The second meeting of the Working Group on tailings safety and prevention of accidental water pollution in Tajikistan

4 April 2023, Dushanbe

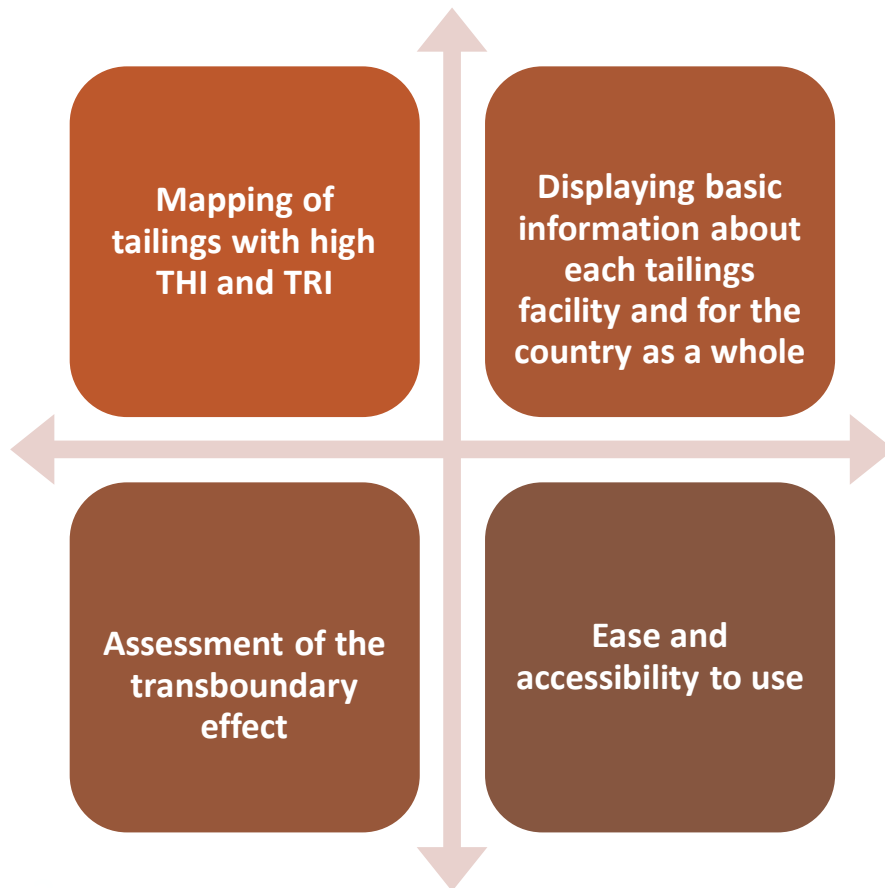# On updating the cadastre and mapping of tailings in Tajikistan

BY:

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Tasks set when creating a map

creation of a practical and easy-to-use tool, also for personnel who do not have access to special software

Mapping of tailings with high THI and TRI	**Displaying basic information about each tailings facility and for the country as a whole**
Assessment of the transboundary effect	**Ease and accessibility to use**

Created maps

**✓ Map of tailings in the Syr Darya river basin
(in Russian and English)**

Offline maps
(Google earth)

**✓ Map of dangerous objects in the Syr Darya river basin
(in Russian and English)**

Online maps
(Google my maps)

Accessible map layers of tailings in the Syr Darya river basin

- Tailings in Uzbekistan
- **Tailings in Tajikistan**
- Tailings in Kazakhstan
- Tailings dumps in Kyrgyzstan
- Cross-border tailings
- THI ranking for all countries (national level)
- TRI ranking for all countries (national level)
- Ranking according to the THI according to the international gradation
- Ranking according to the TRI according to the international gradation

Map of tailings in the Syr Darya river basin

Kyrgyzsatn	30 **tailings**
Kazakhstan	**9 tailings**
Tajikistan	**10 tailings**
Uzbekistan	**12 tailings**
Total	**61 tailings**

