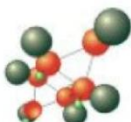




Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

**Umwelt
Bundesamt**

IHPA



International HCH & Pesticides Association

**Centre of
ecoaudit**

IMPROVING THE SAFETY OF INDUSTRIAL TAILINGS MANAGEMENT FACILITIES BASED ON THE EXAMPLE OF UKRAINIAN FACILITIES

ПОВЫШЕНИЕ БЕЗОПАСНОСТИ ПРОМЫШЛЕННЫХ ХВОСТОХРАНИЛИЩ НА ПРИМЕРЕ УКРАИНСКИХ ХВОСТОХРАНИЛИЩ

8th meeting of the Conference of the Parties to the UNECE Convention
on the Transboundary Effects of Industrial Accidents,
Geneva, 3-5 December 2014

ДОКЛАД
по международному проекту
«Повышение безопасности
промышленных хвостохранилищ на
примере украинских хвостохранилищ»,
июнь 2013 – июль 2015

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Содержание

**1. Методика Контрольного списка
хвостохранилищ**

**2. Способ оценки «Индекса
опасности хвостохранилищ»**

Методика Контрольного списка хвостохранилищ

разработана на основе минимальных требований безопасности, принятых в документе ЕЭК ООН «Руководящие принципы обеспечения безопасности и надлежащая практика для хвостохранилищ»



Рисунок 1. Схема Методики

Контрольный Список хвостохранилищ.

Структура

Вид группы вопросов КС	Назначение группы вопросов КС	Пользователи группы вопросов КС
Базовая проверка хвостохранилищ (группа А 39 вопросов)	Предварительная и оперативная оценка уровня безопасности большого количества хвостохранилищ	Государственные компетентные органы
Детальная проверка хвостохранилища (группа В 281 вопрос)	Всестороннее и детальное оценивание уровня безопасности хвостохранилища с определением необходимости принятия мер	Государственные инспектора и операторы хвостохранилищ
Проверка заброшенных хвостохранилищ (Группа С 15 вопросов)	Оценка уровня безопасности заброшенного/закрытого хвостохранилища и определение необходимости принятия мер	Государственные инспектора и операторы хвостохранилищ

Каталог Мероприятий. Структура

Каталог Мероприятий носит **рекомендательный характер** и включает перечень действий, которые могут быть предприняты в случае выявления несоответствий состояния хвостохранилища современным требованиям и нормам безопасности.

