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OUTLINE OF INVESTMENT PROJECT IDEA CONSTRUCTION OF RIVERBANK PROTECTION AND MUDFLOW CONDUCTING STRUCTURES IN THE ZARAFSHON RIVER BASIN (TAJIK SIDE)

16th Meeting of the Steering Committee
of the National Policy Dialogue on Integrated Water Resources Management
in Tajikistan

Dushanbe, 15 February 2023

NPD INVESTMENT PROJECT IDEAS

- Help target countries develop environmentally-friendly investment project ideas
- Discuss the proposed investments at the NPD IWRM
- Prepare the investment proposals, based on feedback from the NPD IWRM
- Help governments present the investment proposals to potential investors and donors
- **Activity supported by the EU, implemented by UNECE**
- **Disclaimer: this does not imply that the EU and UNECE have plans at the moment to support the financing and implementation of this investment project**

DRAFT TEMPLATE

Investment Project Idea

Title
+ Photo
+ Map
+ Date

Page 1
Investment Project Idea at a Glance
1. Basic data
2. DAC sector and financing
3. Impact (sentence) and strategic priorities (4-5)
4. Mainstreaming: SDGs, climate, gender, poverty
5. Risk categorization
6. Safeguard categorization
7. Financing: loan, grant, guarantee, national contribution (if any)


Page 2
1. Rationale (1 para)
a. Background (2-3 paras)
b. Sector challenges (3-4 paras)

Page 3
c. Opportunities (with lessons learned)

Page 4
2. Proposed solution: impact, outcome, outputs and key activities (2-3 paras)
3. Investment and financing plans (1 para, table)
4. Additionality (1 para)

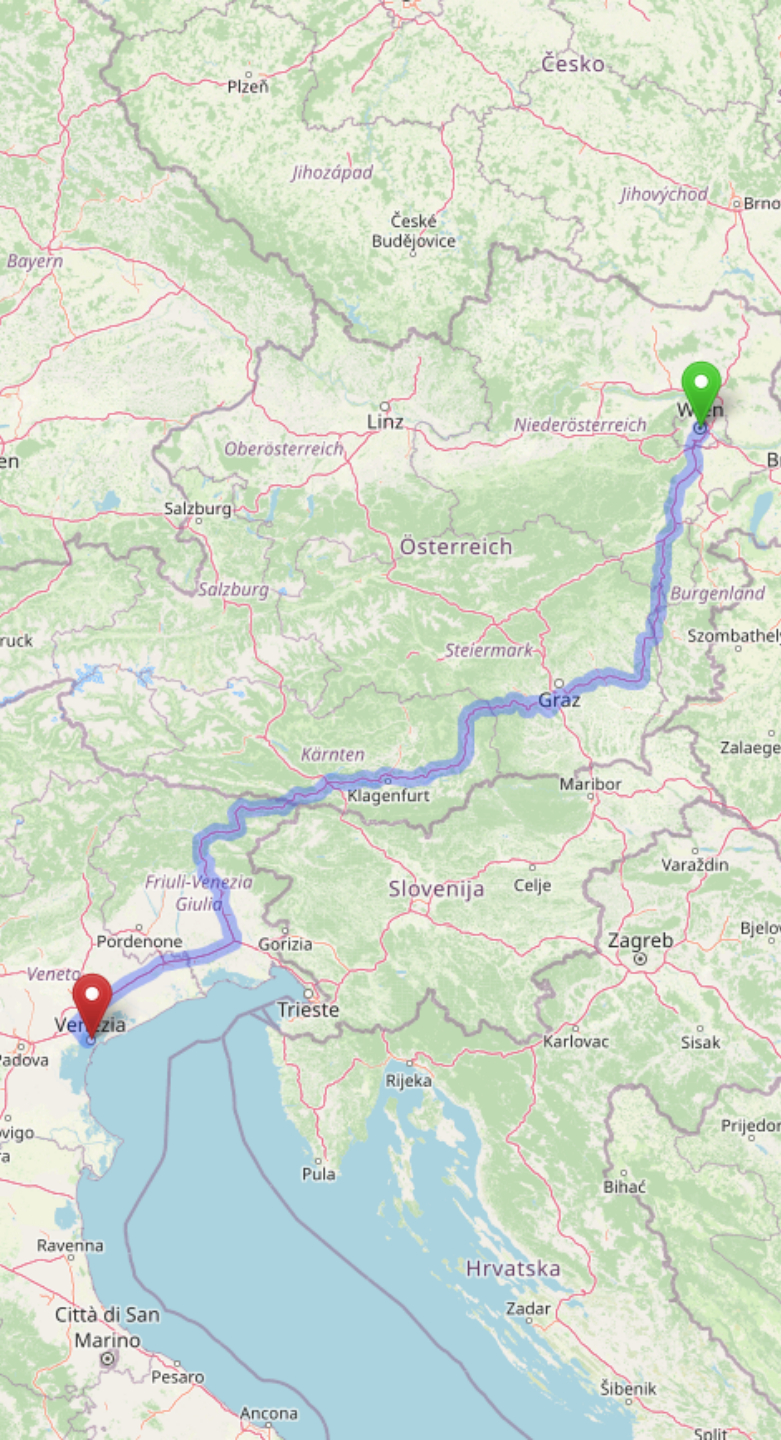
Page 5
1. Indicative implementation arrangements (1 para, table)
2. Safeguards, due diligence and other issues (3-4 paras)
3. Technical cooperation and grant financing (3-4 bullets)

