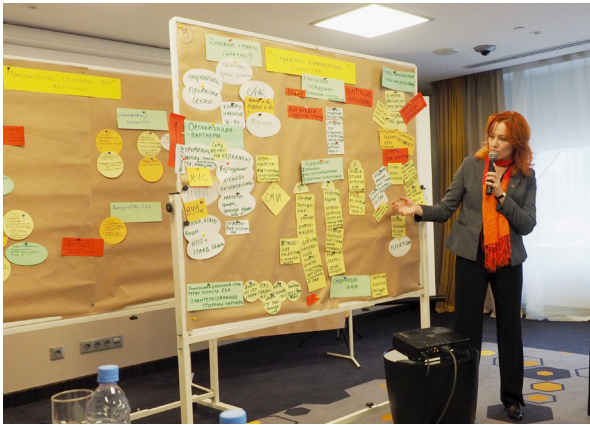
Consultations with stakeholders were conducted to obtain information on their experience and current processes. Based on this climate information, an adaptation strategy will be developed for one of the priority sectors of the economy, which then will become an example for the preparation of strategic documents at the national level.

When implementing the EbA approach, we focus on the consistent elimination of existing institutional, economic, technical and informational barriers at different levels.



Presentation of the results of a workshop on planning of adaptation measures in the Naryn region, Kyrgyzstan.

Discussion of adaptation measures by residents of Saponj and Dardzomj villages in GBAO, Tajikistan.



Workshop on awareness on climate change in the framework of Green Economy Strategy in Astana, Kazakhstan.

Support of public political partners of Kyrgyzstan in the negotiation process on climate at the international level in Paris, France.

Our partner, UNIQUE forestry and land use GmbH, holds consultations on climate for government officials in Tajikistan and Kyrgyzstan and supports national government authorities in conducting international negotiations on climate, including on prospective (Intended) Nationally Determined Contributions (quantitative commitments of the country on reduction of greenhouse gas emissions for prevention of the catastrophic consequences of climate change). Additionally, UNIQUE supports the process monitoring of project activities at all levels.

Based on the tested methods of economic activity in rural areas, we will promote the use of this knowledge by all three countries in the development of their national policies.

Our results to date

These joint measures will enable residents of high mountainous regions of Central Asia to better adapt to climate change through climate sensitive conservation and restoration of mountain ecosystems, primarily forests and pastures. Since trees are natural absorbers of carbon dioxide, the preservation of forest resources will also help to keep CO₂ levels in the atmosphere within the normal range.

In general, local communities will be able flexibly to plan the management of natural resources and make decisions on conservation and restoration of biodiversity, on mitigation of the effects of climate change, and on development under such conditions. Additionally, families will be introduced to alternative income opportunities.

A successful methodology for the EbA approach in these three Central Asian countries will then be enshrined in the strategic planning for the development of the countries at national and regional levels, as well as in the planning of major international development partners. It will also contribute to implementation by these countries of their commitments under the major international environmental conventions of the United Nations Organization.

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