

Regional risk assessment for Central Asia and potential applications

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Purpose

- Inform engagement in the region on regional disaster risk financing and insurance
- Inform emergency planning and DRM activities
- Build capacity
 - local experts, institutions, and research groups
 - exposure mapping, development/use of risk information
 - DRM and emergency planning

Scope



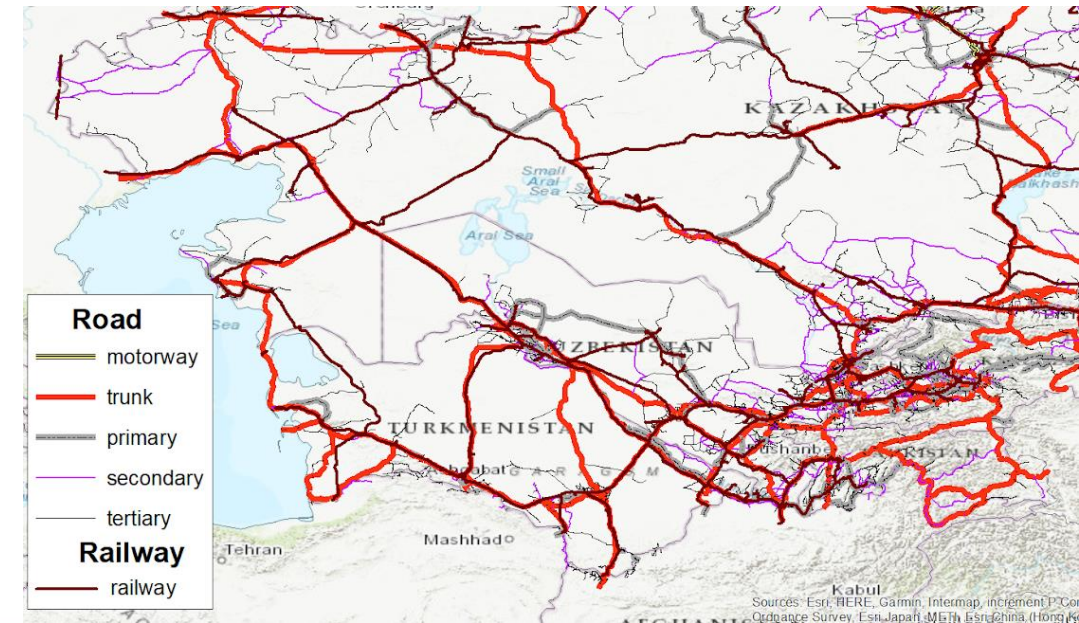
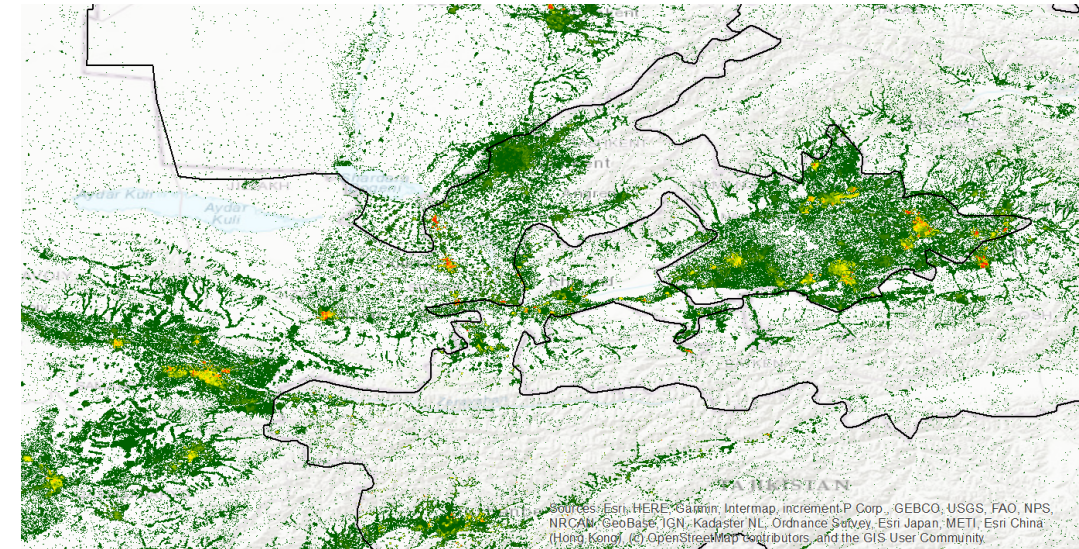
- Central Asia – consistent methods, transboundary effects
 - New regional exposure data and EQ/FL vulnerability data
 - Earthquake and flood probabilistic risk assessment (severity & frequency)
 - Landslide scenario and exposure analysis
- Capacity building and expert input
 - Regional Scientific Technical Committee – project design and technical workshops