Page 6
Problem tree: root causes, causes, core problem, effects, final effects



This activity is implemented by the United Nations Economic Commission for Europe (UNECE) and co-funded by the European Union (EU)

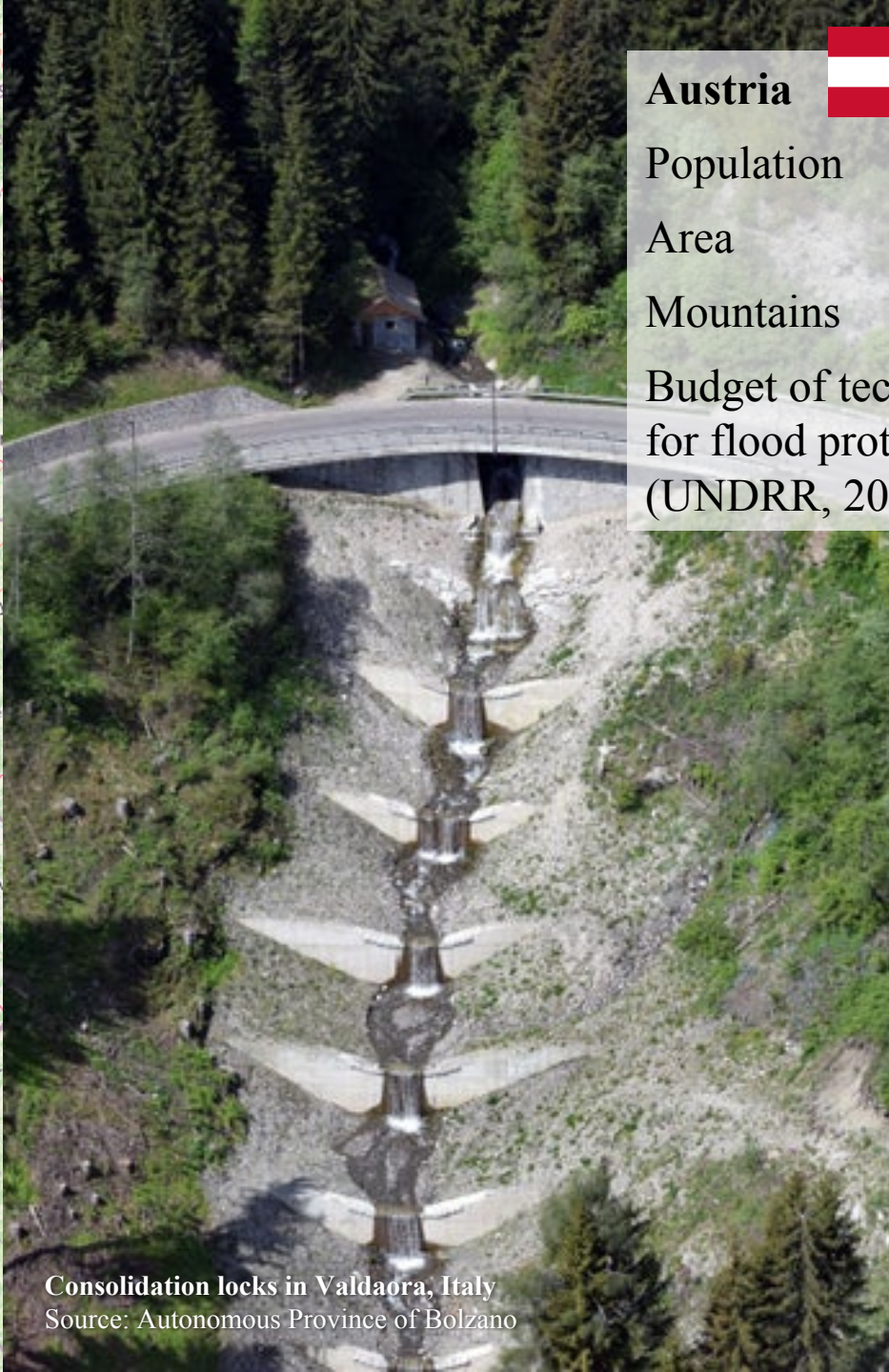
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Austria