In 2019, a separate map of the tailings of Tajikistan was created for 13 tailings
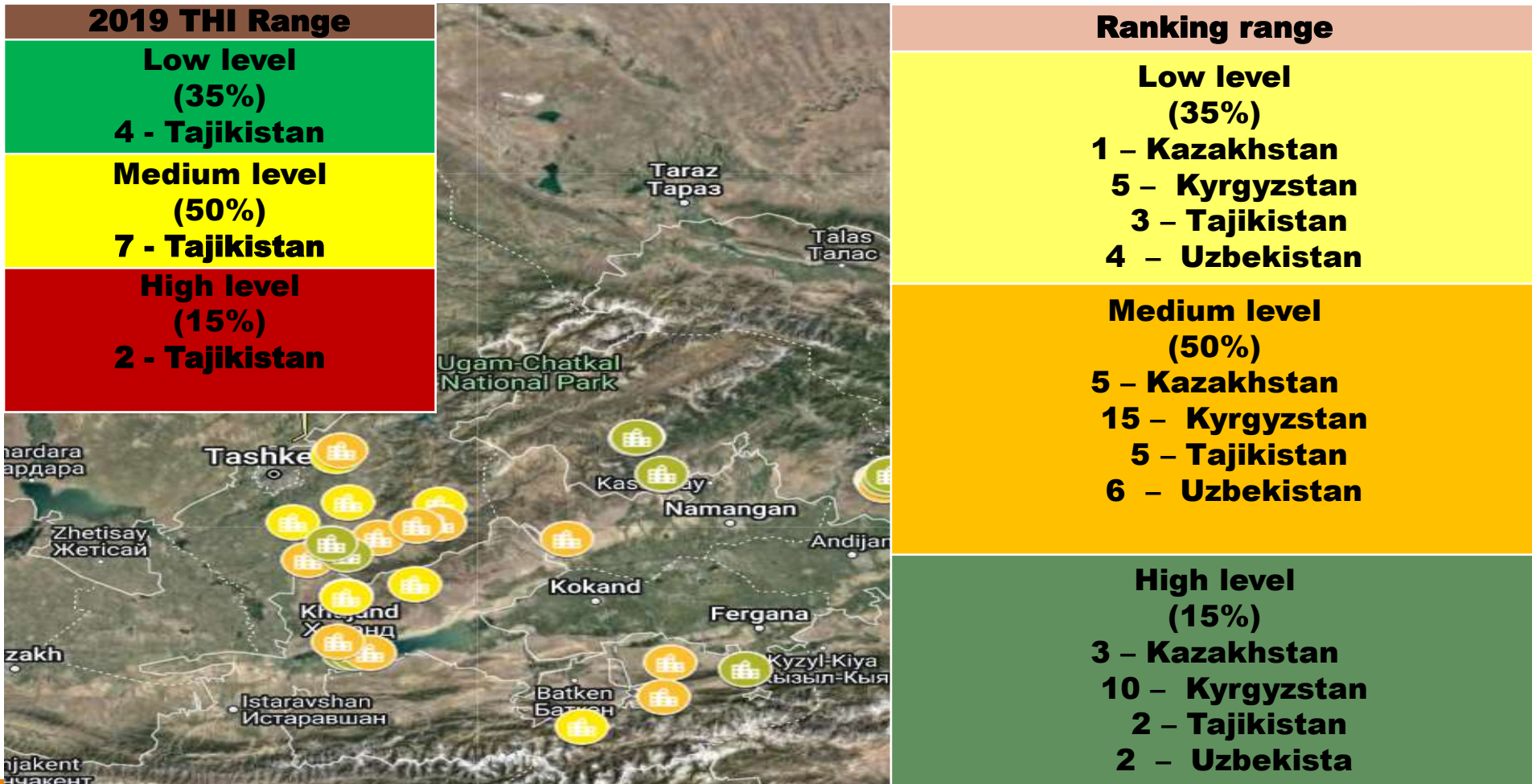
Ranking by THI and TRI for the international level:

RANKING BY THE TAILING HAZARD INDEX (THI)	RANKING BY THE TAILING RISK INDEX (TRI)
Very low (THI≤8)	Very low (TRI≤13)
Low (8<THI≤10)	Low (13<TRI≤15.5)
Average (10<THI≤12)	Average (15.5<TRI≤18)
High (12<THI≤14)	High (18<TRI≤20.5)
Very high (THI>14)	Very high (TRI>20.5)
Total tailings: **Very high-28, high- 27,average-6** **All tailings in Tajikistan are classified as very high risk**	**Total tailings:** **Very high-28, high- 27,average-6** **Of them in Tajikistan: high– 1, very high - 9**

