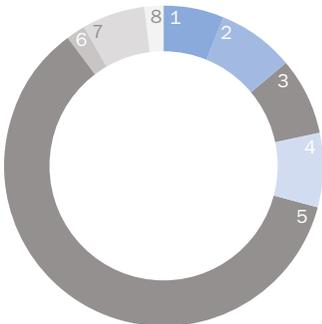




**BUILDING RESILIENCE  
TO CLIMATE CHANGE:  
INVESTING IN ADAPTATION**

SINCE 2006, THE EBRD HAS PROVIDED €425 MILLION TO 65 ADAPTATION PROJECTS IN 20 COUNTRIES.

THESE PROJECTS ARE EXPECTED TO BUILD RESILIENCE TO THE IMPACTS OF A CHANGING AND MORE VARIABLE CLIMATE.



	€ million, rounded
<b>1</b> Central Asia	<b>27</b>
<b>2</b> Central Europe and the Baltic states	<b>33</b>
<b>3</b> Eastern Europe and the Caucasus	<b>33</b>
<b>4</b> Russia	<b>32</b>
<b>5</b> South-eastern Europe	<b>260</b>
<b>6</b> Southern and eastern Mediterranean	<b>8</b>
<b>7</b> Turkey	<b>27</b>
<b>8</b> Regional*	<b>8</b>
<b>Total</b>	<b>425</b>

\* Regional projects are those which cover several countries and/or regions.

**The effects of climate change – already seen through temperature shifts, extreme weather events and rising sea levels – are certain to have wide-ranging impacts for all kinds of businesses.**

**Some impacts will be widespread: scarcity of fresh water, for example, will affect everything from human health to agriculture and forestry. Other impacts will be more localised: the effects of rising sea levels will be most evident in coastal areas.**

**Many of the countries in which the EBRD operates are particularly vulnerable to climate change: in part because of their geographical location and characteristics, but also because under-investment has resulted in ageing infrastructure and facilities.**

**The EBRD supports projects focused on adaptation and resilience to climate change by offering technical expertise and finance. The Bank helps clients to:**

- identify climate change impacts that will affect their operations**
- develop and implement strategies to facilitate adaptation**
- invest in measures and technologies that improve their resilience.**

**Initial EBRD investments in these areas demonstrate that early-moving clients can reduce costs, maximise profitability and increase competitiveness.**

## WHAT CLIMATE CHANGE MEANS FOR BUSINESSES



Existing climate vulnerabilities highlight the need for businesses, including utilities, to be able to respond to climatic variability that may affect their operations.

This implies the capacity to make decisions that are informed by a sound understanding of projected climate change and its impacts.

Climate change may have negative effects on output. Reduced availability may drive up the price of raw materials and resource inputs (for example, water, energy). Changing conditions could also alter demand for the goods and services that businesses produce and utilities provide.

Changing climate conditions can also accelerate the deterioration of key assets. Buildings and machinery may be vulnerable to extreme events, such as storms and floods, that affect costs for operation and maintenance or even for insurance. Left unmanaged, such threats may undermine competitiveness and profit margins, or the delivery of essential services.

By identifying potential risks and providing both technical and financial support, the EBRD helps clients undertake actions to adapt to climate change, thereby making them resilient.

Adaptation and resilience are also about recognising new opportunities. EBRD experience shows that changing conditions can create demand for new products and services – or entirely new markets.



# THE EBRD ASSESSES EACH SITUATION TO DELIVER TARGETED ASSISTANCE

Experience so far has shown that climate change affects businesses across many sectors and countries. The EBRD helps clients to identify climate change related risks, develop strategies to deal with the effects of climate change and make their operations more resilient.

Recognising that each business is unique and the range of opportunities is diverse, the EBRD supports clients by offering a range of services outlined below.

**Technical expertise** provided by specialists in climate, water and energy who have in-depth knowledge of the client's specific industry. Their role spans initial risk assessments to strategic responses.

