DOKUMENTATIONEN
01/2016

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

Annex 1 Legal assessment Ukrainian legislation

For our Environment

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

Umwelt Bundesamt

DOKUMENTATIONEN 01/2016

Advisory Assistance Programme (AAP)
of the Federal Ministry for the Environment,
Nature Conservation, Building and Nuclear Safety

Project No. (FKZ) 26206
Report No. (UBA-FB) 002317/ENG,ANH1

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

Annex 1 Legal assessment Ukrainian Legislation

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Imprint

Publisher:
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Wörlitzer Platz 1
06844 Dessau-Roßlau
Tel: +49 340-2103-0
Fax: +49 340-2103-2285
info@umweltbundesamt.de
Internet: www.umweltbundesamt.de/en
www.uba.de/en/advisory-assistance-programme
www.uba.de/en/project-database-advisory-assistance-programme

/umweltbundesamt.de
/umweltbundesamt

Study performed by:
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Study completed in:
November 2015

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Publication as pdf:
http://www.umweltbundesamt.de/publikationen/improving-the-safety-of-industrial-tailings

ISSN 2199-6571

Dessau-Roßlau, April 2016

This project was financed by the German Federal Environment Ministry's Advisory Assistance Programme (AAP) for environmental protection in the countries of Central and Eastern Europe, the Caucasus and Central Asia and other countries neighbouring the EU. It was supervised by the German Environment Agency.

Annex 1 Legal assessment „Analysis of the Ukrainian legislation and administrative situation on TMF“

Abstract

The industrial accidents on tailings management facilities constitute threats to the environment, lead to substantial damages to flora, fauna, and human health and put considerable pressure on budgetary.

A substantial reduction of the risks of the possible accidents on tailings management facilities would ensure that population, environment and neighboring countries are better protected. The introduction of the sound legislative framework for the planning, design, construction and closure of the tailings management facilities would improve the level playing field on the territory of Ukraine, and could improve the overall environmental situation in the country.

Date

PE 7 April 2015 EN

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Linguistic versions

Original: [EN]

Translation: [RUS]

Disclaimer

The opinions expressed in this document are the sole responsibility of the author and do not necessarily represent the official position of the Project “Improving the safety of the industrial tailings management facilities based on the example of Ukrainian facilities”.

CONTENTS

List of Abbreviations

TMF	Tailings Management Facility
UNECE TMF Guidelines	UNECE “Safety Guidelines and Best Practices for Tailings Management Facilities”
UNECE	United Nations Economic Commission for Europe
MAC	Mining Association of Canada
UNECE TEIA Convention	UNECE "Convention on the Transboundary Effects of Industrial Accidents"
TMF project	the international project “Improving the safety of the industrial tailings management facilities based on the example of Ukrainian facilities”
IAN	Industrial Accident Notification System

1. Introduction

1.1. Context and background

The legal assessment is placed within the scope and background of the international project "Improving the safety of the industrial tailings management facilities based on the example of Ukrainian facilities" (hereinafter referred as the TMF project).

1.2. Objective and scope of the assessment

The overall objective of this legal assessment for the TMF project is to evaluate the existing legislation of Ukraine on tailings management facilities on its accordance with the UNECE TMF Guidelines. Much attention will further be devoted to the UNECE Convention on the Transboundary Effects of Industrial Accidents (hereinafter referred as UNECE TEIA Convention), which aims at protecting human beings and the environment against industrial accidents by preventing such accidents as far as possible, by reducing their frequency and severity and by mitigating their effects.1

The legal assessment methodology comprises of five phases. Each phase will form a chapter in the final report. The phases are:

Phase 1: Mapping the state of play of the implementation of the Ukrainian legislation

Phase 2: Comparative analysis of the accordance of the legislation of Ukraine with the requirements of the UNECE TMF Guidelines

Phase 3: Analysis of the Benchmarks for the implementation of the UNECE TEIA Convention and criteria applied for Ukraine

Phase 4: State of the accordance of the regulatory acts of Ukraine on tailings management facilities with the recommendations of the UNECE TMF Guidelines

Phase 5: Conclusions and recommendations.

The assessment will be useful in supporting policymakers and representatives of civil society in their efforts to improve environmental management and further promote sustainable development in Ukraine.

[1]For more information consult the official web page of the UNECE: http://www.unece.org/environmental-policy/conventions/industrial-accidents/about-us/envteiaabout.html

2. Mapping the state of play of the implementation of the Ukrainian legislation

Key findings

Ukraine has not yet ratified the UNECE Convention on the Transboundary Effects of Industrial Accidents, although signed it on 21 May 2003.

It should be noted that there are a large number of legal acts relevant for tailing management facilities in Ukraine. Those Laws have been adopted during different time periods and have no interconnection among them. In addition, each of the Laws mentioned above has its own scope of regulation and objectives (even in spite of the environmental focus of all of them). In parallel with the primary legislation, acts of secondary legislation, which include a lot of aspects on the safety management of tailings, were implemented and developed in the recent past.

The level of compliance of the legislation of Ukraine with the requirements of the UNECE TMF Guidelines can be considered as medium since the main safety principles are included into the primary national legal acts, but at the same time they lack technical specifications and implementing measures which result in violation of the principle of legal certainty and real enforcement of the provisions.

However, the provisions of Ukrainian legislation are in accordance with the provisions of the UNECE TMF Guidelines – de jure, as they have rather declarative character, it is difficult to implement them in practice.

Therefore, it can be recommended to develop implementing regulations and guidelines, in particular, to amend the State Construction Norms by adding missing practical provisions on the necessary international cooperation and requirements for the training and certification of the personnel of tailings management facilities.

The legislation of Ukraine should clearly specify that TMF operators have a primary responsibility for ensuring the safety of TMFs and indicate in relevant national laws what would be the responsibility (civil, administrative or criminal) in cases of non-compliances.

In light of that, following the principles of the UNECE TMF Guidelines, it can be concluded that Ukraine has created a minimum administrative framework for the development, safe operation and decommissioning of the tailings management facilities.

2.1. International experience in legislative regulation of TMF

Tailings are very specific systems with unique characteristics. They pose a significant environmental risk and it is a responsibility of a country to create a sound legal framework for the safety of tailings management facilities that individual companies will be able to adapt and implement in practice. The legal prerequisite is that a country should aim to ensure that tailings management is environmentally oriented and safe. To fulfil that, such legal base should seek to ensure that tailings are safe, not only during its operating life but also after their closure; managed to minimize waste generation and environmental pollution, be targeted at rehabilitated and re-vegetated

sites after closure to minimize long-term risks to the environment, social impacts, future land use and visual amenity.

On international arena there are three counties that are the most active in international tailings management activities – Australia, Canada and South Africa – all of them have a large number of tailings storage facilities. In this regard, their experience in design, construction, operation and closure of tailings facilities is very useful for Ukraine.