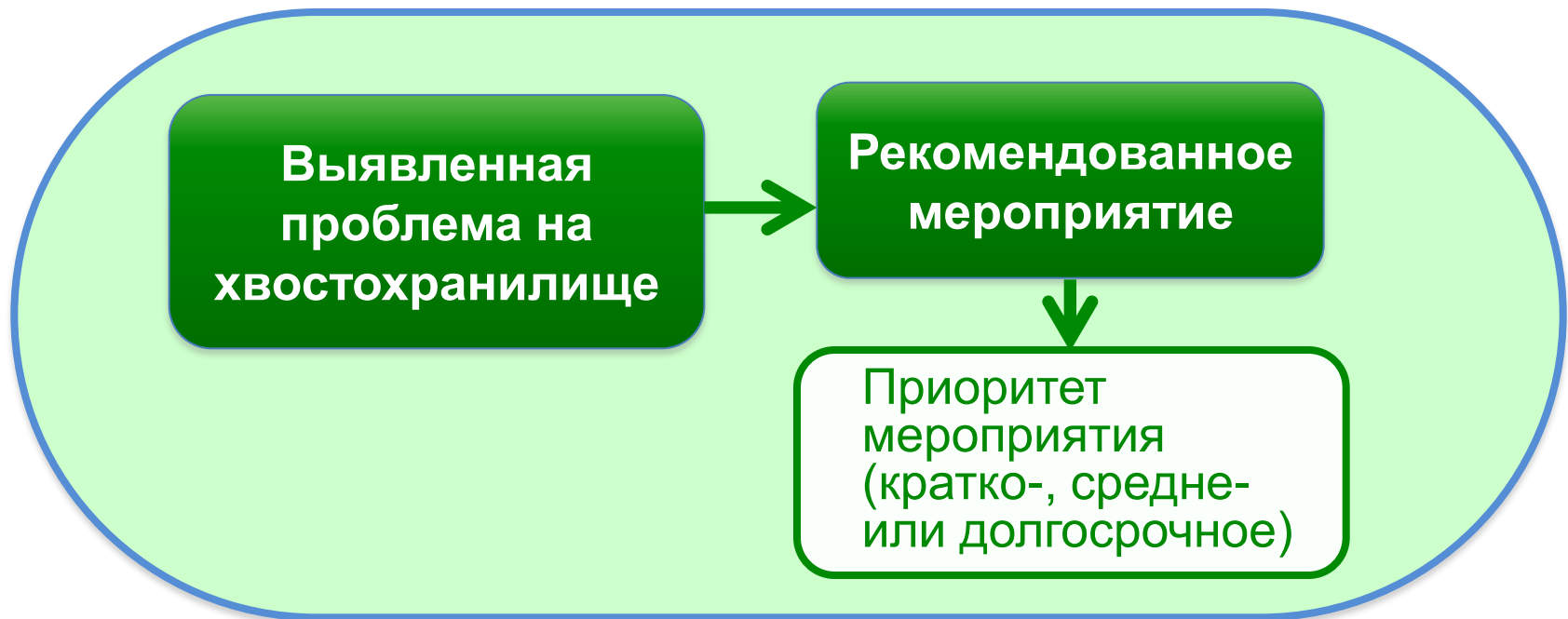


Рисунок 2. Схема структуры Каталога Мероприятий

Схема структуры Методики Контрольного списка



Инструкция пользователя Методики

содержит детальное описание Методики Контрольного списка

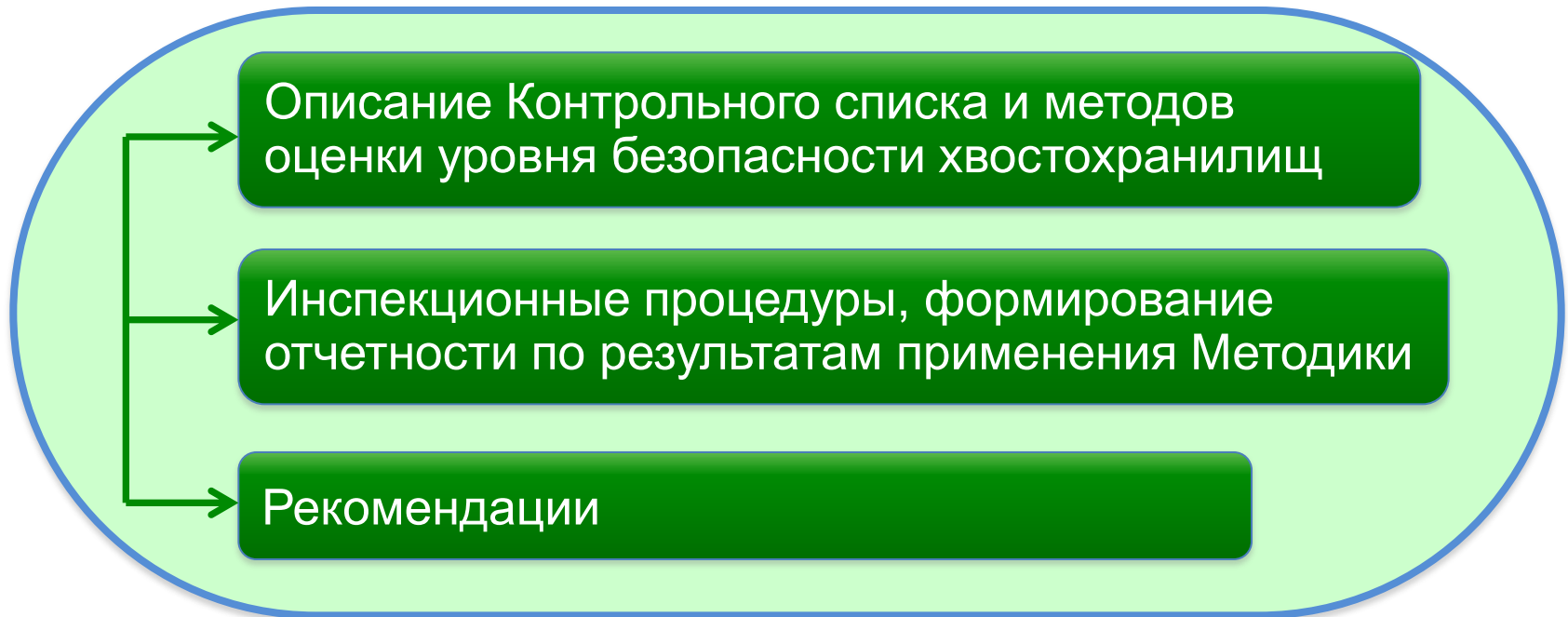


Рисунок 3. Схема структуры Инструкции пользователя Методики

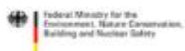
Способ оценки «Индекса опасности хвостохранилища»

Данный способ оценки был разработан для количественного расчета «Индекса опасности хвостохранилища» для большого количества объектов и определения приоритетов на государственном уровне.

Индекс опасности хвостохранилища (англ. THI – Tailing Hazard Index) безразмерный параметр, который рассчитывается путем суммирования рисков, вызванных наиболее важными для безопасности хвостохранилища факторами:

- объем хвостохранилища,
- класс опасности веществ в хвостах,
- качество управления объектом,
- природные риски (геологические и гидрологические) на участке,
- состояние дамбы.

International project

"Improving the safety of industrial tailings management facilities based on the example of Ukrainian facilities"**

"Safety Guidelines and Good Practices for Tailings Management Facilities", developed by the UNECE (hereinafter – the UNECE Guidelines), includes recommendations for countries and the competent authorities on improving the legal framework and licensing system for the safe operation of the tailings as well as technical details on the organization of technical security and control of industrial tailings.

This project will examine each principle and recommendation of the UNECE Guidelines and compare the specific situation in Ukraine on its application. The result can be structured to assess the situation in Ukraine, so that, based on the results suggestions can be given on the technical measures to improve the operation of industrial tailings and taking appropriate administrative and legislative decisions.