To identify the risks posed by climate change, these specialists will:

- SHARE EXPERIENCE FROM A WIDE RANGE OF COUNTRIES AND SECTORS
- SCREEN PROJECTS FOR CLIMATE SENSITIVITY
- DEFINE PROJECT-SPECIFIC RISKS AND THEIR POSSIBLE IMPACTS.

To build capacity for risk management, and support the development of strategies for adaptation and resilience the specialists will:

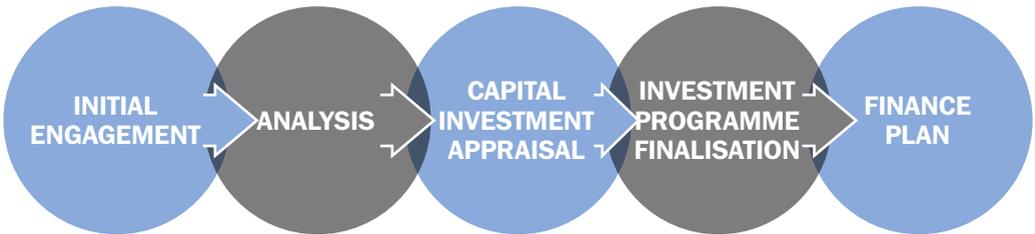
- DESIGN INVESTMENT STRATEGIES THAT TAKE ACCOUNT OF PROJECTED CLIMATE CHANGE IMPACTS, SUCH AS ENERGY AND WATER INVESTMENT PLANS
- SUPPORT DECISION-MAKING ON ASSET DESIGN AND MANAGEMENT
- PROVIDE ADVICE ON TECHNOLOGY SOLUTIONS
- TRAIN EMPLOYEES TO MANAGE RISKS.

**Financial solutions** offered by the Bank are then designed to meet the needs of both the client and the project.

# THE EBRD'S APPROACH TO SUPPORTING CLIMATE RESILIENT OPERATIONS

In a changing and more variable climate, more efficient use of resources such as water and energy can give businesses a competitive advantage and safeguard the delivery of essential services.

At an early stage of project development, EBRD technical experts visit the client's site to carry out water and energy audits, or climate resilience audits, which provide a basis to identify, propose and discuss with the client possible technical and investment solutions.



- Review the company's sensitivity to climate change and, if available, business strategy for climate resilience
- Collect data through a written questionnaire and checklist
- Meet with the company's operations management
- Define the scope of the technical cooperation
- Launch a climate resilience audit, funded by the EBRD.
- Make site visit (three to five days) for detailed discussion with company staff
- Carry out in-depth review of climate change vulnerability and resilience options, including benchmarking against international best practice.
- Conduct technical and economic assessment of recommended climate resilience opportunities
- Define a programme of priority investments and actions for climate resilience.
- Follow up the results of the audit and the recommended climate resilience investments and actions.
- Develop a financial plan together with EBRD bankers.



# ADAPTATION AND RESILIENCE ARE IMPERATIVE TO MANY SECTORS

Many experts argue that climate change will create a future characterised by increased uncertainty in many regions and sectors. This means that the past is no longer a reliable predictor of the future; businesses and utilities need to be ready to act and/or react in unfamiliar circumstances.

## Water-intensive sectors

Climate change is expected to affect hydrological systems and precipitation patterns. Together with glacial melting in some parts of the world, this will increase the risks of storms and floods, as well as droughts. This will heighten the need to manage water resources carefully and efficiently. In response to these challenges, the EBRD works with companies and utilities to improve efficiency of water use by:

- REDUCING LEAKAGE AND WATER LOSS IN WATER SUPPLIES
- HELPING BUSINESSES ACHIEVE WATER SAVINGS THROUGH EFFICIENCY IMPROVEMENTS
- LOWERING WATER DEMAND THROUGH RATIONAL PRICING, METERING AND CONSUMER AWARENESS PROGRAMMES.