*November 2020
to
October 2022*

Exposure development

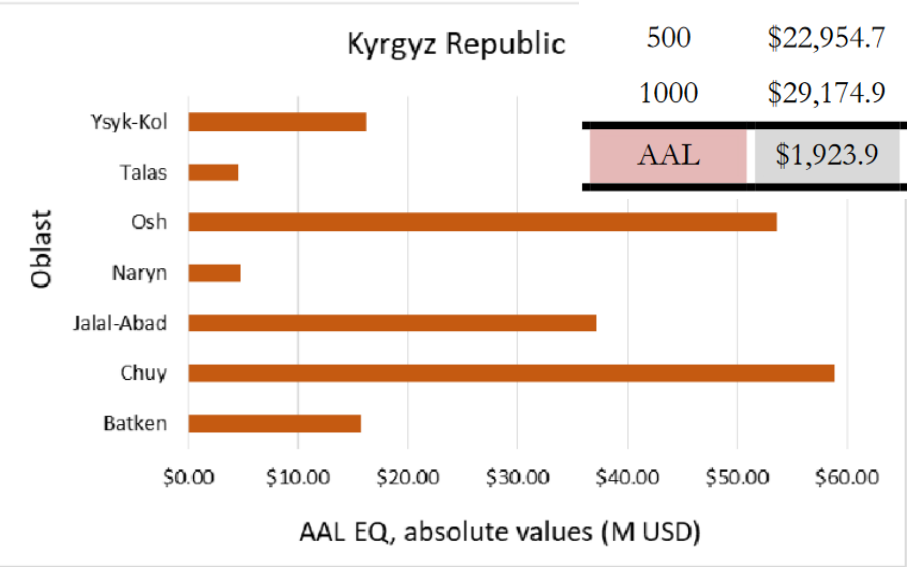
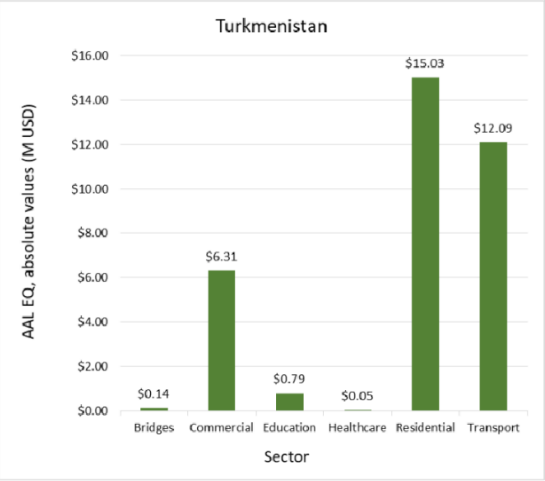
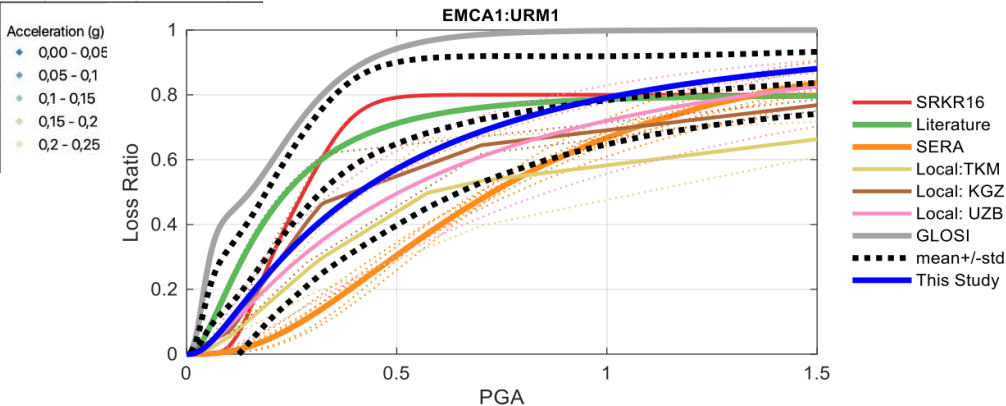
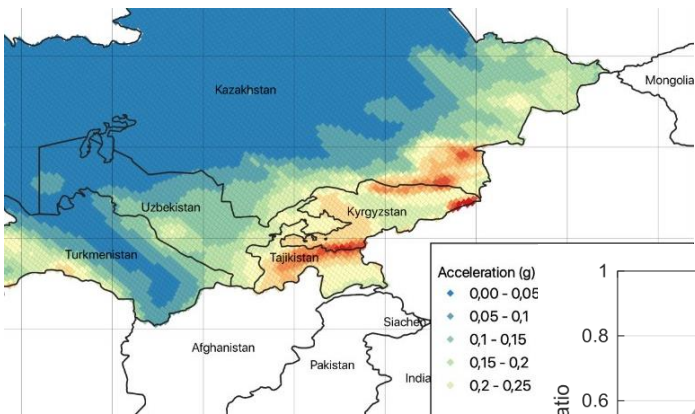
- Regional consistency to underpin risk est.
 - Population incl. age/sex breakdown
 - Residential, commerce, industry, education, healthcare (replacement cost per country)
 - Commercial Crops: cotton and wheat
 - Transportation: roads, railways and airports