Population	8,95 million
Area	83.871 km ²
Mountains	60%
Budget of technical measures for flood protection (UNDRR, 2022)	200 million USD/year



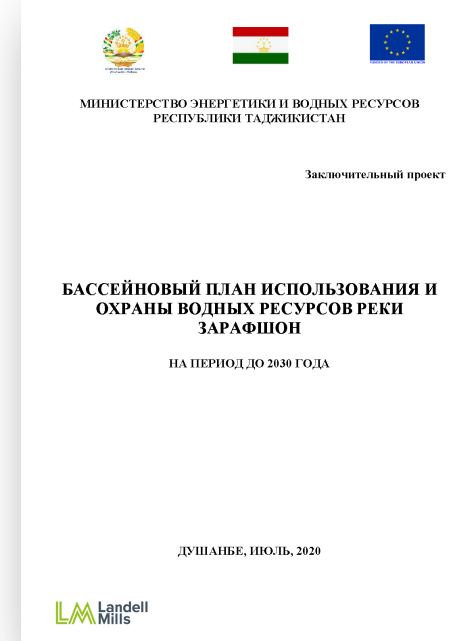
Consolidation locks in Valdaora, Italy
Source: Autonomous Province of Bolzano



Bank protection at Johler Arm, Austria
Source: ViaDonau

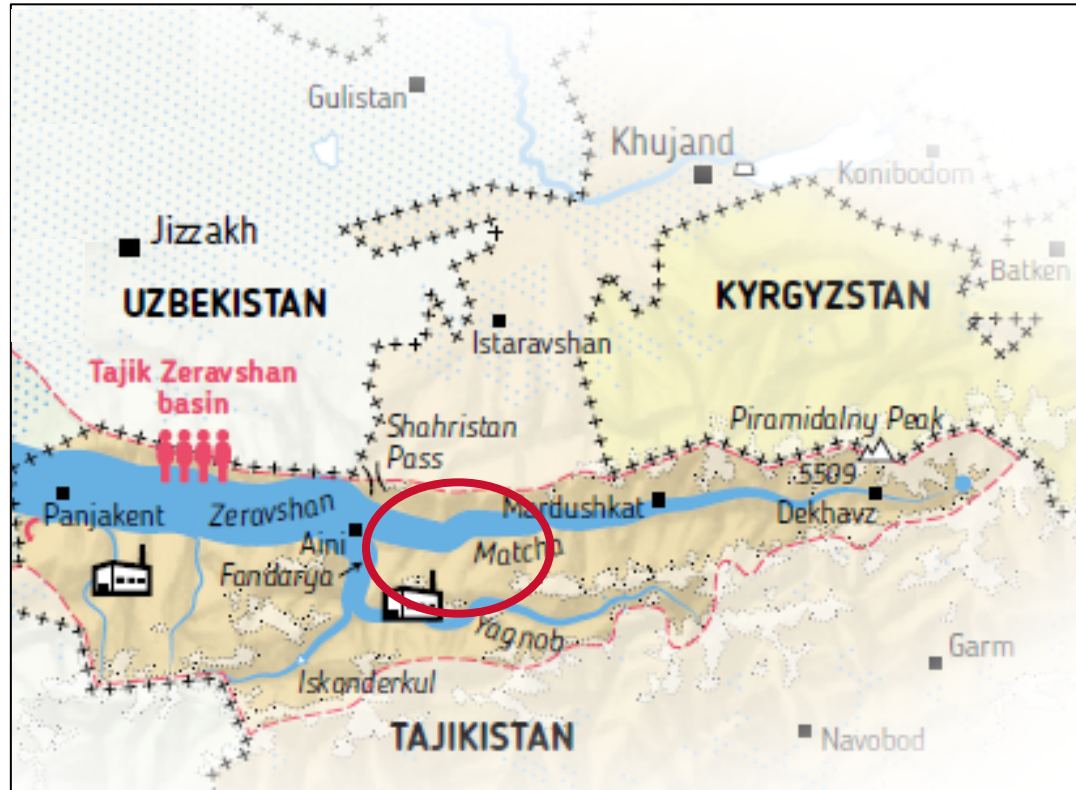
POLICY AND INSTITUTIONAL FRAMEWORK

- National Development Strategy 2030
 - National Strategy for Disaster Risk Reduction for 2019-2030
 - National Strategy for Adaptation to Climate Change 2030 (2019)
 - Updated Nationally Determined Contribution (2021)
 - Draft National Water Strategy 2030 (2021)
- About \$11.5 million (15% of needs) allocated for ex ante disaster risk reduction instruments (World Bank, 2019)
 - Budget allocation: \$0.9 (\$1.8) million from the republican budget and \$1.6 million from local budgets (2009)
 - Contingent fund: \$8.6 million
 - Local reserve funds: \$245,000 (2014 est.)
 - Disaster insurance for households: \$82,515
- **Ministry of Energy and Water Resources suggested to focus on disaster risk reduction in the Zarafshon river basin**
- Draft Zarafshon River Basin Plan (Tajik side) on disaster risk reduction (2020)
 - Short-term measures (before 2025)
 - Urgent construction of a riverbank protection dam (300 m) to realign the Zarafshon River in the Panjikent District
 - Increasing the capacity of local government agencies for emergencies
 - Medium-term measures (2026-2030)
 - **Construction of riverbank protection and mudflow conducting structures in the Ayni District with a total length of 11 km (14 km)**