THI and TRI ranking for national level

This approach has also been used in previous UNECE projects

Approach harmonized for use in European countries

2019 THI Range
Low level (35%) 4 - Tajikistan
Medium level (50%) 7 - Tajikistan
High level (15%) 2 - Tajikistan

Ranking range
Low level (35%) 1 – Kazakhstan 5 – Kyrgyzstan 3 – Tajikistan 4 – Uzbekistan
Medium level (50%) 5 – Kazakhstan 15 – Kyrgyzstan 5 – Tajikistan 6 – Uzbekistan
High level (15%) 3 – Kazakhstan 10 – Kyrgyzstan 2 – Tajikistan 2 – Uzbekista

Tailings of Tajikistan in the Syr Darya river basin

Name of the tailing	Tailings Hazard Index	Tailings Risk Index	THI range	TRI range	THI ranking for international level	TRI ranking for international level
Digmayskoye, MIT RT.	17.3	25.3	High level High level	High level	very high	very high
Maps 1-9 of Chkalovsk, MIT RT.	16.4	24.4	High level High level	High level	very high	very high
Taboshar IV, MIT RT.	16.4	23.4	Medium level	Medium level	very high	very high
Gafurovskoe, MIT RT.	15.4	23.4	Medium level	Medium level	very high	very high
Mine #3, MIT RT.	15.3	23.3	Medium level	Medium level	very high	very high
Waste of poor ores of Taboshar, MIT RT.	16.1	23.1	Medium level	Medium level	very high	very high
Taboshar I-II, MIT RT.	16.0	23.0	Medium level	Medium level	very high	very high
Taboshar III, MIT RT.	15.0	22.0	Low level	Low level	very high	very high
Taboshar No. 3, MIT RT.	14.8	21.8	Low level	Low level	very high	very high
Adrasmon, MIT RT.	14.4	20.4	Low level	Low level	very high	high

Tailings with possible transboundary effect

Хвостохранилища Узбекистана (12)

Хвостохранилища Таджикистана (10)

Хвостохранилища Казахстана (9)

Хвостохранилища Кыргызстана (30)

☑ Трансграничные хвостохранилища (33)

⌄ ⭕ Кыргызстан

⭕ Таджикистан

⭕ Узбекистан

Ранжирование по ИОХ для всех стран ...

