



# **The current TMFs safety and management situation in Kyrgyzstan**

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# The current situation

The radiation-related situation in the Kyrgyz Republic is associated with presence of

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- 92 TMFs with radioactive and toxic waste
- The overall volume exceeds 307.12 million m<sup>3</sup>

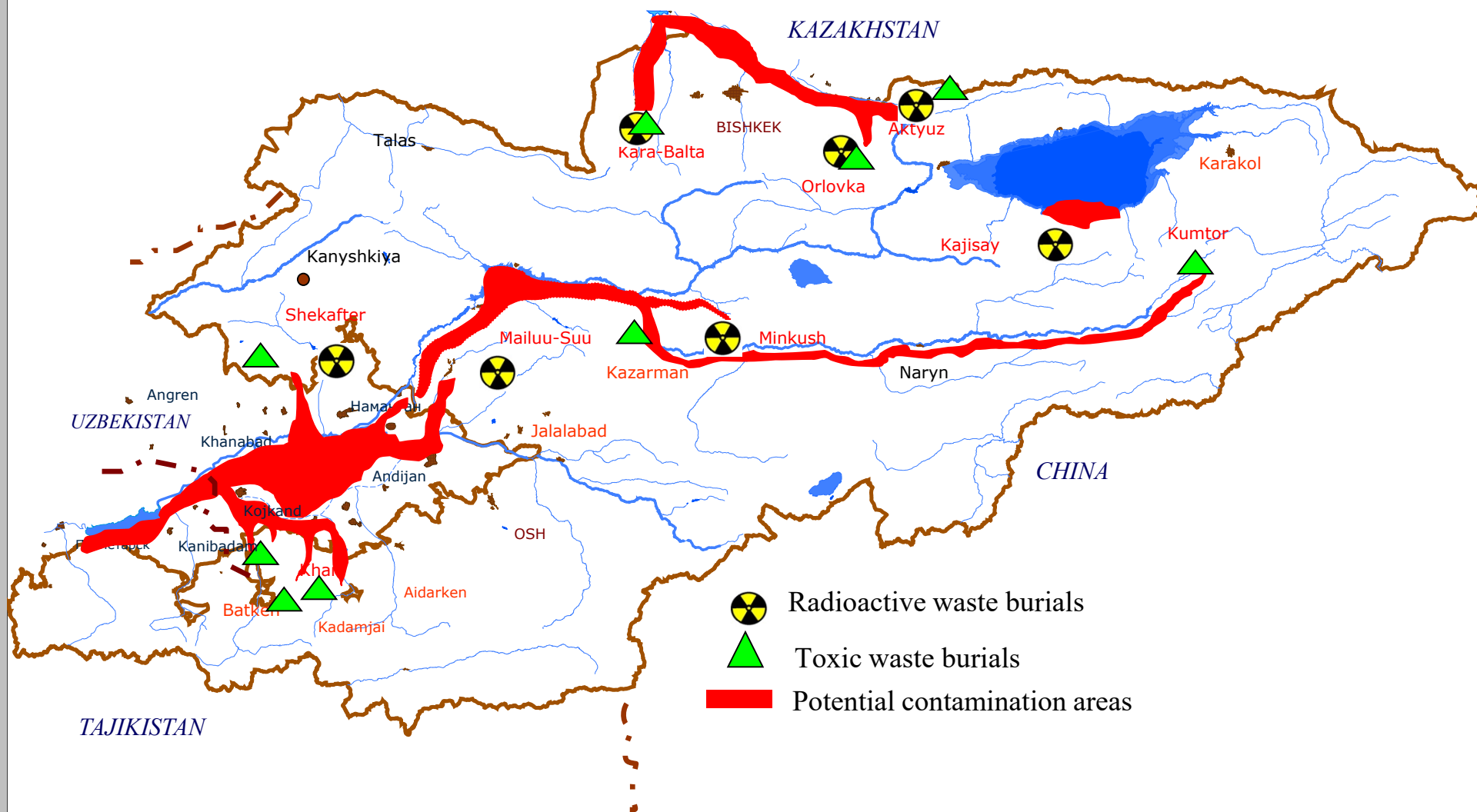
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- Including former uranium mining sites:
- KR MER manages 33 TMFs and 25 rock dumps
- **28 radioactive** (volume of 4.3 million cubic m), **5 toxic** (volume of 5.7 million m<sup>3</sup>) TMFs. **25 radioactive rock dumps** (volume of 1.9 million m<sup>3</sup>), other sites are managed by relevant economic actors;
- The overall volume of 12 million m<sup>3</sup>