Latest national census
Building census; building types description; construction costs
Number/location of schools
Number/location of hospitals
Croplands area, yield and cost in each oblast
Roads/railways maps; information on road/bridge types; construction costs
Maps of main supply network



Seismic risk assessment

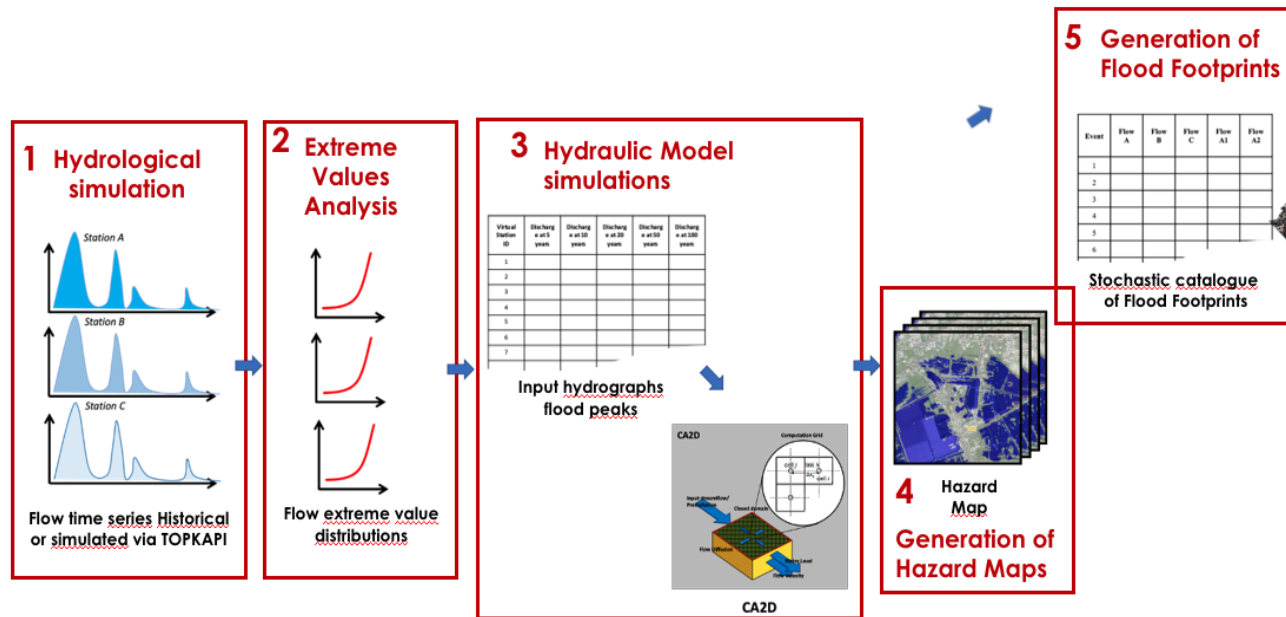
- New Harmonized Earthquake Catalogue
- EQ hazard model, vulnerability curves
- Severity and frequency of impacts