Mining regulations in Canada are within the competence of the provinces, with exception of the uranium mining, which is regulated by the Federal Government [1]. In 1998 and later in 2003 the Mining Association of Canada (MAC) published "A Guide to the Management of Tailings Facilities" to assist mine operators in developing a successful and environmentally safe management system for their tailings facilities. It covers each stage of tailings management from design through construction, operation and then closure. In Canada there are also Dam Safety Guidelines which together with Guide to the Management of Tailings Facilities are intended to complement government regulations and promote due diligence of the operators. The overall goal is to protect the environment and the public from the hazards associated with tailings storage [2]. It should be also mentioned that Guidelines do not have a binding effect as would be the case for the legal acts or implementing technical regulations.

In Australia, similar to Canada, mining regulations are also responsibility of the individual states. There are separate legal acts in Western Australia, Victoria, Queensland and other states, which regulate safety and environmental aspects of tailings disposal. Australian Tailings Guidance Manuals are commonly referred to by tailings personnel within Australia and internationally. The Department of Minerals and Energy (DME) in Western Australia have produced two Guidance Manuals to improve tailings management. The Guidelines on the Safe Design and Operating Standards for Tailings Storage (1999) are intended to provide a common approach to the safe design, construction, operation and rehabilitation of a tailings facility, and to provide a systematic method of classifying their adequacy under normal and worst case operating conditions (1999). All tailings storage facilities in Western Australia are designed and built on the bases of these Guidelines. For the operational stage of a tailings facility the DME require a site-specific operating manual for every TMF. Each manual should be prepared in accordance with the Guidelines on the Development of an Operating Manual for Tailings Storage (1998). It is a requirement to periodically review and update operating manuals as well as audit each tailings facility. The other Guideline document concerns protection of water management - The Water Quality Protection Guidelines No.2 – Tailings Facilities (2000) is designed to be used to manage the impacts that tailings storage has on the quality of the region's water resources (3). In other words, guidance manuals are focusing on design, construction, operation, closure and aftercare, but also specifically on the operational stage of a TMF's life cycle.

The principle management document for tailings facilities in South Africa is the Code of Practice

for Mine Residue Deposits[2] contains fundamental objectives, principles and minimum requirements for best practice, and focuses on the need for management throughout the life cycle of a TMF.

Other European and North/South American (Canada, Chile, Peru and USA on individual States level) countries have legal provisions, either directly or indirectly regulating tailings storage activities. Those provisions focus on the construction, operation and closure as well as on the impact on the surrounding environment.

The European Commission has also produced directives and regulations (Best Available Techniques reference document for the management of tailings and waste-rock in mining activities, available at http://eippcb.jrc.ec.europa.eu/reference/, Directive 82/501/EEC, Seveso-II Directive 96/82/EC, Seveso-III Directive 2012/18/EU) that influence TMF design and operation, and major financing bodies have developed safety assurance and design guidelines for their investments. The major legal document at the EU level is Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC - Statement by the European Parliament, the Council and the Commission.

However, the legislation and regulations applicable to tailings dams differ considerably amongst the member states of the EU.

For example, all the new EU member states and the candidate states went through political and economic changes in the late eighties and early nineties. In all cases new legislation was introduced in the field of mining. The first innovative legislative ideas were usually followed by corrective actions and subsequent amendments of the mining laws. The term “mining law” has been often replaced by some other title, as for example Subsurface Resources Act (of 1999, as last amended in 2008) in Bulgaria, Earth’s Crust Act in Estonia (of 2005), Law on the Subsoil in Latvia (of 1999), and Law on the Underground in Lithuania (of 2001). Poland has combined legislation on geology and mining (Geological and Mining Law Act) and Slovakia has two separate acts governing the issue, an Act on the protection and utilisation of mining resources and an Act on mining operation activities. Tailings facilities safety is often outside the scope of legal regulation as it is not the priority of mining safety legislation (if covered or considered at all). In this case, there exist considerable differences among the new EU Member States. For instance, in Poland tailings dams are the outside the scope of the Geological and Mining Law Act of 2011. They are regulated mainly by the Building Law of 1994 and the implementing national legal acts (concerning design and construction). In Romania specific regulations on tailing ponds are covered by the law and special orders issued by the Ministry of Water and Environment Protection and the Ministry of Industry and Resources. In Hungary a specific regulation on tailing ponds are being drafted

2 It should be noted that tailings management in South Africa is regulated by law on the Guideline for the Compilation of a Mandatory Code of Practice on Mine Residue Deposits issued by the DME in 2000. This Guideline makes an implementation of a Code of Practice mandatory for each tailings facility with compulsory adherence to the SANS 10286, Code of Practice for Mine Residue Deposits (Anglo 2005).

(Hamor 2002) (5). However, after Kolontar Accident (https://en.wikipedia.org/wiki/Ajka_alumina_plant_accident) on 4 October 2010 there were a lot of changes in the Hungarian Legislation such as:

Amendment of law on Mining activities (full correspondence with the 2006/21/EC Directive on mining waste)

Mining authority regulation right were extended to the TMF facilities (permitting, construction, operation, etc.)

Amendment of Gov. Decree 276/2006. (XII.20) on the Hungarian Mining and Geological Agency

Disaster management authorities take part of the permitting procedure (in site contingency planning)

Amendment of the 14/2008. (IV.3) GKM order (DM + Local Authorities jointly elaborating on site contingency plans).

The manuals and guides for tailings management of Canada, Australia and South Africa constitute basis for establishing a universal framework for managing a tailings facility.

However, there are independent organizations such as ICOLD (International Commission on Large Dams) and its member countries, UNEP (The United Nations Environmental Programme) and ICME (International Council on Metals and the Environment) who have attempted to address issues relating to design, construction, monitoring, community consultation, contingency planning and auditing of tailings.

So, in order to incorporate the European methodology into the legislation and start applying it in practice by Ukrainian enterprises, there is a need to assess the Ukrainian legislation on tailings management facilities and analyze the possibilities of implementation of every principle of the international legislation.

2.2. An overview of the principles of the UNECE TMF Guidelines

To address the problem of the environmental pollutions after the industrial accidents caused by incorrect tailings management the United Nations Economic Commission for Europe (UNECE) in 2008 developed during the Conference of the Parties to the Convention the Safety Guidelines and Good Practices for Tailings Management Facilities - the recommendations to the authorities on the necessary legal framework for issuing permits for the safe operation of tailings, but also the recommendations to the operators of the tailing management facilities and their safe design. In this regard, UNECE called on the governments of the UNECE countries to implement the UNECE TMF Guidelines into the national legislation of these countries.