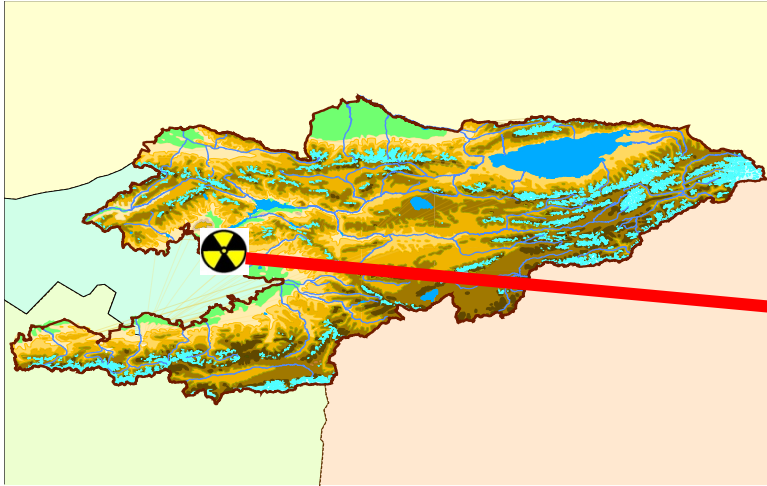
# The map of TMFs locations



## Areas of potential contamination at the territory of the Kyrgyz Republic and transboundary countries in the case of TMFs failures