Tr (years)	Absolute	
	Regional	KGZ
5	\$1,796.9	\$183.6
10	\$3,030.7	\$335.0
25	\$5,403.2	\$640.0
50	\$7,929.2	\$964.3
100	\$11,330.5	\$1,396.9
250	\$17,365.5	\$2,173.7
475	\$22,518.3	\$2,840.6
500	\$22,954.7	\$2,897.5
1000	\$29,174.9	\$3,724.2
AAL	\$1,923.9	\$191.5

Flood risk assessment (fluvial)

- Critical local data – annual max / daily river discharge, lake volume, flood protection, soils, topography
- Estimate hazard (un)defended, frequent/extreme events, scenarios
- Developed flood vulnerability curves

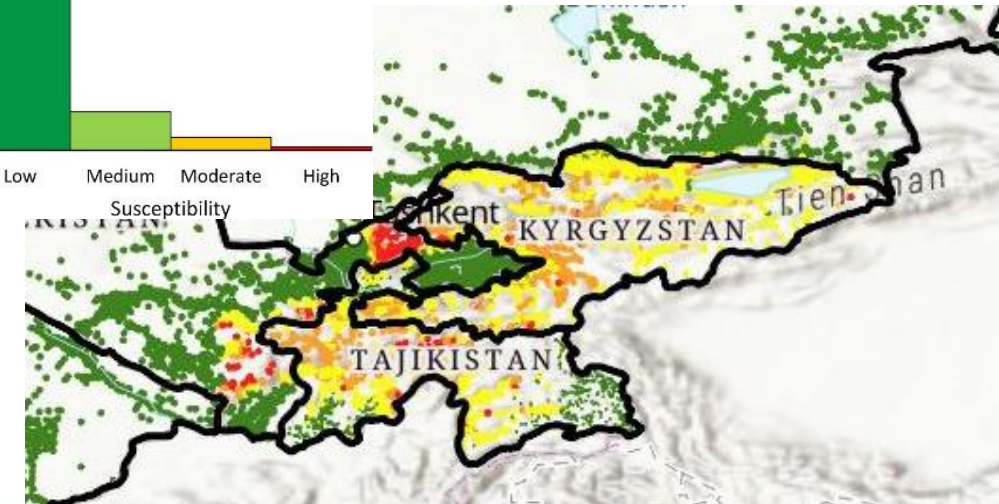
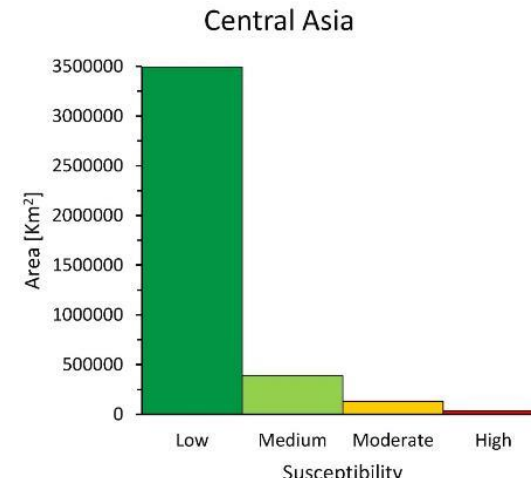
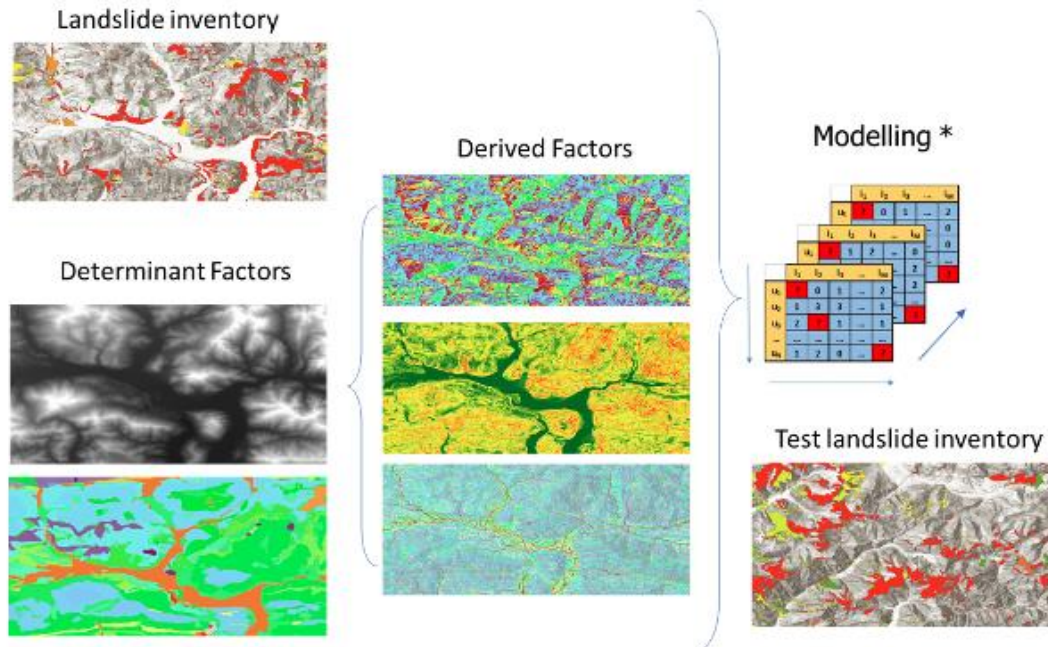


