Ad Hoc Expert Meeting on

Climate Change Adaptation for International Transport: Preparing for the Future

16 to 17 April 2019

Experience from a multilateral development bank of integrating climate resilience into financing transport infrastructure

Presentation by

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Experience from a multilateral development bank of integrating climate resilience into financing transport infrastructure

Climate change adaptation for international transport: preparing for the future
UNCTAD Ad Hoc Expert Meeting, Geneva
16 – 17 April 2019

Background to the EBRD
What is the EBRD?

Organisation
- 67 shareholding countries and the EU and the EIB
- 38 Countries of Operations

Basic principles
- Sound banking
- Transition Impact
- Environmental Sustainability

Key stats
- €30 billion capital base
- €41 billion portfolio
- €9.7 billion financing signed in 2017

Climate change adaptation is part of the Bank’s Green Economy Transition (GET)

Climate change mitigation
- Energy efficiency measures across all sectors
- Renewables in electricity, heating & cooling, transport
- Promoting carbon markets

Climate change adaptation
- Access to water resources and water efficiency
- Improved land management and agricultural value chain
- Reducing infrastructure vulnerability

Other environmental areas
- Resource efficiency measures
- Waste management and recycling
- Water quality and wastewater treatment
- Combating air pollution
EBRD’s adaptation finance 2011 – 2018

€1,700 million invested since 2011
225 projects signed
€6.3 billion of total ABI
made more climate resilient

By sectors (€ in million)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Value (€ million)</th>
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<tbody>
<tr>
<td>Financial institutions</td>
<td>116</td>
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<tr>
<td>Municipal &amp; Environmental Infrastructure</td>
<td>1,041</td>
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<tr>
<td>Power and Energy</td>
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<tr>
<td>Transport</td>
<td>129</td>
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<tr>
<td>Agribusiness</td>
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<tr>
<td>Natural Resources</td>
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<tr>
<td>Property and Tourism</td>
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<tr>
<td>Manufacturing and Services</td>
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<tr>
<td>ICT</td>
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<tr>
<td>Total</td>
<td>1,700</td>
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</table>

By region (€ in million)

<table>
<thead>
<tr>
<th>Region</th>
<th>Value (€ million)</th>
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<tbody>
<tr>
<td>Central Asia</td>
<td>441</td>
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<tr>
<td>Central Europe and the Baltic states</td>
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<tr>
<td>Eastern Europe and the Caucasus</td>
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<tr>
<td>Russia</td>
<td>32</td>
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<tr>
<td>South and Eastern Mediterranean (SEMED)</td>
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<tr>
<td>South-Eastern Europe</td>
<td>398</td>
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<tr>
<td>Turkey</td>
<td>266</td>
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<tr>
<td>Cyprus and Greece</td>
<td>26</td>
</tr>
<tr>
<td>Regional</td>
<td>5</td>
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<tr>
<td>Total</td>
<td>1,700</td>
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Three main climate resilience business areas

Infrastructure ~80%
Helping long-lived fixed assets to cope with shifting climate conditions over long lifespans. Typical sectors include transport, energy, urban and water.

Corporates ~15%
Helping business to manage climate risks to resource availability and value chains. Typically agribusiness, manufacturing & services and extractive industries.

Financial Institutions ~5%
Helping Financial Institutions to develop climate resilience financing products, through “Green Economy Financing Facilities”.

Adaptation finance commitments, 2006-2018

- Number of projects:
  - 2011: 21
  - 2012: 23
  - 2013: 21
  - 2014: 26
  - 2015: 26
  - 2016: 37
  - 2017: 30
  - 2018: 25

- Total amount invested:
  - 2011: €148 million
  - 2012: €197 million
  - 2013: €176 million
  - 2014: €220 million
  - 2015: €238 million
  - 2016: €339 million
  - 2017: €375 million
  - 2018: €357 million

- Total since 2011: €1,700 million

- Projects signed: 225
- Total ABI made more climate resilient: €6.3 billion
Integrating climate resilience into our operations

Integrating climate resilience in EBRD investments

- Climate change risk: Identifying vulnerability
- Potential impact on infrastructure
- Adaptation measures to improve resilience
- Benefits of climate resilient infrastructure
Climate resilient road infrastructure

Climate change risk: Identifying vulnerability

Example CC impacts
- Increased occurrence of extreme weather events (i.e. flooding, prohibitive snowfall)
- Increased heat stress
- Increased stress induced by cold temperatures
- Increased erosion and landslides

Potential impact on infrastructure

Example impacts on infra
- Road closures due to flooding and intense snowfall
- Infrastructure damages (pavement, bridges, tunnels) due to flooding
- Faster corrosion of pavement
- Unsettling of grounding of road
- Stronger abrasion of infrastructure
- Road closure due to landslides and rock fall

Adaptation measures to improve resilience

Structural measures
- Drainage design to accommodate climate change
- More resilient pavement material
- Reinforcement of slopes, bridges and tunnels

Non-structural measures
- Improved hydromet usage and forecasting
- Identification of vulnerable road sections
- Planning of suitable bypass routes
- Improved maintenance and monitoring