## Energy production

Climate change affects the generation, transmission and consumption of energy. Climatic conditions determine the amount of water flowing through hydropower stations, and the availability of cooling water on which thermal power generation depends. Shifts in temperatures also influence peak energy demand, which can put a strain on transmission networks. To reduce vulnerability to climate change, the EBRD supports projects that build resilience into the energy sector by:

- MAKING HYDROPOWER PLANTS MORE RESILIENT TO HYDROLOGICAL VARIABILITY
- PROMOTING EFFICIENT USE OF COOLING WATER IN THERMAL POWER GENERATION
- STRENGTHENING POWER TRANSMISSION NETWORKS SO THEY CAN BETTER COPE WITH CLIMATIC EXTREMES AND SHIFTS IN DEMAND.





## Agribusiness

Climate change will have diverse impacts on agribusiness. Shifts in temperature and weather patterns may influence growing seasons and cropping patterns. Companies need to consider their heavy dependence on water throughout the crop production and food processing chain, especially in the face of increased water scarcity. The EBRD supports adaptation through investments designed to:

- IMPROVE WATER EFFICIENCY IN IRRIGATION
- OPTIMISE WATER USE IN AGRI-PROCESSING
- MAKE SUPPLY CHAINS MORE RESILIENT THROUGH IMPROVED EQUIPMENT AND FACILITIES FOR PRODUCTION, STORAGE AND TRANSPORT.

## Manufacturing

Many manufacturing companies are sensitive to the impacts of climate change on the availability of water, energy and raw materials, both directly and through their supply chains. This is especially true of manufacturing processes that entail the use of large volumes of water, such as paper and pulp or textile production. In cases such as these, the EBRD supports investments that:

- IMPROVE WATER AND ENERGY USE IN MANUFACTURING PROCESSES THROUGH HIGH-PERFORMANCE TECHNOLOGIES AND PRACTICES; AND
- MANAGE CLIMATE RISKS TO SUPPLY CHAINS BY ADDRESSING BOTTLENECKS AND PROVIDING SUPPORT FOR SUPPLIERS.



## TAJIKISTAN TAKES EARLY STEPS TO SECURE WATER SUPPLIES

COUNTRY

TAJIKISTAN



A dense river network and some of the world's highest glaciers provide Tajikistan with abundant water resources. Yet it is among the countries most vulnerable to climate change. Years of under-investment in facilities and infrastructure, coupled with poor operating conditions, have led to unreliable and low-quality water supply and high water losses.

The EBRD is working with water utilities in several cities to rehabilitate municipal water supplies. During the project feasibility study, the EBRD carried out a climate change assessment that included projected impacts on available water resources and on different groups of water users.

The project identified three priority climate-resilience measures:

- SWITCH FROM SURFACE/SHALLOW TO DEEP GROUNDWATER INTAKE
- UPGRADE LEAKY PIPE NETWORKS
- USE METERING AND WATER PRICING TO CHANGE CONSUMER BEHAVIOUR.

The proposed measures will improve significantly the climate resilience of the cities' water supply. This will enable their inhabitants to enjoy uninterrupted access to safe drinking water in the face of increasing climatic variability, with significant benefits for public health.

These improved services are expected to increase consumer willingness to pay, thereby enhancing the sustainability of infrastructure and operations and ensuring that the climate resilience benefits are sustained in the longer term.

## URGENT MEASURES AIM TO IMPROVE DAM SAFETY IN ALBANIA

COUNTRY

ALBANIA



Just two cascades, found along the Drin and Mat Rivers, account for 95 per cent of Albania's hydropower production. Severe floods in 2009 and 2010 drew attention to the ability of the dam system to cope with extreme events such as floods and rockfall – which are expected to become more frequent and severe as a consequence of climate change – and also earthquakes.

A survey and feasibility study identified opportunities for improvements in the operations and monitoring of these major infrastructure facilities, and confirmed that future floods may pose severe challenges to dam safety.

