

Economics of Climate Change in Central and West Asia—Mitigation Component



The Asian Development Bank (ADB) contracted Abt Associates to lead the **Economics of Climate Change in Central and West Asia (mitigation component)** to increase the availability of information on options and costs for reducing greenhouse gas (GHG) emissions in the energy and transport sectors of Azerbaijan, Kazakhstan, and Uzbekistan.

Abt managed a team of international and local experts to identify cost-effective mitigation options that will help the three countries diversify their predominantly fossil fuel-based economies. They also developed Nationally Appropriate Mitigation Actions (NAMAs), and prepared investment concept notes for attracting climate finance. Along with the development of NAMAs, Abt provided regional training and capacity building on NAMA selection and design; monitoring, reporting and verification; GHG emissions accounting; and how to access international climate finance.

Project Background

Heavy reliance on fossil fuels will lead to growing GHG emissions if no mitigation action is taken

Since gaining independence from the Soviet Union, growing populations and abundant natural resources have spurred economic growth and liberalization in Azerbaijan, Kazakhstan, and Uzbekistan. Fossil fuels are key to these developments, both as an export and domestic energy source, and provide 99% of total energy supplies. Coal is the largest energy source in Kazakhstan, while natural gas dominates in Azerbaijan and Uzbekistan. As a result, the economies of these three countries are carbon-intensive, with 75% of total 2010 GHG emissions coming from energy and transport.

To reduce fossil fuel dependency and mitigate GHG emissions, ADB is working with the three countries to identify cost-effective ways to ensure low-carbon growth. In support of this goal, Abt provided technical assistance on how to assess the costs and benefits of mitigation actions, model climate change actions with the Long Range Energy Alternatives Planning (LEAP) tool, and identify and prepare viable climate investment opportunities for funding.

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A workshop in Uzbekistan in spring 2013 kicked off efforts to identify options to reduce greenhouse gas emissions in the energy and transport sectors.

QUICK FACTS

- Asian Development Bank, 2013-2015
- Key partners included Stockholm Environment Institute (SEI) and Nazar Business and Technology (NBT) in Uzbekistan
- Identified and assessed the costs, benefits, and co-benefits of mitigation options in energy and transport sectors
- Projected baseline emissions to 2050, assessed how mitigation options could reduce emissions, and developed marginal abatement cost (MAC) curves
- Developed four NAMAs related to small hydropower, energy efficiency, renewable energy, and natural gas
- Trained regional stakeholders on how to conduct economic analyses of mitigation actions, access climate finance, and measure, monitor and report on GHG

Key Activities

Conducted economic analysis of GHG mitigation options

Abt prepared country climate change profiles and developed national economic models—one for each country—based on national data and development priorities, using the Long-range Energy Alternatives Planning (LEAP) tool. Abt assessed the costs and benefits of different mitigation options and emission scenarios in each country and developed marginal abatement cost (MAC) curves to project the costs and potential for each mitigation option to reduce GHG levels. The team also identified gaps and needs in climate policies and assessed co-benefits of mitigation, including air quality, energy security, human health, and local environmental quality. Results of the analysis are available in the publication, [Economics of Climate Change in Azerbaijan, Kazakhstan, and Uzbekistan: The Economics of Reducing Greenhouse Gas Emissions in the Energy and Transport Sectors](#).

Designed Nationally Appropriate Mitigation Actions (NAMAs)

Based on the analysis of mitigation options, Abt consulted with national and local stakeholders to design four NAMAs, which (i) promote renewable energy from agriculture production in Azerbaijan; (ii) promote the use of natural gas for transport in Kazakhstan; (iii) introduce a national energy efficiency support system in Kazakhstan; and (iv) accelerate the deployment of small-scale hydropower in Uzbekistan. Each NAMA is in a different stage of implementation and financing, with direct government support and donor community funding. The NAMAs are described in the publication, [Economics of Climate Change in Azerbaijan, Kazakhstan, and Uzbekistan: Report on Nationally Appropriate Mitigation Actions](#).

Mobilized investment for climate change

Abt also worked with stakeholders to put together three investment concept notes (ICNs) tied to the NAMAs. These ICNs estimate the funds needed to implement specific components of each NAMA: renewable energy development at an agricultural production complex in

Azerbaijan, natural gas refueling infrastructure in Kazakhstan, and a small-scale hydropower plant in Uzbekistan. Criteria included GHG abatement potential, alignment with national development priorities, demonstration value, potential to replicate and scale up, and cost-effectiveness. The ICNs are summarized in the publication, [Economics of Climate Change in Azerbaijan, Kazakhstan, and Uzbekistan: Final Summary Report and Investment Concept Notes](#).

Trained regional stakeholders to conduct economic analyses of mitigation options

Abt trained and improved the capacity of regional stakeholders, while simultaneously building a regional network of skilled practitioners to use economic models and implement the NAMAs and ICNs after the project's completion. Abt created a two-year capacity development program that trained decision makers in climate finance and economic analysis of low carbon growth measures. It also strengthened national systems for GHG emission monitoring, verification, and reporting. The program's key beneficiaries included relevant ministries and academic institutions in Azerbaijan, Kazakhstan, and Uzbekistan.



Photo credit: L Gnome, Wikimedia

Polluted air surrounds a factory in the Absheron Peninsula in Azerbaijan. Mitigation options identified through the economic analysis of GHG emissions will decrease projected emissions in Central and West Asia, where fossil fuels provide 99% of energy supplies.

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