## TMFs in Mailuu-Suu

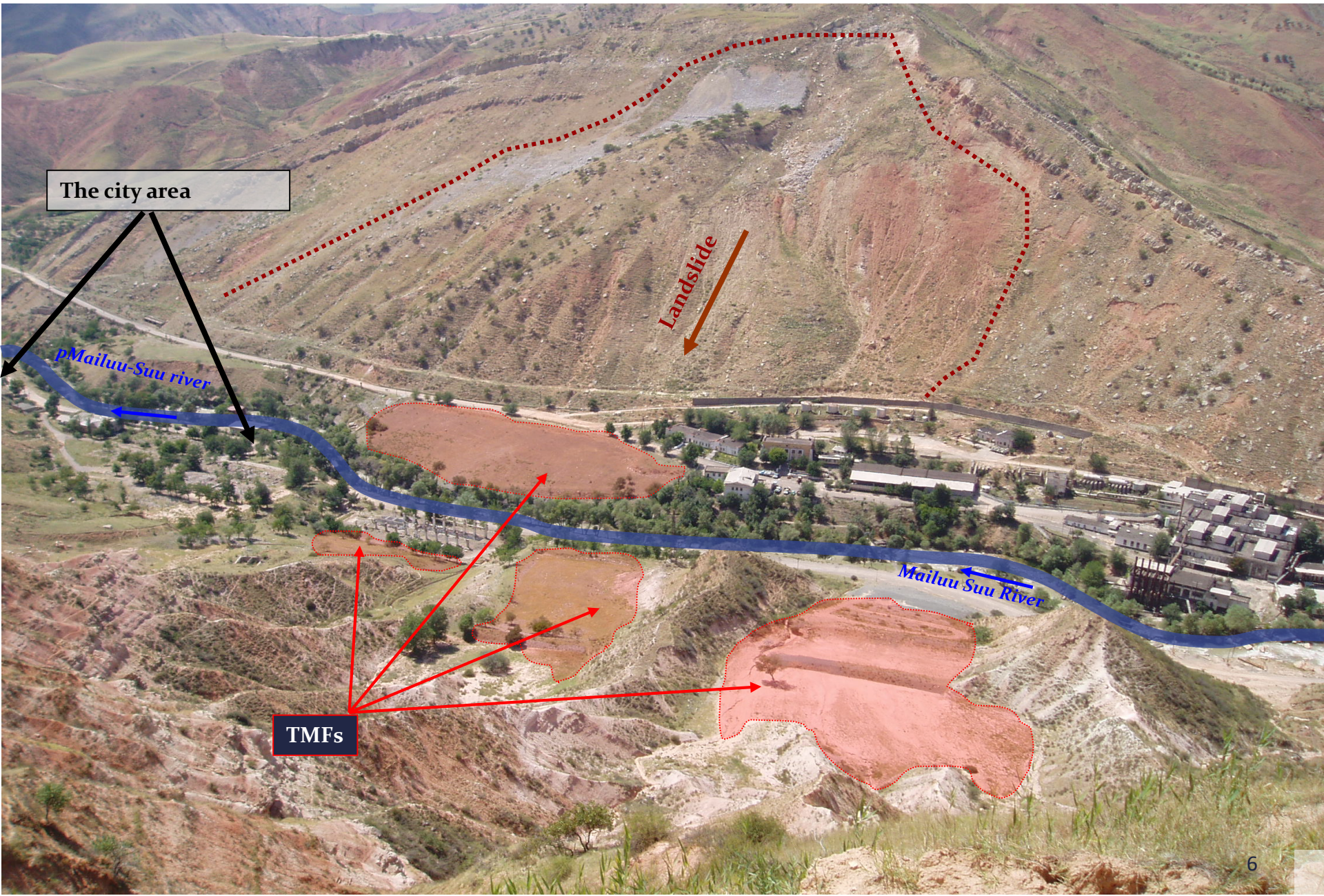


- Years of operation: 1946-1967.
- 23 TMFs with the overall volume of 2.0 million m<sup>3</sup>
- 13 rock dumps of substandard ores with the overall volume of 1.1 million m<sup>3</sup>.
- Pollutants - radionuclides of uranium-actinium series

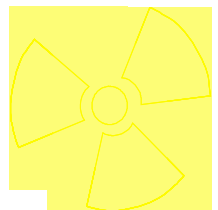
### Useful components:

Selenium-----	26 – 36 mg/kg
Cobalt -----	20 – 34 mg/kg
Copper-----	0.11 - 0.18 %
Uranium-----	0.01 – 0.15 %
Manganese -----	0.5-1%
Chromium -----	0.0008 – 0.0048%
Arsenic -----	0.0003 - 0.0012%
Vanadium -----	0.003 – 0.0045 %

# Mailuu-Suu TMFs

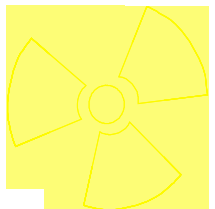


In recent years, in order to minimise risks associated with uranium waste, international cooperation programs actively developed with participation of the World Bank (WB), IAEA, UNDP, ISTC, OSCE, TACIS. As a result, to address problems of uranium TMFs in Mailuu-Suu, in the period from 2004 to 2012, the first pilot project in Central Asia for Emergency Prevention was implemented with finance support of the World Bank - the project sought to prevent the most serious risks of radioactive TMFs, natural hazards (landslides) and to improve emergency management. The overall project costs - **\$12.850 million.**



## Practical results of the project:

- **Rehabilitation of 6 TMFs and 4 rock dumps;**
- **landslide load relief and stabilisation;**
- construction of a water gauging station and equipment of a KR MPH radiological laboratory;
- transfer of TMF # 3 contents into TMF # 6;