Responding rapidly to these needs, the EBRD undertook to finance rockfall protection measures and dam upgrades at the Komani HPP. In this way, the EBRD is among a group of institutions supporting the state power utility Korporata Elektroenergjitike Shqiptare (KESH) to undertake a broader upgrade programme that will:

- BRING THE HYDRAULIC STRUCTURE OF DAMS UP TO INTERNATIONAL STANDARDS
- IMPROVE MAINTENANCE AND OPERATION OF HYDRO-MECHANICAL EQUIPMENT
- UPGRADE DAM MONITORING SYSTEMS
- REINFORCE DAM SAFETY PROCEDURES AND ORGANISATION.

## MAKING COASTAL FACILITIES RESILIENT TO CLIMATE CHANGE

COUNTRY

TURKEY

A leading Turkish acrylic fibre producer relies heavily on maritime transport for both import of raw materials and export of finished products. Consequently, the company has made substantial investments in a port terminal at its facility on the Turkish coast. With climate change, the terminal is vulnerable to sea-level rise and associated flood and storm impacts.

Working with the EBRD for both technical and financial assistance, the company is putting in place a strategy to improve the climate resilience of the port terminal that crosses three main areas:

- SYNERGISING ENVIRONMENTAL MANAGEMENT SYSTEMS WITH EMERGENCY RESPONSE PLANS
- MANAGING RISKS, SUCH AS OPERATIONAL DISRUPTIONS OR ACCIDENTAL RELEASE OF CHEMICALS, IN THE EVENT OF FLOODING OR ADVERSE WEATHER CONDITIONS
- ACQUIRING APPROPRIATE LEVELS OF INSURANCE.

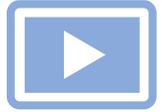


Following EBRD advice, the strategy promotes decision-making using information on weather conditions and climate change impacts – specifically the frequency and severity of floods and extreme weather – which is provided by the authorities responsible for developing national responses to climate change.

Importantly, the strategy recognises the company's need to take responsibility for potential impacts associated with its operations and products at the plant or at sea (during transport).

## OTHER AREAS OF SEI ACTIVITY

[www.ebrd.com/sei](http://www.ebrd.com/sei)



### INDUSTRIAL ENERGY EFFICIENCY

Making energy efficiency investments in energy-intensive industrial processes such as steel manufacturing, aluminium smelting, cement and glass production, as well as major transport investments, such as in railway operating companies.

### POWER SECTOR ENERGY EFFICIENCY

Improving the energy efficiency of transmission networks and thermal power stations which generate the majority of energy in the region. The ageing energy infrastructure includes a large number of plants with low generation efficiency, high running costs, and excessive pollution and carbon emissions.

### RENEWABLE ENERGY

Supporting the development of renewable energy sources by providing project finance and technical cooperation to shape the institutional and regulatory frameworks for renewable energy investments.

### MUNICIPAL INFRASTRUCTURE ENERGY EFFICIENCY

Upgrading neglected municipal infrastructure to provide efficient district heating, public transport networks and water supply systems.

### SUSTAINABLE ENERGY FINANCING FACILITIES

Financing facilities through local banks in countries of operations to support industrial energy efficiency in small and medium-sized enterprises (SMEs), small-scale renewable energy and building energy efficiency projects.

### CARBON MARKET DEVELOPMENT

Promoting the financing of low carbon projects in the region through the use of carbon market tools. The development of this market requires the creation of new institutions, clear regulatory frameworks and a critical mass of investments.



**European Bank**  
for Reconstruction and Development

# SEI

SUSTAINABLE  
ENERGY  
INITIATIVE

The EBRD is investing in changing people's lives and environments from central Europe to central Asia and the southern and eastern Mediterranean.

Working together with the private sector, we invest in projects, engage in policy dialogue and provide technical advice that fosters innovation and builds sustainable and open market economies.

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