- Estimate direct damage and fatalities
- By Oblast, sector, nationally, regionally
- Effect of climate change on impacts (2080)

Regional scale landslide scenario assessment

- Geo-statistical method, 70m scale

- Potential for river damming
- Exposure of roads, rail, buildings
- Scenario analysis transboundary road disruption , reservoir damage



Inst. of Seismology of the Science Committee of the Republic of Kazakhstan (IS)
Inst. of Seismology, ISNASKR (KGZ)
Inst. of Water problems, Hydropower, Engineering and Ecology (IWPHE) (TJK)
TKM consultants
Inst. of Seismology of the Academy of Science of Uzbekistan (ISASUZ)

Capacity Building



- Each lasted several days
- Tutorials and hands-on activities, building on previous workshop
- Exchange knowledge on methods
- Insights from participants into project
 - Clarify types of assets, new data

Applications

- Risk estimates (regional, national, subnat.), sector
- Individual datasets (hazard maps, assets, exposed)
 - All publicly available: datacatalog.worldbank.org
- Risk awareness, discussion (country summaries)
- Prioritise DRM actions – by sector, location
- Post-event damage estimation (e.g., analyse flood scenario impact on exposure data)
 - E.g., Kazakhstan Floods, May 2024
- Funding gap analysis (image, right)
- Investigate finance/insurance options

Home / Search Results

Search Results

REFINE BY

Countries and Economies

- ☐ Kazakhstan (53)
- ☐ Kyrgyz Republic (55)
- ☐ Tajikistan (54)
- ☐ Turkmenistan (55)
- ☐ Uzbekistan (55)

Source Catalog

- ☐ WB Data Catalog (56)

Central Asia seismic hazard curves
(<https://www.gfdr.org/en/program/SFRARR-Central-Asia>)
Found in 1 attribute
Last Updated: Mar 31, 2023 • Classification: Public
CSV (2) ZIP (4) Preview 0

Central Asia seismic hazard disaggregation
(<https://www.gfdr.org/en/program/SFRARR-Central-Asia>)
Found in 1 attribute
Last Updated: Jul 21, 2023 • Classification: Public
ZIP (2) CSV Preview 0

Central Asia exposure dataset - Projected residential exposure
(<https://www.gfdr.org/en/program/SFRARR-Central-Asia>)