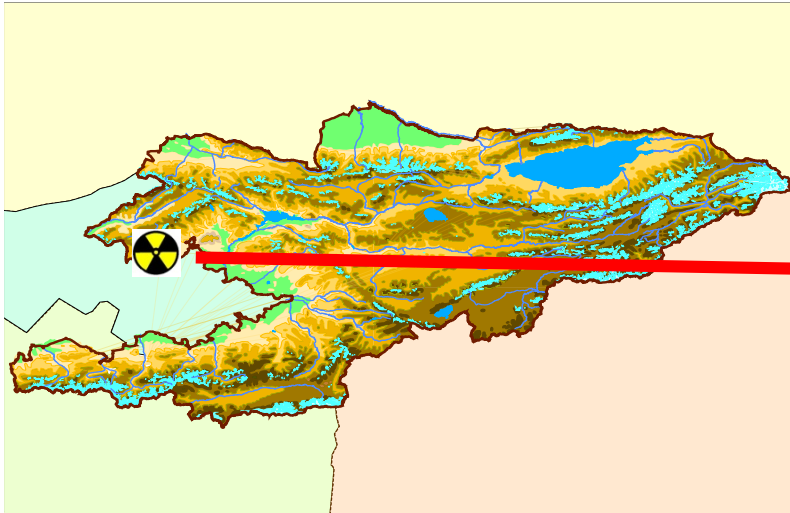
## The current state of TMF # 6 after transfer of TMF #3



"Isolite" landslide move endangers integrity of TMFs ## 8,10,18,19,21.



## Outline map of rock dumps in Shekaftar township



- Years of operation: 1946-1967.
- 8 rock dumps of substandard ores with volume of: 700 thousand m<sup>3</sup>
- Pollutants - radionuclides of uranium-actinium series
- Maximal gamma radiation exposure dose: 60-150  $\mu$ R/h

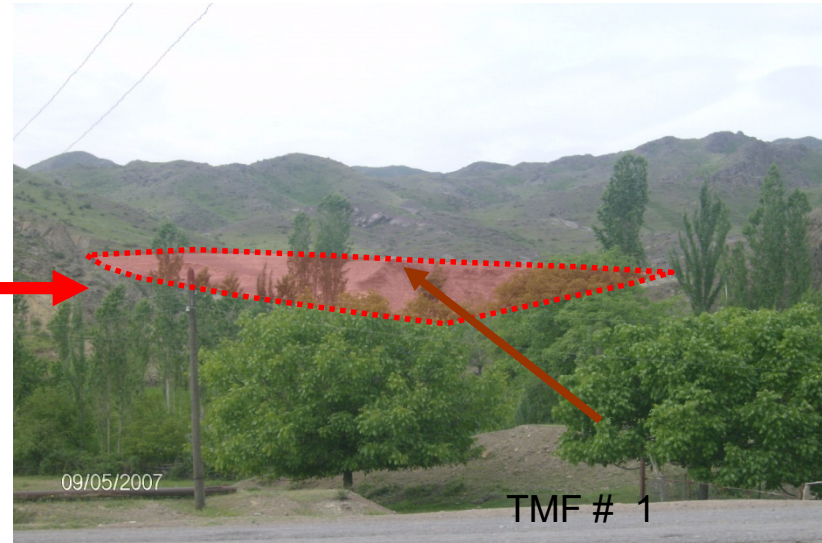
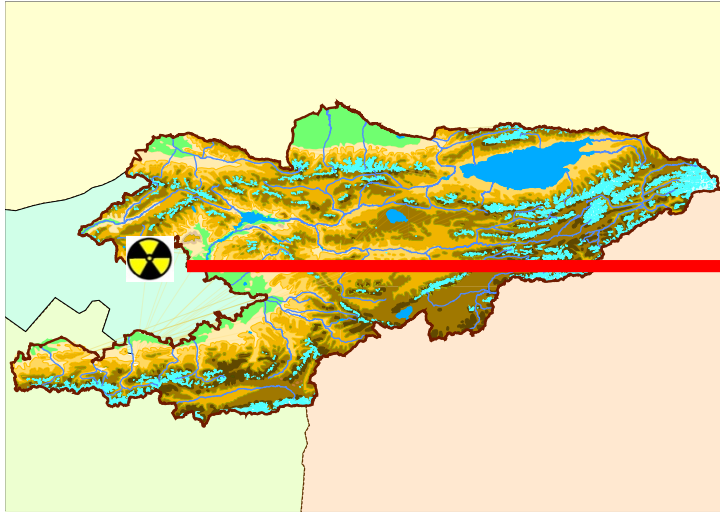
Within its budgetary allocations, MER maintains permanent monitoring of technical state of the TMF and conducts repairs and recovery works.