Additionally a significant technical part of the UNECE Guidelines can be used to develop a checklist. The checklist will be developed with the involvement of the experience of international experts in this field. With it, you can pinpoint weaknesses in the technical safety of tailings in the Ukraine, in order to develop short, medium and long term measures to address them. New directory of activities can be used for international harmonization of minimum standards for technical safety in this area.

The designed Checklist will be used in training to Ukrainian inspectors and specialists when examining specific tailing in Ukraine. Training will be held in the Carpathian region (Danube basin) and the Dnipropetrovsk region (Dnieper basin) where there is huge tail, which represent an enormous threat to the entire Black Sea basin.

Cooperation of governmental and non-governmental organizations of Ukraine and a group of international experts is envisaged for

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Main documents of the TMF-Ukraine

User's Guide to the TMF Checklist

Более детально ознакомиться с Методикой Контрольного списка хвостохранилищ, способом оценки «Индекса опасности хвостохранилища» и другими документами разработанными в рамках проекта, Вы можете на сайте проекта

www.tmf-ukraine.org

СПАСИБО ЗА ВНИМАНИЕ!



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**REPORT (continuation)
on international project
“Improving the safety of industrial tailings
management facilities based on the example
of Ukrainian facilities”
June 2013 – July 2015**

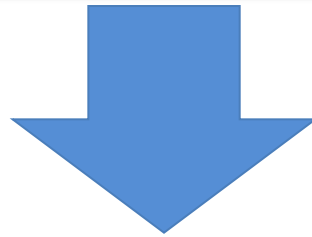
Mr. John Vijgen

Director of the International HCH & Pesticides Association

the prime contractor of the project, Denmark

The method for evaluating “Tailing Hazard Index”

The project team received a database of
Ukrainian TMFs – **153** objects.