Authorities, TMF operators and the public are invited to apply directly these Guidelines and good practices, which are intended to contribute to limiting the number of accidents at tailings management facilities and the severity of their consequences for human health and the environment (point 2.1. of the UNECE TMF Guidelines). According to the point 23 of the UNECE TMF Guide-

lines, the recommendations and the key elements for TMFs designed to prevent incidents at TMFs, with a key focus on tailings dams, and to limit the potential for negative impacts on environment, human health and infrastructure. They are based extensively on accepted and published good practice procedures to ensure conformity with international standards.

These UNECE TMF Guidelines provide a minimum set of requirements to ensure a basic level of safety for tailings management facilities. They highlight aspects to be considered to achieve an acceptable level of safety through applying different policies, measures and methodologies. Nevertheless, owners and operators are encouraged to apply additional procedures and safeguards in accordance with local assessments to achieve the highest practical level of management of their tailings facilities (6).

2.3. An overview of the legislation of Ukraine on tailings management facilities

The threat of negative effects from industrial accidents is very actual today for Ukraine as there are a lot of hazardous industrial objects which are situated in Ukraine and on the territories of its neighboring countries and this requires appropriate state policy of cooperation and mutual assistance. On international level Ukraine is an active participant in environmental cooperation – it is a member of the UN and the Party to all of the environmental organizations that operate under the auspices of the latter. Moreover, it is a party to more than twenty international agreements on the environmental protection, which shows that international cooperation in the field of environmental protection is one of the priority issues in the foreign policy of Ukraine.

However, Ukraine still has not ratified the UNECE TEIA Convention, although it was signed on 21 May 2003.

In Ukraine efforts were made to create a control system over highly hazardous objects and support it with legal and economic framework. The peculiarity of its formation and establishment is in inconsistency and fragmented scope of these processes. Individual subsystems and components have different degrees of development and implementation. Essentially, such a system in Ukraine provides a basic level of regulation of problems in relation to the management of highly hazardous objects.

It should be noted that there are a large number of legal acts relevant for tailing management facilities, the most important among them are the following:

Law of Ukraine “On Environmental Protection” (25.06.1991 No. 1264-XII);

Law of Ukraine "On Waste Management" (05.03.1998 No. 187/98-BP);

Law of Ukraine "On the high risk objects” (18.01.2001 No. 2245-III);

Law of Ukraine "On Environmental Audit" (24.06.2004 No. 1862 -IV);

Law of Ukraine “On the basic principles of public control over the economic activities” (05.04.2007 No. 877-V);

Law of Ukraine "On Environmental Expertise" (09.02.1995 No. 45/95);

Law of Ukraine "On access to public information" (13.01.2011 No. 2939-VI).

Those Laws have been adopted during different time periods and have no interconnection among them. In addition, each of the Laws mentioned above has its own scope of regulation and objectives (even in spite of the environmental focus of all of them).

In parallel with the primary legislation, acts of secondary legislation, which include a lot of aspects on the safety management of tailings, were implemented and developed, for example, such as:

State Construction Norms 'Tailings and Sludge Stores: Part I. Planning. Part II. Building' (B.2.4-5:2012);

Procedure for maintaining the register of the objects of creation and recycling of hazardous wastes (1998, N 1360);

Regulations on training on safety (No 27,17.02.99, approved by the Ministry of labor and social policy);

Safety rules for the exploitation of the tailings and slurry elements of the mining enterprises (0.00-1.53-87, 22.12.1987, USSR).

Such specialized technical legislation, adopted for the implementation of the primary legislation on the safety of highly hazardous objects, has detailed provisions on setting limits on the generation and disposal of waste; on the construction of highly hazardous objects; on the development of schemes of waste disposal; on the economical mechanisms of the safety of the highly hazardous objects etc.

Institutions involved in management of the TMFs in Ukraine are:

Cabinet of Ministers of Ukraine;

State Department on Labour Safety of Ukraine;

Ministry of Labour and Social Policy of Ukraine;

Ministry of Ecology and Natural Resources of Ukraine;

Ministry of Health of Ukraine;

State Emergency Service of Ukraine;

State Committee on Architecture and Construction of Ukraine;

Ministry of Regional Development, Construction and Municipal Housing of Ukraine.

The multiplicity of the government ministries and agencies involved in the management of the TMFs certainly poses a question of a necessity of coordination of the activities and exchange of information, as a priority for effective functioning.

So, according to the Article 3 of the Decree of the Cabinet of Ministers of Ukraine (No. 956, 2002) "On identification and declaring of the security of highly risk objects" the State Department on

Labour Safety is responsible for coordination of work of the other central executive bodies of Ukraine in the field of management of highly risk objects. And according to the point 4 of the Article 17 of the Code of Civil Protection of Ukraine (BBP, 2013, No.34-35) in a case of industrial accident which can cause transboundary effect the State Emergency Service of Ukraine is responsible for notification of neighbouring countries.

At the local level regional offices of the above mentioned Ministries are responsible for management of highly hazardous objects. The executive bodies of local councils, Kiev or Sevastopol City State Administration make the decisions whether to allow or forbid the construction of hazardous objects by issuing permits for construction of the facility.

Historically, Ukraine went through political and economic changes in the early nineties and this process still continues. In general, it should be noted that in Ukraine the basic elements of the legal provisions in the field of waste management was created, and it is gradually approaching to European and international standards. However, the relevant European and international legislation is constantly improving and evolving, which is not the case for Ukraine. Therefore, clearly great efforts should be made by Ukraine in following the international and European experience and all the updates.

At the same time, it should be admitted that no new legislation was introduced in the field of tailings management facilities and what the legal framework in existence is still very fragmented and not complete. For example, a regulatory document “State Construction Norms 'Tailings and Sludge Stores: Part I. Planning. Part II. Building' (B.2.4-5:2012)” does not cover the TMFs of the industrial enterprises of the energy sector, such as thermal power plants. Despite the fact that this type of enterprise occupies 47% of all segments of the energy market of Ukraine and the TMFs are large-capacity and thus located on a huge area of land. There are a number of aspects on tailings management facilities that are not reflected in the legislation of Ukraine or not fully harmonized and need to be incorporated into the relevant national legal acts according to the international commitments Ukraine and in line with the best international practices.

2.4. Comparative analysis of the compliance of the legislation of Ukraine with the principles of the UNECE TMF Guidelines

The assessment of the harmonization of legislation of Ukraine with the UNECE TMF Guidelines was done using a methodology known as the evaluation of legal gaps based on the Tables of Concordance. Also the level of compliance – low, medium or high of the national legislation and the changes needed were identified (see Annex I).

The Law of Ukraine "On highly hazardous objects" (2001) defines the legal, economic, social and organizational basis for activities associated with high risk objects, and aims to protect human life, health and environment from the harmful effects of industrial accidents through prevention and restriction (localization) of the negative consequences of such accidents. The level of compliance of this legal act with the requirements of the UNECE TMF Guidelines can be assessed as “medium” as the majority of the articles of the Law "On highly hazardous objects" have general

declarative character and do not contain precise provisions on the primary responsibility of the TMFs operators for ensuring safety of TMFs and for formulating and applying safety management procedures.