Benefits of climate resilient infrastructure

Direct financial benefits
- Avoided road closures due to extreme weather
- Reduced repair & maintenance costs related to climate impacts

Wider economic benefits
- Ensuring better connectivity for rural/peripheral regions
- More reliable trade and supply chains

Guidance and standards to reduce transaction costs and improve replicability

Process Guidelines
For Example: EUWIWACC guidelines, JASPERS guidance, European Commission

Industry-led Best Practice
For Example: PIANC WG 178, PIARC, IHA

Standards
For Example: ISO 14090, CEN/EN technical standards
EBRD Green Economic Transition Guide

CLIMATE RESILIENCE OUTCOMES

EBRD considers that there are six types of intended physical climate resilience outcomes that matter for its investment operations:

i. Increased water availability in the face of increasing climatic variability;
ii. Increased energy availability in the face of increasing climatic variability;
iii. Increased agricultural potential in the face of increasing climatic variability;
iv. Increased human health & productivity in the face of increasing climatic variability;
v. Reduced weather-related disruption; and
vi. Reduced weather-related damage.

A project must be able to demonstrate at least one of these outcomes in order to be considered as a GET climate resilience project and for GET adaptation finance to be reported.

Transport sector project examples
Bosnia & Herzegovina Roads: flood repair and upgrade

CLIENT AND PROJECT
A €65 million loan provided to the Bosnian Roads Company for the repair and upgrade of 34 road sections that were heavily damaged by the unprecedented floods of 2014.

CLIMATE RESILIENCE MEASURES
The feasibility work for the project assessed the design of vulnerable road section using climate change projections. The following climate resilience measures were recommended:

• the enhancement of drainage systems
• strengthening of vulnerable slopes, bridges and tunnels, and deepening bridge abutments
• the installation of rock mattresses and other practices to reduce long-term erosion risks
• Widening and improving bypass roads

TECHNICAL ASSISTANCE
Supported with funds from the Central European Initiative, experts from the Swedish Transport Agency work together with the Road Company on:

• Strengthening collaboration and analysis of climate data with the Hydromet Institute & Sava River Basin agency
• Assessment of major climate risks and mapping out vulnerabilities in the road network
• Analysis of road design and best international practice

FINANCIAL STRUCTURE

<table>
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<tr>
<th>Loan Type</th>
<th>Amount</th>
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<tr>
<td>EBRD loan</td>
<td>€65 million</td>
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<tr>
<td>(of which adaptation)</td>
<td>€35 million</td>
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<tr>
<td>World Bank loan</td>
<td>€50 million</td>
</tr>
<tr>
<td>EIB loan</td>
<td>€50 million</td>
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Kazakhstan Atyrau - Astrakhan: road repair and upgrade

PROJECT VULNERABILITY CONTEXT
The section of the Road to be reconstructed is located in the south-western part of Atyrau region. In the project area, increasing mean temperatures in the order of 2-3 degrees celsius over the lifetime of the project (and associated increase in number of extreme temperature days) was identified as the main climate change risk. If road pavement specifications do not incorporate this shift in temperatures, increased longitudinal cracking, rutting and fatigue cracking are expected.

CLIMATE RESILIENCE MEASURES
The project specific climate risk assessment recommended the follow measures:

• Structural Measures
  • pavement and bridge joint specifications addressing anticipated shifts in temperature
• Non-Structural Measures
  • Enhanced information gathering
  • Enhanced maintenance practices
  • Restrictions on heavy vehicles
Investing in climate resilient ports in Morocco: Nador West Med

CLIENT AND PROJECT
Sovereign-guaranteed loan for the NWM project, which consists of a new deep-water port in Northern Morocco. Climate change adaptation measures have been / will be included in tender documents in both the construction and operation phase.

CLIMATE RESILIENCE MEASURES
• Installation of surfacing, mechanical and electrical equipment designed to withstand projected temperature extremes (>40°C)
• Installation of surface drainage design able to cope with extreme rainfall and overtopping
• Installation of storage facilities able to withstand extreme temperatures and weather
• Emergency Response Plan for extreme weather events.
• Coastal Erosion Monitoring Scheme for the local area (to provide early warning of climate-related impacts).
• Structured Asset Maintenance Programme

FINANCIAL STRUCTURE
TOTAL: €943mn
Sponsor Contribution: €468mn (in MAD)
EBRD: €200mn
African Development Bank: €100mn
Arab Fund/FADES: €175mn (in KWD)

Investing in Climate Resilient Ports in Morocco: ANP Port Upgrade

CLIENT AND PROJECT
‘la houle exceptionelle’ of January 2014 has further raised awareness of climate risks to port infrastructure in Morocco.

EBRD is preparing a loan with ANP, Morocco’s Ports Agency for a Priority Investment Programme.

FINANCING
• In addition to the EBRD Loan, the GEF Special Climate Change Fund has awarded USD 6 million grant resources to co-finance innovative investment in port sector climate resilient upgrades in Morocco, as well as fund a large institutional support programme.

TECHNICAL ASSISTANCE
• Capacity Building: Moroccan port authorities will be supported to benefit from emerging PIANC guidance (PIANC Working Group 178 on Climate Change Adaptation for Ports and Navigation Infrastructure).
Contact

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