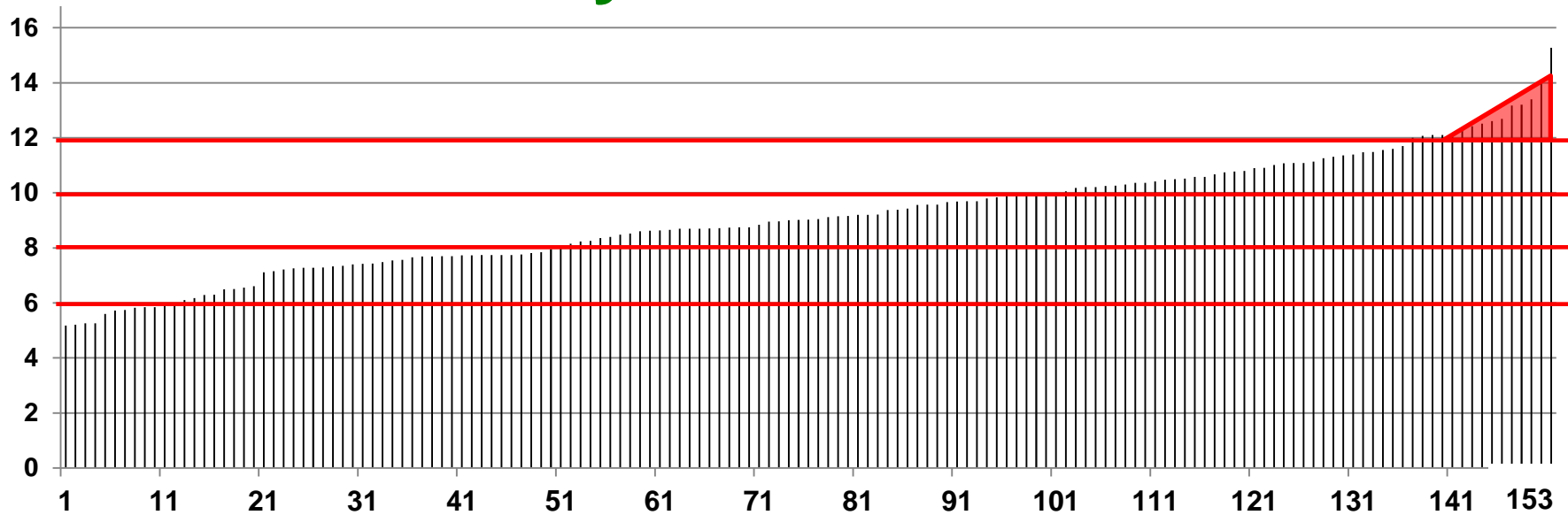


As a result of the application of the method for
evaluating "Tailing Hazard Index":

It have been identified

15 most potentially dangerous objects
(10% of the total TMFs)

Distribution of Ukrainian TMFs by THI value



THI value	TMF quantity
below 6	11
from 6 to 8	39
from 8 to 10	49
from 10 to 12	37
over 12	15

Minimum value of THI – 5,2

Maximum value of THI – 15,3

List of 15 most potentially hazardous TMFs in Ukraine

№	Site location	THI
1	TMF №2 of Novorozdilsk State Mining and Chemical Enterprise "Sirka", Novyi Rozdil, Lviv region	15.3
2	TMF of Stebnyk State Mining and Chemical Enterprise "Polimineral", Stebnyk, Lviv region	14.1
3	Morozov's gully sludge reservoir of reverse water supply sludge facility of PJSC "Marganets Ore Mining and Processing Enterprise", Marganets, Dnipropetrovsk region	13.4
4	Baburin's gully sludge reservoir of reverse water supply sludge facility of PJSC "Marganets Ore Mining and Processing Enterprise", 62 Radianska Str., Marganets, Dnipropetrovsk region	13.2
5	TMF "Shcherbakivske" of State Enterprise "East Ore Mining and Processing Enterprise", Shcherbakivska gully, Zhovti Vody	13.2
6	Sludge pond of OJSC "Oktyabrskaya Central Coal Enrichment Plant", Bilytske, Donetsk region	12.7
7	TMF in Shcherbakivska gully of Hydrometallurgical Plant of State Enterprise "East Ore Mining and Processing Enterprise", Shcherbakivska gully, Petrivskyi district, Kirovograd region	12.6
8	Sludge storage of PJSC "Central Ore Mining and Processing Plant", Zhovtnevyi district, Kryvyy Rih, Dnipropetrovsk region	12.5
9	TMF of OJSC "Zavallia Graphite Plant", Zavallia, Haivoronskyi district, Kirovograd region	12.4
10	Sludge reservoir of Vuhlehirska TPP of OJSC "State Power Generating Company "Centrenergo", Svitlodarsk, Donetsk region	12.3
11	TMF of sludge facility department of OJSC "Poltava Ore Mining and Processing Plant", Komsomolsk, Poltava region	12.2
12	Ash dump of Structural unit of OJSC "Donbasenergo", Sloviansk TPP, Mykolaivka, Donetsk region	12.1
13	TMF of State Enterprise "Directorate of Kryviy Rih Mining and Processing Plant of Oxidized Ore", industrial site of Kryvyy Rih Mining and Processing Plant of Oxidized Ore, Dolynska, Kirovograd region	12.1
14	TMF of PJSC "Inhulets Ore Mining and Processing Enterprise", Inhulets district, Kryvyy Rih, Dnipropetrovsk region	12.1
15	TMF №2 of Central Coal Enrichment Plant "Chervonohradska, Chervonohrad", Lviv region	12.0