Furthermore, the Law "On highly hazardous objects" states that Ukraine actively participates in the international cooperation in the field of industrial accidents prevention and elimination of consequences – this may be true from the point of, however, in practice it is not possible to check whether provisions of this Law are observed as there are no legal mechanism established in place for assessing compliance.

The Law of Ukraine "On the basic principles of public control over the economic activities" (2007) defines generally the legal and institutional framework, refers to the main principles and procedures of the state supervision (control) of economic activities, and also explains the powers of state supervision (control), the rights, duties and responsibilities of entities in the course of state supervision (control). According to the Article 3 the state control is executed in line with the principles of priority of safe environment for the human beings, of the objectivity of the state control and of the non-interference into the economic activity of the operators by the state authorities. It also sets that state supervision and control of activities associated with high risk are carried out by legal authorities, including the specially authorized central executive bodies and their respective territorial bodies, which are: health protection authorities; environmental protection authorities; emergency services; fire services; sanitary- epidemiological safety services; urban development authorities. The Law is rather vague on the practicalities of the controls (who does what and when), it does not correspond to the provisions of the UNECE Safety Guidelines and therefore can be considered as establishing a basic framework with minimal compliance for the safe operation of the tailings management facilities. From practical point of view it poses a lot of questions on duplication and overlapping controls as a burden for the industry and private enterprises, at the same time not being fully effective.

The requirement of the UNECE TMF Guidelines to create a classification of the tailings management facilities based on risk assessment was also implemented in the legislation of Ukraine, specifically by the Decree of the Cabinet of Ministers of Ukraine 'On the criteria of classification of the undertakings according to the level of risks of its activities for the environment and human health' (2008, No. 212).

Taking into account the fact that tailings are the objects that cause negative influence on the nearby territories, human health and environment – the experts of the Institute “Kievvodokanalproject” drafted the State Construction Norms (B.2.4-5:2012) 'Tailings and Sludge Stores: Part I. Planning. Part II. Building' (hereinafter – State Construction Norms), which have legally binding character for individuals, legal entities and public authorities. The main concepts of these norms are:

tailings and sludge stores are highly hazardous objects that may cause negative impact on all the components of environment: polluting air soil and ground waters; causing contamination of vegetation and water-logging of the territories;

the threat of the emission of the compounds of heavy metals should be taken into account during the design of the tailings;

during the reconstruction of tailings the threat of pollution from the hazardous substances, remained after its exploitation, should be also taken into account;

the question of the necessary size of sanitary-protection zones should be taken into account during the re-/construction of tailings.

The Introduction of the State Construction Norms declares that national and international experience in construction of tailings was systematized and taken into account, however, in the text itself no European legislation or international / UNECE requirements or good practices have been mentioned.

After assessment, the general level of compliance of the provisions of the State Construction Norms with the UNECE Safety Guidelines can be rated as "medium". The reasons for that are the following: the State Construction Norms lack specificity in some questions or technical details and often have only declarative character, referring all the time to the other secondary legislation of Ukraine (construction and sanitary norms). Yet, those norms are supposed to enter to the necessary level of details and concrete requirements. The UNECE TMF Guidelines in its turn enable flexibility in approaches to allow innovation in tailings management and its overall aim is to encourage the adoption of the best industry standards and practice in tailings management and to minimize the cost of the operations to current and future generations.

The State Construction Norms contain requirements for the tailings management facilities to be planned according to the sanitary classification of the undertakings set in the "State sanitary rules for the development and construction of cities" and according to the category of the difficulty of the construction object (State Construction Norms A.2.2-3). Article 5.2.4.3 of the State Construction Norms clarifies that the construction of the enclosing structures should be planned taking into account geotechnical, hydro geological, topographical and seismic conditions as well as characteristics of the soil, which complies with the requirements of the UNECE TMF Guidelines.

However, it is recommended to add to the State Construction Norms (B.2.4-5:2012) specific provisions:

on the international cooperation in case of industrial accidents for its prevention and eliminating of the effects;

on the adequate qualification and certification of the personnel and responsible individuals of the TMF and to precise that only properly certified personnel should be engaged in the planning, design, construction, operation/management and closure of TMFs and the relevant competences should be described in the operation and management plan;

to specify that TMF operators have a primary responsibility for ensuring the safety of TMFs;

the training of personnel, including contractors and suppliers, is also very important as their work will significantly affect the tailings facility. It should cover the questions of prevention, risk man-

agement, emergency preparedness and response, environmental impacts, tailings management facility plans, permits, approvals, as well as individual roles and responsibilities.

It is also recommended to use the international experience in regulating the question of the design, planning and construction of tailings management facilities.

For example, Australian National Committee on Large Dams adopted appropriate standards and principles for the tailings storage facility entitled 'Guidelines on Design Criteria for Concrete Gravity Dams' (2013), 'Guidelines on Tailings Dams – Planning, Design, Construction, Operation and Closure' (2012), 'Guidelines on the Consequence Categories of Dams' (2012) and 'Guidelines on Dam Safety Management' (2003). These main principles state that the design should be adequate for the proposed use, meet contemporary standards and have identified and addressed all the likely risks associated with the site, the nature of the containment materials, the nature, quantity and treatment of the tailings, construction process and closure [20].

In light of that, following the principles of the UNECE TMF Guidelines, it can be concluded that Ukraine has created a minimum administrative framework for the development, safe operation and decommissioning of the tailings management facilities.

3. Comparative analysis of the compliance of the legislation of Ukraine with the requirements of the UNECE TMF guidelines

Key findings

The level of compliance of the legislation of Ukraine with the UNECE TMF Guidelines recommendations for member countries can be assessed as "medium" since more specific legislation is needed in terms of the establishment of a coordinated mechanism between public authorities (considering the multiple numbers of ministries and agencies involved in dealing with the TMFs in Ukraine). Lack of the coordination among the competent authorities and proper administration could undermine the established provisions of the national law. Harmonization of the legislation of Ukraine with the UNECE TMF Guidelines recommendations for competent authorities is also not fully achieved and can be considered as "medium". One of the major points is absence of the legal requirement for the external emergency plans designed by the competent authorities together with operators, community groups, local authorities and rescue services. Such plans have to be used in the events of accidents for the tailings facilities with significant risks to outside communities. Another issue worth mentioning concerns management of closed and abandoned tailings facilities, therefore it is recommended to add the provisions on the assessment of closed, abandoned or orphaned tailings by competent state authorities, as well as on the creation of the inventory of the closed and abandoned tailings management facilities to the legislation of Ukraine. Further, certain specific amendments are needed in terms of the management of closed TMFs and in relation to responsibilities of the TMF operators for ensuring the safety of tailings. The level of compliance of the legislation of Ukraine with the UNECE TMF Guidelines recommendations for tailings management facilities operators can be certainly rated as "high". The legislation of Ukraine similarly to the UNECE TMF Guidelines outlines the competences and responsibilities of

TMF operators referring to all the necessary requirements for the safety management of tailings. The only recommendation of the TMF Guidelines which has medium level of compliance is one for the tailings management facilities operators to implement safety audits for their facilities and to promote the use of environmental management systems based on international standards. However, this is an essential element for ensuring safety.