**Rock dumps**

09/05/2007

## Outline map of the TMF in Sumsar township



- Years of operation: 1950-1978
- 3 TMFs with volume of 4 million m<sup>3</sup>
- Pollutants: heavy metals salts

### Useful components:

Lead -----	0.14 – 0.66%
Zinc -----	0.27 – 1.4 %
Manganese-----	0.09 – 0.16 %
Arsenic-----	10 – 38 mg/kg
Cadmium-----	0.0005 – 0.01 %
Selenium -----	0.4 – 1.4 mg/kg
Silver -----	3 – 8.1 g/t

Within its budgetary allocations, MER maintains permanent monitoring of technical state of the TMF and conducts repairs and recovery works.

A landscape photograph taken from an elevated position, looking down into a wide valley. In the foreground, there are rocky, uneven slopes. Below the rocks, a dirt road or path runs horizontally across the frame. Further down, there are some small structures and what appears to be a construction site or a small settlement. The middle ground is dominated by a large, flat, brownish-grey area, which is circled by a red oval. This area is labeled 'TMF # 2'. The background consists of rolling hills and mountains under a clear sky. The overall tone of the image is somewhat desaturated, with a lot of brown and grey hues.

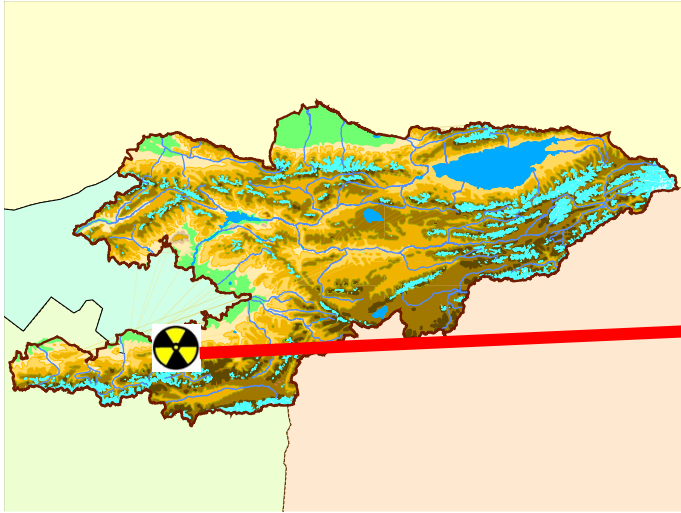
**TMF # 2**

**Sumsar township**  
**TMF # 3**

TMF dam



# TMF in Kan township (Sovetskoye)



- Years of operation: 1950-1974.
- Actual volume: 1.6 million m<sup>3</sup>
- Pollutants: heavy metals salts