Quantity -33

Kyrgyzstan -19

Tajikistan - 10

Uzbekistan - 4
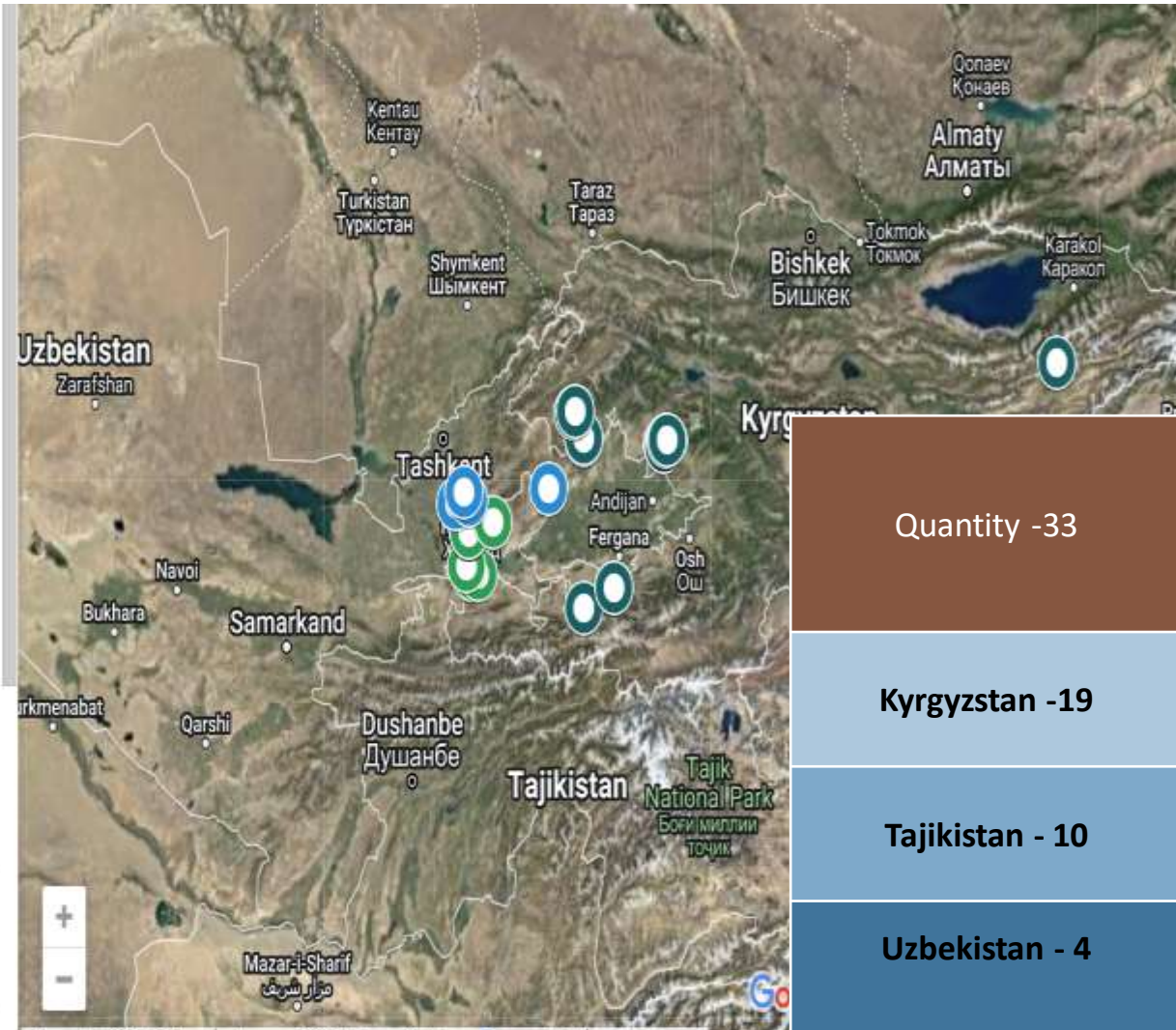
Information about individual tailings

New Map

Tailings name

Nearest town

Latitude, Longitude

Usable capacity (million m³)

Material type

Toxic Substances

Substance toxicity (Water hazard class)

tailings status

Settlements in the risk zone

Nearest water body in the risk zone

The year to which the data refers

Cross-border effect

Tailings Hazard Index

Tailings Risk Index

THI ranking

TRI ranking

International ranking level for THI

International ranking level for TRI

A country

Map of 2019

Tailings name

Region, city / district

Latitude, Longitude

The volume of stored tailings materials

Stored material

Hazard Class

Status

Maximum horizontal ground acceleration

Flood frequency (HQ-100)

Dam: material

Dam: crest width

Year of commissioning

THI

THI range

Using a map legend

Карта подготовлена в рамках первого этапа проекта Европейской экономической комиссии Организации Объединенных Наций (ЕЭК ООН) «Разработка совместных мер по предупреждению и реагированию на загрязнение р. Сырдарьи при аварийных ситуациях».
Количество хвостохранилищ в бассейне р Сырдарья - всего 61
в Казахстане – 9
в Кыргызстане – 30
в Таджикистане – 10
в Узбекистане - 12

Количество хвостохранилищ с возможным трансграничным эффектом -33
в Казахстане – 0
в Кыргызстане – 19
в Таджикистане - 10
в Узбекистане - 4

Ранжирование по ИОХ и ИРХ для национального уровня:

Ранжирование для Казахстана
низкий уровень 1 х-ще
средний уровень -5 х-щ

Aspects of information visualization on the example of the Tajik tailings

Mapping of pollution sources

A total of 133 hazardous activities have been mapped, which include a wide range of chemical contaminants, ranging from petroleum products and heavy metals to chemicals for processing agricultural products.