As a result, it can be concluded that the overall level of harmonization of the legislation of Ukraine with the recommendations on the UNECE TMF Guidelines can be considered only partly in compliance and therefore "medium" in general. However, the specific competences, responsibilities and obligations of the TMF operators in terms of safety management of tailings are reflected in the legislation of Ukraine similarly to the UNECE TMF Guidelines and fully comply with them.

Certain modifications into the legislation of Ukraine specifying the obligations and responsibilities of the public authorities and TMF operators for ensuring the safety of tailings have been suggested by the attached to the Legal assessment Annexes with Tables.

It is also recommended to highlight in the legislation of Ukraine the importance of trainings and include specific provisions on training the trainers. Creation of the national register of the closed tailings management facilities and proper management of such facilities should be a priority for the competent authorities in Ukraine as without that element the risk remains extremely high. Finally, inclusion of certain practical aspects of international cooperation in the field of prevention of transboundary effects of industrial accidents would be strongly suggested in order to comply with the international requirements.

3.1. Principles and general recommendations

It is recognized, that people of Ukraine must have confidence in the regulatory system and would expect appropriate measures in place for a number of key areas to ensure that existing risks have been evaluated and properly addressed. It goes without saying that one of such areas is safety of tailings management facilities.

The UNECE TMF Guidelines include separate recommendations to the UNECE member countries, competent authorities and tailings management facilities operators.

To ensure methodological and transparent approach of assessment, three tables of concordance of the legislation of Ukraine with the UNECE TMF Guidelines recommendations were prepared: for member countries (I), for competent authorities (II) and for tailings management facilities operators (III). They are presented in Annex II to this Legal assessment.

The comparative analysis was made on the basis of the principles of legal certainty, impartiality and supremacy of the rule of law.

3.2. State of compliance of the legislation of Ukraine with UNECE TMF Guidelines recommendations for member countries and competent authorities

According to the detailed findings presented in the table of concordance of the legislation of Ukraine with the UNECE TMF Guidelines recommendations for member countries and competent authorities - the level of compliance can be assessed as “medium”. Certain amendments and specifications are still needed for the full consistency and harmonization with the safety guidelines.

The legal analysis has shown that an early planning and development of the appropriate tailings management strategy is a key issue for the success of the overall project. Article 12 of the Law of Ukraine 'On highly hazardous objects' which sets the procedures for construction or/and reconstruction of the high risk objects is designed in accordance with the provisions of the TMF Guidelines which require the existence of the minimal legal and administrative framework for the functioning of the tailings management facilities. According to Article 12 of the Law of Ukraine 'On highly hazardous objects' - economic entity, which plans to build and/or reconstruct hazardous object, must obtain a permit for construction of the facility in accordance with the Ukrainian Law 'On urban planning'.

Therefore, the executive bodies of local councils, Kiev or Sevastopol City State Administration will take the decisions whether to allow or forbid the construction of such hazardous objects. Also according to Articles 5.1 – 5.1.14 of the State Construction Norms (B.2.4-5:2012) tailings management facilities should be planned and operated according to the construction, safety and environmental laws.

Moreover, it is recommended by the UNECE TMF Guidelines that appropriate state authorities should evaluate and approve the design, operations and management plans (operation manual) drawn and suggested up by operators. This is a consultation and validation process in which the operator and the public authority are supposed to exchange information and views on a project, its potential hazards and approaches to address them. Consultation before and during the design and operation of the tailings management facility should be part of the broader communication process. Effective consultation and discussions are an integral part of risk management and provide evident benefits if undertaken jointly with monitoring and auditing processes.

In general, legislation of Ukraine complies with the above-mentioned requirements of the UNECE TMF Guidelines. It is essential that construction of tailings management facilities is conducted in accordance with the approved design and executed with a high quality precision. Also adequate supervision of the works is essential to ensure that the relevant factors are addressed; however, issues of practical implementation of the necessary monitoring and surveillance are outside the scope of this report.

Furthermore, it is worth mentioning that every work plan for tailings management facilities should include plans for: the development of the proposed operation and associated infrastructure; occupational health and safety; environmental management and closure and rehabilitation works.

International experience in the field of planning, design and construction of the tailings, and particularly Canadian experience, shows that the work plan documentation for a tailing facility should include: the design plan; details about the proposed management of the tailings and water; plans for the minimization of impacts on native vegetation; plans for environmental monitoring and for managing rehabilitation, risks and emergencies, and plans for the intended end-use of the tailings facility site. International practices also show the need of the environmental management plan as part of the work plan. For tailings management facilities it should include proposals and processes for monitoring standard environmental parameters, principally the groundwater and nearby surface water, and show compliance with the regulations relevant to water management at the site. It may also require elements to address other significant risks identified for the particular site, such as impacts on flora and fauna or the generation of dust or odour. The State Construction Norms of Ukraine contain similar requirements, so that demonstrates a high level of compliance with the international best practices.

An essential element of the documentation required for approval of any tailings management facility is an emergency response plan. This plan should be prepared on the basis of a worst case scenario and include procedures describing and prioritizing such actions as protection of personnel, notification of emergency services and resource management agencies, advice to neighbors and immediate and longer term remedial actions. Implementation of such plan in practice would make a significant difference to the negative impact of an accident.

Yet, the requirement for the external emergency plans designed by the competent authorities seems to be lacking in the legislation of Ukraine, although the demand for the operators of tailings management facilities to have such internal plan is foreseen by the Ukrainian legislation. The UNECE TMF Guidelines recommend that relevant authorities shall develop external emergency plans in association with operators, community groups, local authorities and rescue services, and apply these plans off-site in the event of accidents for the tailings facilities with significant risks to outside communities. That is why it is recommended to precise in Articles 5.1.5, 5.1.6 of the State Construction Norms (B.2.4-5:2012) that tailings management facilities operators have a primary responsibility for ensuring the safety of tailings. It is also recommended to add the provisions on the development of external emergency plans by relevant state authorities to apply to the tailings management facilities with the significant risk in case of accidents to the Article 11 of the Law of Ukraine 'On highly hazardous objects'.