 - Development, coordination, adoption and implementation of a long-term disaster risk reduction action plan in the Zarafshon River Basin
 - Continue the regulation of the Zarafshon riverbed by the construction of bank protection structures in the Panjikent District
- Emergency response under the Committee of Emergency Situations and Civil Defense (CoES)
 - National Platform of the Republic of Tajikistan on Disaster Risk Reduction (chaired by CoES)



Zarafshon River Basin Dialogue in Panjikent
Source: Landell Mills Ltd, 2019

CONSTRUCTION OF RIVERBANK PROTECTION AND MUDFLOW CONDUCTING STRUCTURES IN THE ZARAFSHON RIVER BASIN (TAJIK SIDE)



Zarafshon river basin (Tajik side)

Source: CAREC, 2019



Riverbank damage along the Zarafshon

Author: Afroz Azizov, RBD MEWR

CONTEXT DESCRIPTION

- Disasters in Tajikistan caused economic losses exceeding \$1.8 billion and have affected almost 7 million people between 1992 and 2016 (EM-DAT, 2019)
- Water-related disasters are the lion's share of all natural disasters in the country with more than 70% of cases and more than 80% of the damage
- Flooding alone causes every year the loss of many human lives and about 1.4% of GDP (\$122 million)
- Flashfloods and mudslides are the most frequent and damaging types of natural disasters
- In May 2021, torrential rains triggered floods, landslides and mudflows across much of the country
- Climate change is expected to worsen the situation by multiplying extreme weather events and increasing land degradation
- Legal framework governing disaster risk management predominantly focuses on disaster preparedness and emergency response