# TMF in Sovetskiy township (Kan)

## TMF # 2





TMF # 2

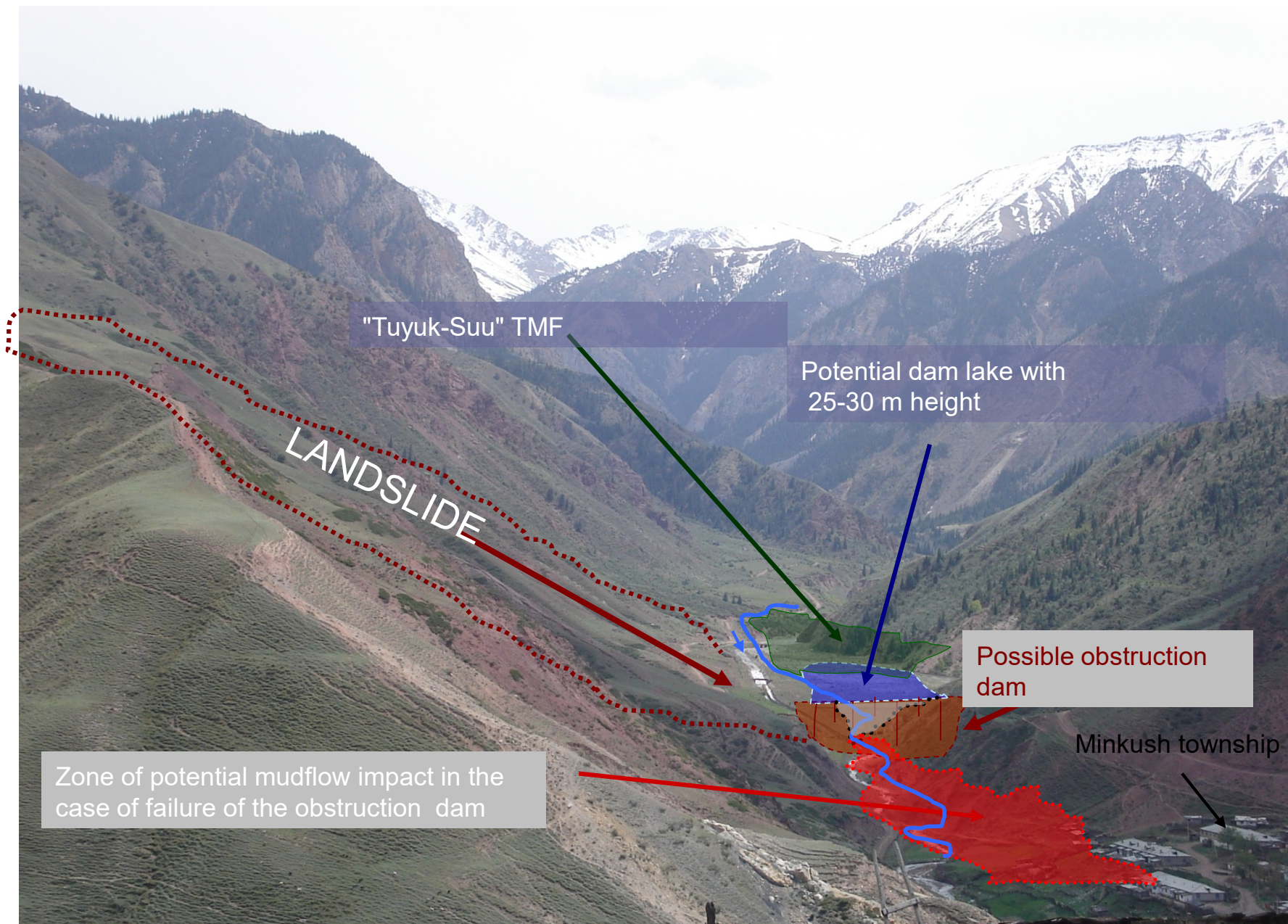
## TMFs and rock dumps in Min-Kush township

In the area, 4 TMFs and 4 rock dumps with radioactive materials are located - "Tuyuk-Suu", "Taldy-Bulak", "Kak" and "Dalnee" with the overall volume of 2 million m<sup>3</sup>. The TMFs are located in a highly seismic and mudflow/landslide-prone zone.