The question of the management of closed and abandoned tailings management facilities and the creation of its inventory by the competent authorities is only partially resolved by the legislation of Ukraine, particularly in the State Construction Norms (B.2.4-5:2012). Therefore, it is recommended to add the provisions on the assessment of closed, abandoned or orphaned tailings by competent state authorities, as well as on the creation of the inventory of the closed and abandoned tailings management facilities to the legislation of Ukraine. This question is crucial for the environment as the consequences of a failure of proper management of the closed tailings management facilities could be very serious. These would unavoidably lead to contamination of wa-

terways and potable water supplies, impacts on flora and fauna or even loss of human lives.

It is also recommended by the UNECE TMF Guidelines that competent state authorities should ensure meaningful public participation and easy access to information in accordance with the relevant provisions of the Convention on the Transboundary Effects of Industrial Accidents, the Convention on the Protection and Use of Transboundary Watercourses and International Lakes and in particular the Aarhus Convention.

The issue of dissemination of environmental information in general is regulated by the Law of Ukraine "On access to public information", but the question of access to the information about permits and reports to assess the environmental impact and risk is not resolved properly. However the Cabinet of Ministers of Ukraine on 27 December 2008 approved the Action Plan for the implementation of the decisions of the Parties to the Aarhus Convention, still Ukraine limits the access to the environmental information by indicating only one state authority – Ministry of Ecology and Natural Resources – as a body which is under legal obligation to give access to such information. Therefore, it is recommended to include in the legislation of Ukraine the provisions on implementation of the Aarhus Convention, in line with the results obtained at the round table held on April 23, 2013 in the Ministry of Ecology and Natural Resources of Ukraine.

It is also recommended to add to the legislation of Ukraine provisions on the training of the inspectors, which are not included into the legislation of Ukraine (and considered as a serious draw back in light of the risk assessment and risk management approach).

The question of notifications of the counterparts to neighboring countries about the accidents on TMF sites that may have transboundary effects is found in Article 18 of the Law of Ukraine 'On highly hazardous objects', which says that Ukraine participates in international cooperation in the field of industrial accidents prevention, restriction and elimination of its effects. In case of industrial accident which can cause transboundary effect the State Emergency Service of Ukraine is responsible for notification of neighboring countries (point 4 of Article 17 of the Code of Civil Protection of Ukraine (BBP, 2013, No. 34-35)).

On the local level the question of the notification of the population about the industrial accident on TMFs is regulated by Article 15 of the Law 'On highly hazardous objects' which says that: “operators of the hazardous objects are responsible for informing central and local executive bodies of Ukraine and mass media about the situation on these objects”. In its turn the central executive bodies responsible for civil protection in Ukraine inform population and neighboring countries in case of industrial accidents.

3.3. State of compliance of the legislation of Ukraine with UNECE TMF Guidelines recommendations for tailings management facilities operators

According to the findings of the Table of Concordance of the legislation of Ukraine with the UNECE TMF Guidelines recommendations for tailings management operators - the level of compliance of legislation is considered to be “high”. The Ukrainian legislation outlines the competences and responsibilities of TMF operators, which follow the UNECE Safety Guidelines and con-

tain all the necessary requirements for the safety management of tailings.

Recommendations of the UNECE TMF Guidelines on the need for TMF operators to have operational and management plan; to monitor tailings management facilities in accordance with such plans, to draw up and implement internal emergency plan and to cooperate with competent authorities and local communities in preparing external emergency plans can be found in the legislation of Ukraine. According to Article 11 of the Law of Ukraine "On highly hazardous objects" – every undertaking with serious risk should have an emergency plan for the localization in a case of industrial accidents. According to Articles 5.1 – 5.1.14 of the State Construction Norms (B.2.4-5:2012) TMFs are planned and operated according to the construction, safety and environmental laws. Article 5.1.12 particularly sets that: "management plan should contain the information on planning, design, construction and maintenance of TMFs".

According to the Code of Civil protection the evacuation plan should be maintained in an accessible way. Moreover, this question is also regulated by State Norms 3273-95 "Safety of industrial enterprises. Terms and conditions".

The only recommendation of the UNECE TMF Guidelines which has medium level of compliance is one for the tailings management facilities operators to implement safety audits for their facilities and to promote the use of environmental management systems based on international standards. However, this is an essential element for ensuring safety.

Monitoring and auditing are vital management tools for the operation of a tailing management facility. According to the legislation of Ukraine audit of the status of fire safety can be divided into external (conducted by the State Fire Department) and internal (conducted by leaders and experts of the enterprise). The control on fire safety by the undertakings is executed by the State Department of Fire Safety Emergencies of Ukraine. The rights and duties of public officers are set out in the Regulations of the State Fire Safety Department, approved by the Cabinet of Ministers No. 500 of 11 April 2002. Internal audit is conducted by the owner of the facility to verify compliance of fire safety management system with the requirements of the legislation on fire safety.

Any operator of the tailings management facility, when creating a safety management system, does it with a specific purpose. Expected results of the creation of independent risk assessment may be:

Increasing the protection of population, territory, property and legal entities;

Reducing the administrative burden on entrepreneurs;

Ensuring transparency of supervisory functions, warning corruption in this field.

The reasons for independent assessment of fire risks are actual removal of the state authorities from that type of control. The experience of developed countries has shown that success of such independent audit will be temporary if the operator does not seek permanent improvement of the efficiency of the operated system. Such system management is incorporated in the international standard OHSAS 18001: 2007, which is successfully used not only for fire safety but also to in-

dustrial and other safety aspects.

In accordance with the requirements of this international standard safety management system, there are five specific elements: 1) policy, 2) planning, 3) implementation and operation, 4) control and correction, 5) management review. The audit manager should provide objective information based on which the decisions should be made. The operators of the tailings management facilities are therefore interested in the thorough and fundamental auditing as opposition to the state control. The main goal of the independent risk audit – is to re-allocate responsibility for damage between the public and the organization that directly may cause harm to its citizens - their health and property - as a result of any accidents.

As part of the Concept of the State Program on fire safety for 2011-2015, adopted by the Cabinet of Ministers of Ukraine as of December 29, 2010, No. 2348 - the creation of a modern regulatory framework for fire insurance and the introduction of an independent assessment of fire risks is highlighted. In that mechanism the role of independent risk assessment system will be effective because an independent auditing company, facing a competition in the market will be motivated in conducting quality audits. Moreover, independent audit of the organization and their experts will be licensed by the State. Fire safety audit should be carried out only voluntarily, and the owner himself must choose whether to take advantage of the services of the Inspector from the State Fire Department, or to invite an independent auditor [21].

In other words, regular independent audits ensure that essential systems and procedures of the tailings management facilities are maintained and improved where necessary. The operators of large tailings management facilities should ensure that suitably qualified and experienced personnel implements an annual audit and review of the facility.