Mapping

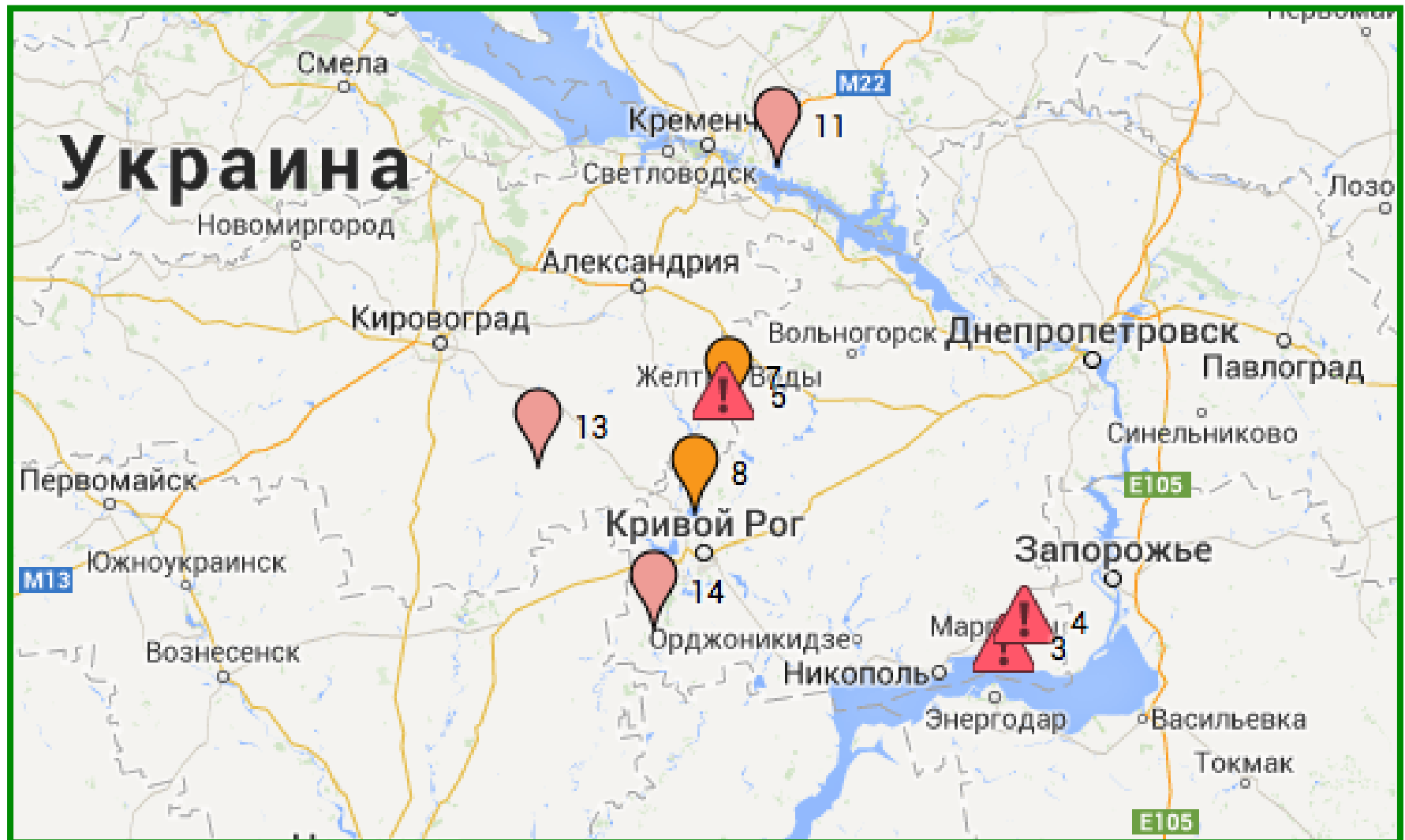
to present the results of THI evaluation for all Ukrainian TMFs the map was created. These are 10% of the most potentially hazardous objects in Ukraine.