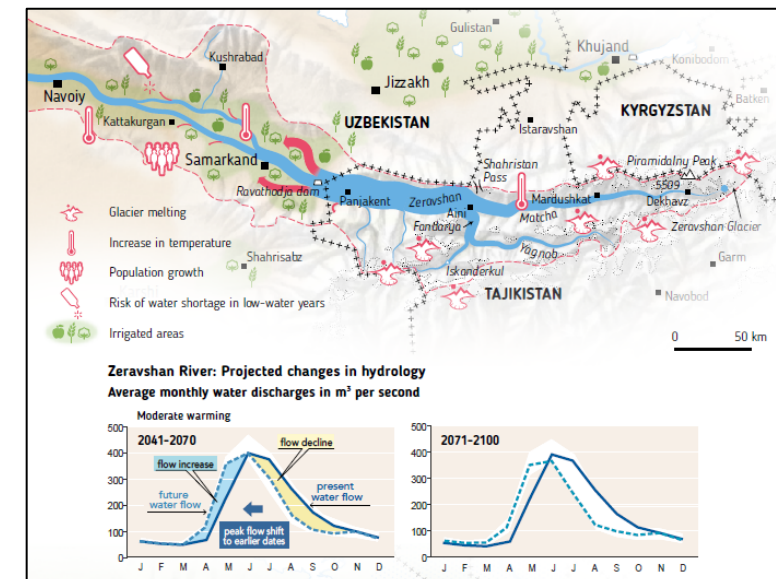
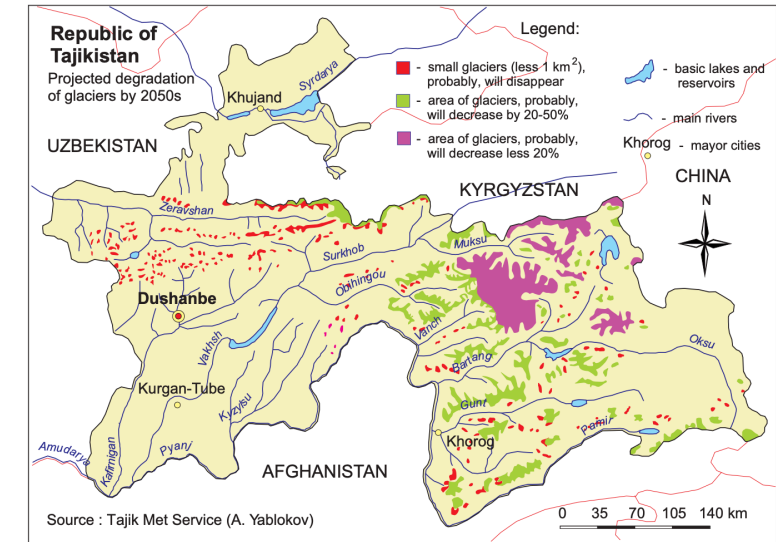


Mudflows and landslide-prone settlement

Source: Landell Mills Ltd, 2020

PROBLEM FORMULATION

- 1,386 km of shore protection and of 503 km of village-containing structures were built in the last century (today's cost would exceed \$2 billion)
 - More than 50% have already failed because of wear and tear and the impact of natural disasters
 - Build back better is needed (Sendai Framework)
- State budget and donors have limited resources to cover investment, maintenance and repair costs, especially in a context of financial and economic crisis
 - Need to diversify funding sources: private sector, local communities
- Ayni District is particularly exposed
 - In 2021, there have been 13 mudslides and floods, 10 landslides, 24 avalanches
 - 26 villages are threatened by water-related disasters
 - Near the Darg and Shamtuch villages, 2 km of riverbank protection are urgent to protect the rural hospital
- Irrigated agriculture pays for riverbank protection (unfair)
 - Agency for Land Reclamation and Irrigation responsible to reduce the risk of mudflows and floods, as well as the maintenance of roads along rivers, lakes, canals and reservoirs



PREVIOUS EXPERIENCE

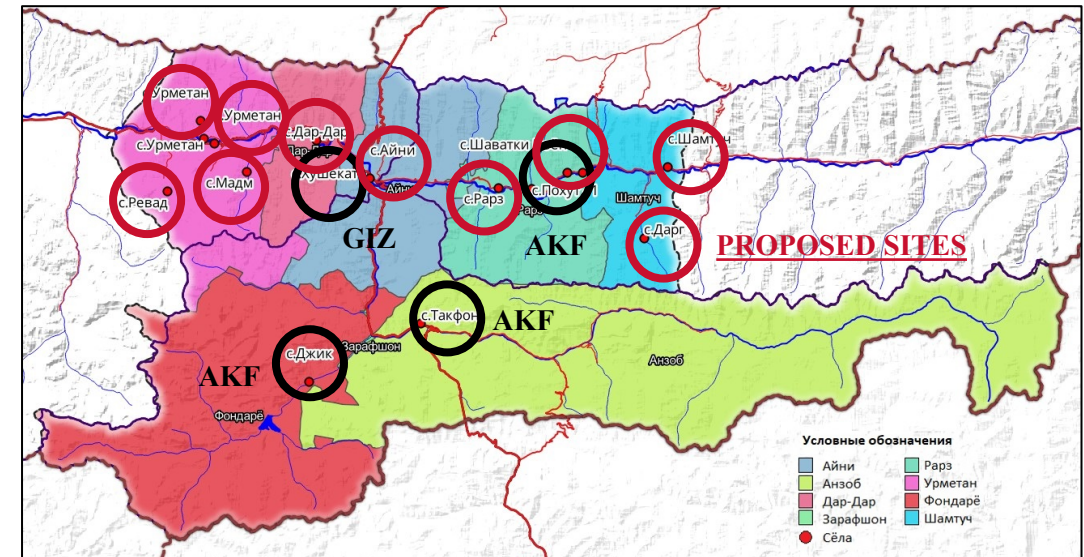
Relevant previous interventions

- EU Rural Development Project (RDP) 2016-2021
 - AKF, ACTED et al. Improving Livelihoods and Food Security through Sustainable Natural Resource Management
- SDC & CARITAS Reducing Risk of Natural Disasters and Integrating Watershed Management 2010-2019
 - Leveraged community contributions of 20% for physical mitigation infrastructure in Muminabad (45% for nature-based solutions)