To effectively implement a system of independent risk assessment a number of legal acts should be amended, in particular, the law "On fire safety", "On insurance" and "On main activities of state supervision (control) over the fire safety". It is also recommended to add to the State Construction Norms (B.2.4-5:2012) provisions on the need to perform safety audits for the tailings management facilities.

In addition to the examination and assessment of the fire safety, the legislation of Ukraine provides environmental audits and environmental impact assessment of the undertakings. In accordance with the Law of Ukraine “On Environmental Audit” (24.06.2004 No. 1862 -IV) such audit is initiated by the concerned executive authorities, local governments, as well as upon the initiative of the owners or managers of enterprises to assess the compliance of the company's activities with the legislation on environmental protection. Ecological and auditing activities include environmental audits, as well as its organizational, legal, methodological, consultative and other types of support.

In accordance with Article 12 of the Act On environmental audit in Ukraine – there are two types of audit: voluntary and mandatory. Voluntary environmental audit may be carried out on any environmental audit objects, according to the procedure of the concerned entity with the consent

of the manager or owner of the object of environmental auditing. Mandatory environmental audits are carried out in line with the procedures of the concerned executive authorities or local governments of the projects or activities that constitute increased environmental risk, according to the list, which is approved by the Cabinet of Ministers of Ukraine, in the case of bankruptcy, privatization, environmental insurance of the undertakings and so on. On a whole, the Law of Ukraine on Environmental Audit meets the requirements of paragraph 63 of the UNECE Safety Guidelines.

Also, Article 12 of the Law of Ukraine "On Environmental Expertise" (09.02.1995 No. 45/95) provides that state, public and other environmental assessments are held in Ukraine. Conclusions of the state ecological expertise are binding. Conclusions of the other public environmental expertise have only recommendations character and may be taken into account during the state environmental review or decision-making on the further implementation of ecological expertise.

The purpose of environmental assessment is to mitigate the impact of human activities on the environment and human health. Also it pursues the objective to hold environmental safety assessments of economic activities and of the environmental situation in specific territories and individual objects.

Therefore, it can be concluded that the level of compliance of this legislation of Ukraine with the UNECE TMF Guidelines Recommendations is considered to be "high" and fully in line with the international safety requirements.

4. Analysis of the benchmarks for the implementation of the unece teia convention and criteria applied for Ukraine

Key findings

It should be reported that in the working area I 'Identification of hazardous activities' Ukraine has reached full harmonization – i.e., a progress stage 6 according to all three indicators: 1) existence of the mechanism for the collection of data; 2) existence of the mechanism for the analysis and validation of data and 3) existence of the mechanism for the review/revision of collected data. Therefore, Ukraine has a system for such identification based on the definition of clear responsibilities and a methodology for the process of identifying hazardous activities. So, full compliance can be reported following that methodological approach.

Further, in the working area II 'Notification of hazardous activities' Ukraine has reached a progress stage 5 (out of 6) as the mechanism for the transboundary consultation on hazardous activities is provided by law, however, no harmonization or compliance can be reported simply because the current mechanism is not operational in practice.

In the working area III 'Prevention' Ukraine has reached a progress stage 4 (out of 6) yet the responsibility for industrial safety of hazardous activities operators is not clearly provided by the Ukrainian legislation. So, it is necessary to supplement the legal provisions that operators of haz-

ardous objects have a primary responsibility for industrial safety. In the absence of such requirement, the entire enforcement mechanism and concept of compliance are not operational.

In the working area IV 'Preparedness' Ukraine has reached a progress stage 6 (out of 6) relying on two indicators only: the existence of the mechanism for identifying the responsibility for emergency preparedness to hazardous objects operators and to the competent state authorities. However, full compliance is not visible yet, since the progress stage 2 is reached according to the indicator on the existence of the mechanism ensuring transboundary compatible emergency plans, however, Ukraine has only started the discussion for the establishment of such mechanism, so, it is also not in place.

In the working area V 'Response and mutual assistance', the progress in the indicator of the existence of the mechanism to ensure the use of the UNECE IAN system has a very low progress so far - stage 2 (out of 6) – as Ukraine has only started the initial discussion to establish such mechanism.

In the working area VI 'Information to the public and public participation' Ukraine has reached a progress stage 5 (out of 6) according to both indicators of the existence of the mechanism to inform the public and to ensure opportunities for public participation in relevant procedures. Yet, this Report has indicated the apparent problems associated with the issues of access to the information by the public and availability of such information in general. So, it is not clear how such issues have been taken into account and resulted in such high level of compliance when in practice the situation is totally different.

Therefore, the expected harmonization and a desired level of implementation of the Convention have not been reached yet and there is a need to use the UNECE Assistance Programme for further modifications and technical support.

On 8-10 November 2010 the Conference of the Parties to the Convention on the Transboundary Effects of Industrial Accidents adopted a Note on Benchmarks for the implementation of the Convention on the Transboundary Effects of Industrial Accidents (hereinafter – Benchmarks) (16) – it is a form for participating countries for collecting data within the stepwise/cyclic mechanism and criteria and indicators for self-evaluation of the progress achieved in the implementation of the Convention. Benchmarks were developed within the UNECE Assistance Programme (2004) to help some countries, particularly with economies in transition, to fully implement the Convention. Currently, there are 15 beneficiary countries, including Ukraine.

According to the Part I of the Benchmarks there were identified six working areas for analysis, monitoring and evaluation of the level of implementation of the Convention. Furthermore, this mechanism helps participating countries to define and take actions to address the challenges and to assess if the desired level of implementation of the Convention has been reached.

These working areas are:

Identification of hazardous activities;

Notification of hazardous activities;

Prevention;

Preparedness;

Response and mutual assistance;

Information to the public and public participation.

This document also contains a Form for monitoring, analyzing, planning and evaluating the participation of the country as well as indicators and criteria to be used as benchmarks for self-evaluation of the progress achieved.

Part II (A) of the Benchmarks sets indicators for all the six abovementioned working areas. An optimal level of implementation in each area is reached when countries have in place and are implementing a comprehensive system for identification and notification of hazardous activities, for prevention and preparedness, for response and mutual assistance and a system for ensuring that the public receives adequate information and can easily participate in the decision-making process.

Moreover, Part II (B) of the Benchmarks identifies six progress stages of the implementation of the Convention, starting from the stage 1 – when there is little awareness of the competent authorities about a certain mechanism for the implementation of the Convention – to the stage 6 – when the mechanism in question is operational and it is being implemented in practice by the competent authorities. The results of the self-evaluation of the implementation progress should then be used for future activities, if needed.

To finalize the self-evaluation process parties should fill in the Form for monitoring, analyzing, planning and evaluating the participation of the country with the progress stage identified for a given indicator, with detailed explanation as to why the selected progress stage has been achieved by the country for each indicator [17].