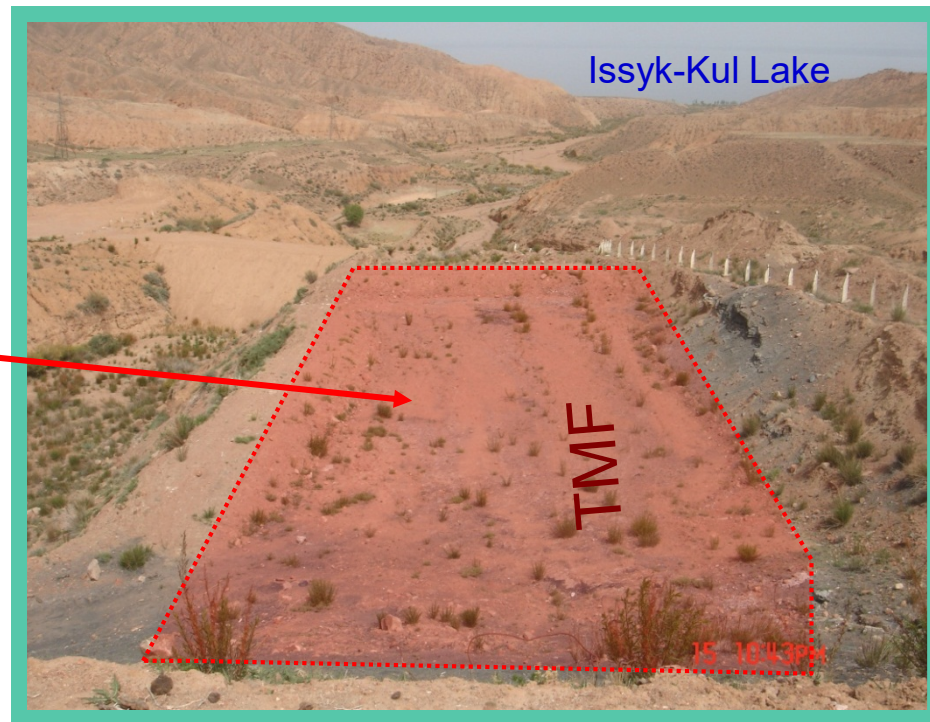
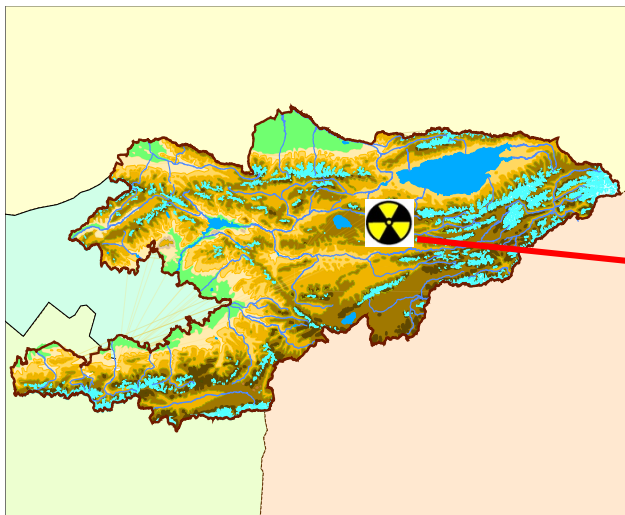