Building Back Better. Every year the Rarzak section of the Ayni – Kuhistoni Mastchoh highway (22-24 km) is washed away and the Road Operational Service of the region repairs it, using significant bulldozer equipment and excavators. In the past, gabions were installed on riverbank of the Zarafshan River over 2 km (\$2 million), with support from development partners, but could not protect the road from erosion. It is also necessary to change the direction of the river.

Project pipeline

- EU Integrated Rural Development Project (IRDP) 2019-2024
 - AKF, ACTED et al. Integrated Natural Resources Management in Zarafshon Valley for Equitable and Sustainable Development (INVEST)
 - GIZ Towards Rural Inclusive Growth and Economic Resilience (TRIGGER)
- Allows the combination of “gray” and “green” infrastructure measures



Sites of proposed investment and of AKF and GIZ planned interventions
(author: Farrukh Kamolidinov, UNECE)

PROPOSED SOLUTIONS

Options

1. Construct riverbank protection structures in high-risk vulnerable areas
2. Strengthen disaster preparedness measures
3. Establish a Working Group on Riverbank Protection and Mudflow Conducting Structures under the Zarafshon River Basin Council
4. Provide technical assistance to produce a Work Program to Build Back Better these structures, including financing tools
5. Enable the Working Group to pool grants and community funds to finance non-bankable interventions in vulnerable areas
6. Facilitate access to loans and guarantees to finance bankable interventions
7. Develop a Watershed Management Plan and zoning based on hazard assessment (covered by another project)
8. Implement nature-based solutions like reforestation, pasture management and wetland restoration (covered by other projects)

Environmental and social impact

- Adapt to climate change
 - By mid-century, the cycle of glaciation of the basin may be reduced by 20-25%, and the volume of ice by 33% or more, which is likely to affect the flow regime of the river
 - Zaravshan glacier may recede by 4-5 km
- Local materials are typically used to build gabion check dams
- Improvement of the livelihoods of 57,000 people
- Protection of 1,230 ha of agricultural land and 23 km of irrigation canals from mudflows
- Protection of 23.7 km of roads from destruction
- Protection of the provision of drinking water for 4,250 people



ECONOMIC ASPECTS

Loss of opportunity

- Farmers alone lose profits of about \$100,000 per year in the target area
- In the last five years, 3 sites lost more money than they earned because of water-related disasters ***Out of 17, which one is next?***
- Injuries, deaths
- Damage to hospitals, schools and other public buildings
- Damage to transport, power and communication networks
- Damage to canals, pumps and other water infrastructure
- Damage to houses, land, cattle and other properties

Cost of investment

Item	Estimate
<u>Technical assistance</u> to design the intervention (incl. climate finance)	\$0.5 mil
<u>Capacity development</u> on disaster risk reduction	\$2.0 mil
<u>Construct</u> riverbank protection structures in high-risk vulnerable areas	\$5.0 mil
<u>Construct</u> remaining protection structures in vulnerable areas	\$12.5 mil
<i>Cost estimates are higher than the estimate provided by the RBD MEWR because Build Back Better may require techniques other than gabions, particularly in the Rarzak section of the Ayni - Kuhistoni Mastchoh highway.</i>	

Economic return of investment

- Every 1 dollar invested in disaster risk reduction provides up to 7 dollars in the long run
- Create jobs in construction and maintenance
- Sustain irrigation of 1,350 ha of agricultural land
- Improve the provision of irrigation water to 69 ha
- Enable the irrigation of 51 ha

POTENTIAL FINANCING



6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate



11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations

Sources	Amount (estimate)
Grant	
Government	0.5 million
Donor (to be identified)	9.5 million
Sovereign loan / other financial contribution	
International financial institution (to be identified)	8.0 million
Private, public and community investment	2.0 million
Guarantee	
Government	To be calculated
Donor (to be identified)	

THANKS FOR YOUR ATTENTION!

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