Kazakhstan - 74
Kyrgyzstan - 20
Tajikistan - 12
Uzbekistan - 27
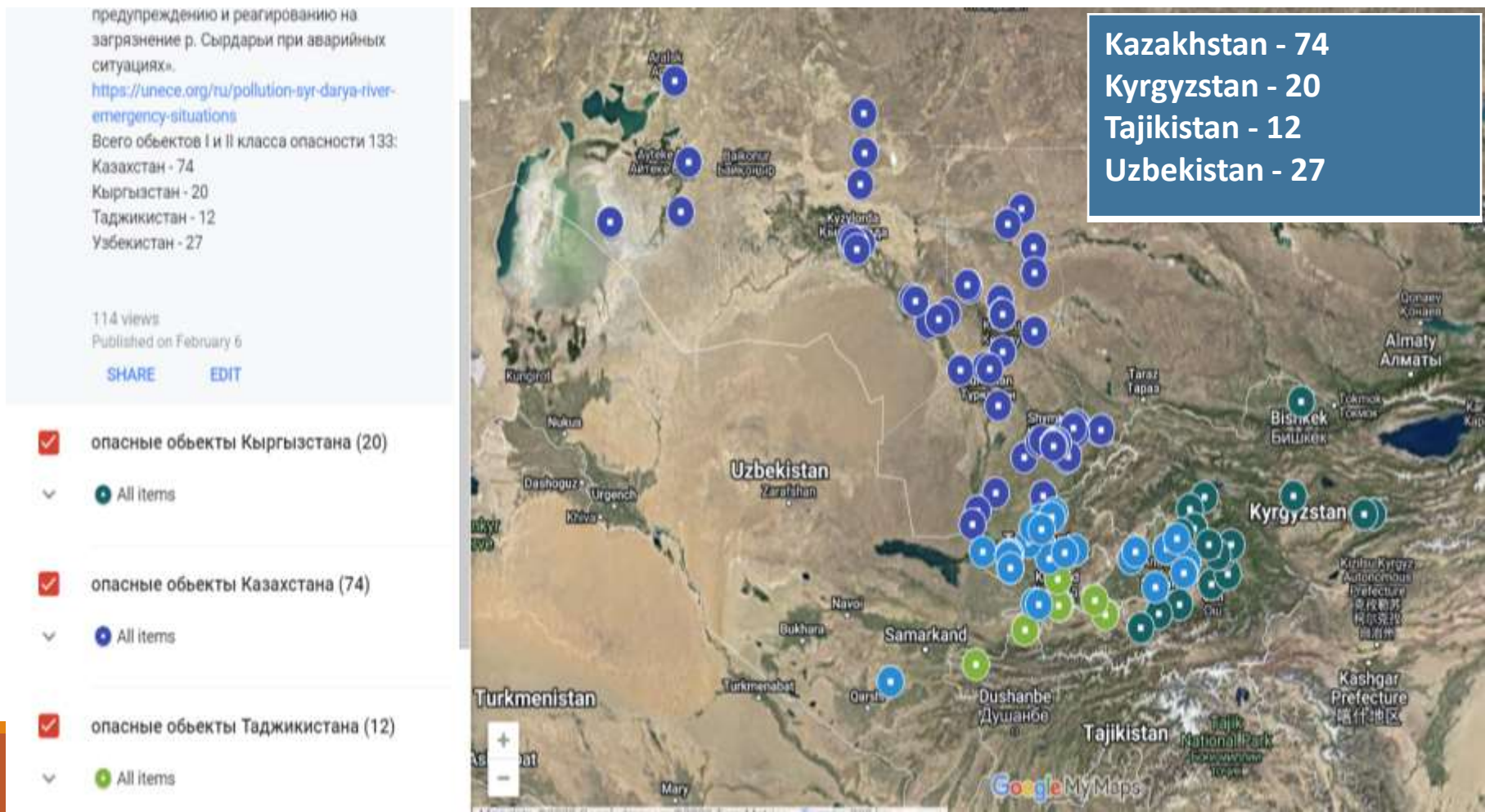
Information on individual hazardous objects

Operator/owner

Latitude, Longitude

Location

River nearby

Hazard class (I or II)

Stored materials

The volume of stored materials (planned) or the volume of production per year

Object status

Year of launch (beginning of operation)

Main conclusions

❖ The map has been further improved to provide a useful tool for the competent authorities to collect and analyze information about the danger of objects and take preventive measures to prevent emergencies with negative consequences for the environment and public health.

❖ The map allows you to determine the affected areas, including settlements and polluted water bodies, in the event of an accident at the enterprise.

❖ This map can be used for integration into the country's cadastral system.

❖ The developed map allows countries to get an overview of hazardous facilities and tailings in order to subsequently take additional safety measures from the relevant competent authorities.

Thank you for your attention!