Google maps service was used for charting TMFs according its geographical coordinates

Map of 15 most potentially hazardous TMFs in Ukraine



Map of 15 most potentially hazardous TMFs in Ukraine



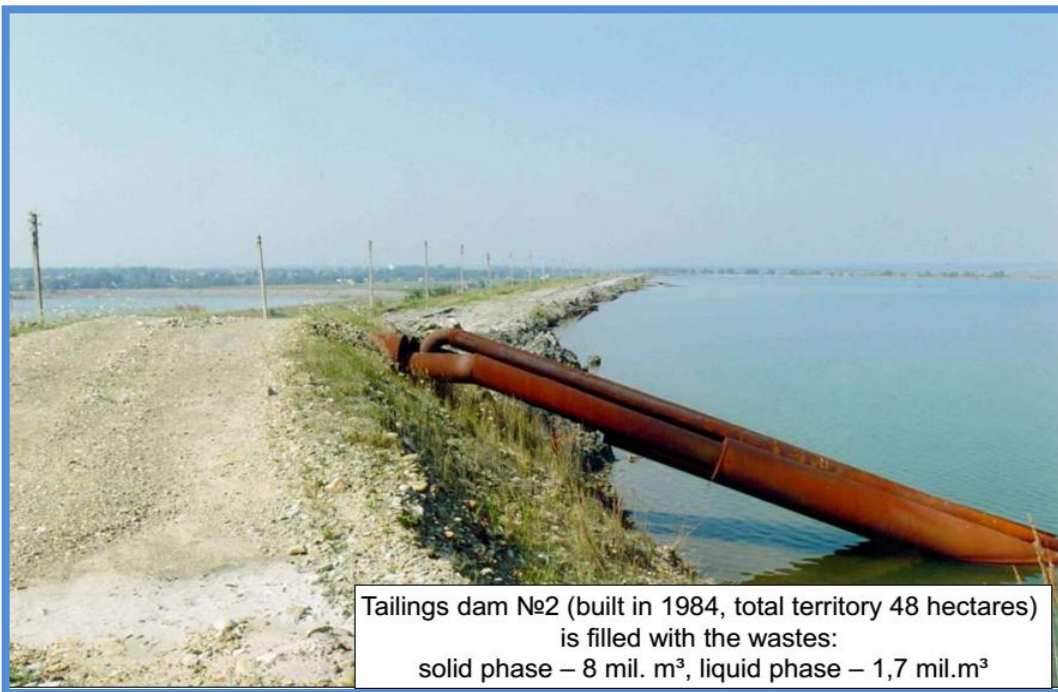
Kalush Field Test

Kalush: Emergency situation declared in 2010 by former president Yushenko

**2011 UN OCHA mission for assistance:
clear recommendations on what actions to
be taken to reduce dangers!**

**During November 2014 TMF field visit:
experts using detailed checklist confirmed
that except one major issue (elimination of
HCB waste non-TMF)**

Nothing has been done to improve this extremely
dangerous situation!



Tailings dam №2 (built in 1984, total territory 48 hectares)
is filled with the wastes:
solid phase – 8 mil. m³, liquid phase – 1,7 mil.m³

TMF № 2 in 2010

**TMF № 2 in 2014
November
no difference
no actions**



Leaching of salt



Conclusions

1

Conditions of success:

**UBA set up and financing of the project
Ukrainian expertise and cooperation with Armenia and Georgia and Steering Group of international experts**

2

**For every country/region or river basin:
simple prevention tool**

3

**For UNECE region THI inventory for prioritisation:
simple and effective tool for countries/regional
authorities to get first control and priority actions**

4

**Checklist Methodology & Measure Catalogue:
Measures can be adapted to any owner even
with very low budget to start with very simple
and low cost measures**

The final international workshop will be held on 19 and 20 of May 2015 in Ukraine, Kiev city

We invite you to join and start working with the countries in the region to implement the methodology

www.tmf-ukraine.org

Thank you for your attention!



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