# The general view of "Tuyuk Suu" TMF from the landslide-prone slope





## TMF in Kaji-Sai township

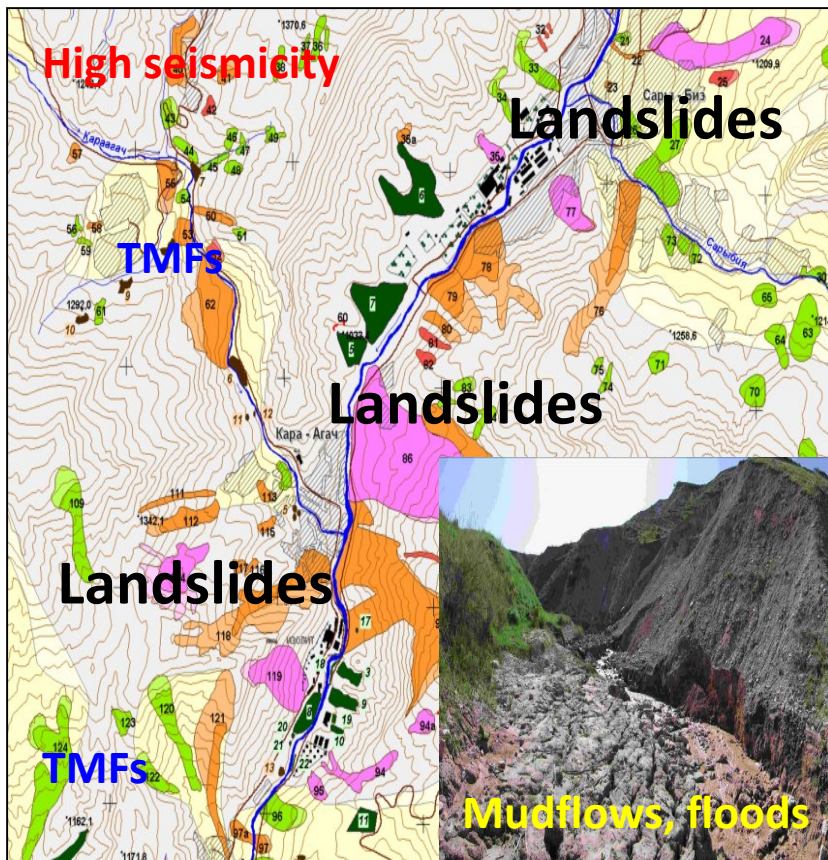


Years of operation: 1948-1961.

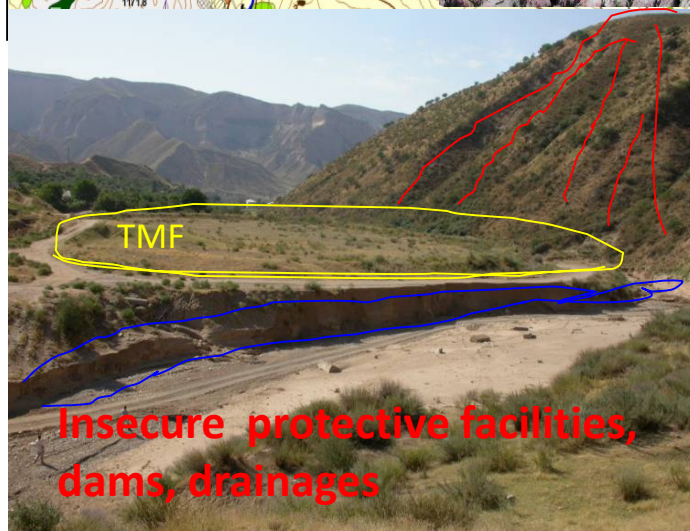
One TMF with volume of 400 thousand m<sup>3</sup>

The TMF is located at the distance of 3 km to the East from Kaji-Sai township, at the distance of 1.5 km to the South from Issyk-Kul lake coast.





## Main risks



## International cooperation

### Projects under implementation

- **EurAsEC interstate dedicated program** "Rehabilitation of territories of EyrAsEC member-states affected by impacts of uranium mining facilities in Min-Kush and Kajisay townships" (implementation in 2013-2023.)
- **EU national project** KG 4/01/14 "Comprehensive environmental impact assessment (EIA) and a feasibility study of safe management and rehabilitation of the uranium legacy complex in Mailu-Suu" (implemetation in 2017-2019)
- **UNDP regional project**, "Socio-economic development of human settlements in areas nearby radioactive TMFs in the Kyrgyz Republic" (implementation in 2015-2020)
- **Regional project**, Environment and Security Initiative (ENVSEC), jointly with UNDP Regional Centre "Stakeholders involvement into addressing problems associated with uranium TMFs in CA" (implementation in 2015-2020)

### Implemented projects

- **EU regional project**, REG4.01/10 "Development of legislative and regulatory frameworks for rehabilitation of uranium burial sites in CA". (implementation in 2014-2016)
- **EU national project**, KG4.01/11-12 "Comprehensive environmental impact assessment (EIA) and a feasibility study of management and rehabilitation of uranium burial sites in Min-Kush and Shekaftar townships". (implementation in 2015-2017.)

# The legal framework

- KR Law **on Radiation Safety of the Population**
  - KR Law **on Tailings Management Facilities and Rock Dumps**
  - KR Law on Environmental Protection
  - KR Law - Technical Regulation on Radiation Safety
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- Law on Production and Consumption Water
  - Law on Environmental Appraisal
  - Law on the KR Population Health
  - Law on Licensing



**Thank you for  
your attention!**