According to the Paragraph II (A) of the Benchmarks the indicators and criteria for self-evaluation of progress achieved in the implementation of the Convention has been provided. Using given indicators (six) and criteria (six) it is possible to assess which stage of implementation a country have reached.

Annex II of the Benchmarks consists of the tables for each working area, which include six progress stages and indicators. Using the analysis of the legislation of Ukraine, provided in the previous chapters of this document, the progress stage of the implementation of the Convention for every working area will be assessed.

In the working area I 'Identification of hazardous activities' Ukraine has reached full harmonization – i.e. a progress stage 6 according to all three indicators: 1) existence of the mechanism for the collection of data; 2) existence of the mechanism for the analysis and validation of data and 3) existence of the mechanism for the review/revision of collected data. Therefore, Ukraine has a system for such identification based on the definition of clear responsibilities and a methodology for the process of identifying hazardous activities. So, full compliance can be reported following

that methodological approach.

In the working area II 'Notification of hazardous activities' Ukraine has reached a progress stage 5 according to both indicators: reporting existence of the mechanism for the transboundary consultation on hazardous activities and of the mechanism for the notification of hazardous activities. In Ukraine, a mechanism for transboundary consultation and notification of hazardous activities has been adopted, but it is not yet operational. Competent national experts are not trained continuously to implement the mechanism for transboundary consultation on hazardous activities and the timing for the notification of existing or planned hazardous activities is not yet operational. So, it is not possible to conclude that harmonization or compliance has been reached, as no practical implementation is in place.

In the working area III 'Prevention' Ukraine has only reached a progress stage 4 according to the indicator of existing mechanism giving the responsibility for industrial safety of hazardous activities operators, mainly because it is not clearly identified in the legislation of Ukraine that operators of hazardous objects have a primary responsibility for industrial safety. Therefore, it is recommended to specify in the State Construction Norms of Ukraine that TMF operators have a primary responsibility for ensuring the safety of tailings. And a progress stage 5 according to the indicator of existing mechanism introducing control regime of the competent authorities is reached, because currently the training mechanism is not operational in practice.

In the working area IV 'Preparedness' Ukraine has reached a progress stage 6 based on two indicators: existence of the mechanism giving the responsibility for emergency preparedness to hazardous objects operators and to competent state authorities. According to Article 15 of the Law 'On highly hazardous objects' the operators of the hazardous objects are responsible for informing central and local executive bodies of Ukraine and mass media about the situation on these objects. In its turn, the central executive bodies responsible for civil protection in Ukraine inform population and neighboring countries in case of industrial accidents. And according to the point 4 of the Article 17 of the Code of Civil Protection of Ukraine (BBP, 2013, No.34-35) in a case of industrial accidents which can cause transboundary effect the State Emergency Service is responsible for notification of neighboring countries. The progress stage 2 is reached in the indicator on the existence of the mechanism ensuring transboundary compatible emergency plans, as Ukraine has only started the discussion for the establishment of such mechanism.

In the working area V 'Response and mutual assistance' Ukraine has reached a progress stage 5 (out of 6) according to two indicators: existence of the mechanism giving the responsibility to the competent authority to promptly recognize industrial accidents and in the indicator of the existence of the mechanism to ensure the use of notification system at a local level, because competent national experts are not trained regularly to implement the mechanism and notification exercises are not performed at regular intervals. The progress in the indicator of the existence of the mechanism to ensure the use of the UNECE IAN system has a progress stage 2 – as Ukraine has only started the initial discussion to establish such mechanism, resources are not secured and compe-

tent national experts are not continuously trained to use the IAN system. And the progress in the indicator of the existence of the mechanism giving responsibility to the competent authority to request and to provide mutual assistance is on 4th stage of implementation progress, because the training program is not yet discussed and not operational in practice.

In the working area VI 'Information to the public and public participation' Ukraine has reached a progress stage 5 (out of 6) according to both indicators of the existence of the mechanism to inform the public and to ensure opportunities for public participation in relevant procedures. Mechanism to inform the public is defined in general but still lacks practical aspects of its implementation. For example, the question of the need for training to implement the mechanism has not been discussed and designed.

In general, the score of Ukraine is pretty high; it has reached a 5th progress stage out of 6 possible according to the indicators for self-evaluation of progress achieved in the implementation of the Convention. The main reason of not reaching the highest level of progress is a lack of training programs for competent specialists in the sphere of management of hazardous objects.

Moreover, the UNECE Assistance Programme for the countries implementing the Convention operates and is divided into two phases: a preparatory phase and an implementation phase. The preparatory phase consists of the expression of high-level commitment, the implementation of basic tasks and the presentation of the results to a fact finding mission, as well as awareness-raising missions and their follow-up.

When a country successfully completes the preparatory phase it is invited into the implementation phase. During this phase, assistance is provided to help the countries implementing more complex tasks. This assistance is comprised of activities that address the priority needs and are identified following the Strategic Approach. In 2009 Ukraine has successfully completed the first phase and was invited into the implementation one [18].

In 2011–2012 the work in the implementation phase of the Assistance Programme focused on needs-driven capacity-building activities requested by countries, and Ukraine participated in the area of 'Prevention, preparedness and response' in a project in the Danube Delta for the Republic of Moldova, Ukraine and with the participation of Romania. A project on hazard and crisis management in the Danube Delta has started in December 2010 (and was prolonged till November 2014) following the expression of interest by the Republic of Moldova for work to strengthen its cooperation with Ukraine and Romania towards effective prevention of and response to emergencies involving hazardous activities in the Danube Delta [19].

The expected project outcome is to improve the cooperation between the authorities, to introduce the procedures for hazard notification, crisis notification, and joint response and to develop practical recommendations for authorities.

5. Analysis of the UNECE TEIA Convention – pros and cons of its ratification for Ukraine

The threat of negative effects for environment and human health from the transboundary industrial accidents is vital today for Ukraine. There are a lot of hazardous industrial objects which are situated on the territories of the neighbouring countries to Ukraine and in Ukraine itself. The lessons learned from industrial accidents happened in the past and threat of them happening in the future in Ukraine and in its neighbouring countries require the adequate state policy of cooperation and mutual assistance.

In international cooperation on environmental protection, Ukraine declared itself as an active participant. Indeed, Ukraine is a member of the UN and the Party to all of the environmental organizations that operate under the auspices of the latter. Ukraine is a also a sovereign party to more than twenty international agreements on the environmental protection, participates in international conventions and fulfills international obligations to protect the environment. Ukrainian government since the early days of independence cooperates on international level for the implementation of environmental programs and projects. International cooperation in the field of environmental protection is one of the important issues in the foreign policy of Ukraine. Ukraine has signed 44 bilateral agreements and contracts primarily with its neighbors: Belarus, Georgia, Moldova, Russia, Slovakia and Poland. Memorandum of Understanding on Cooperation in the Field of Environmental Protection was signed with Austria, Finland and a number of other countries.

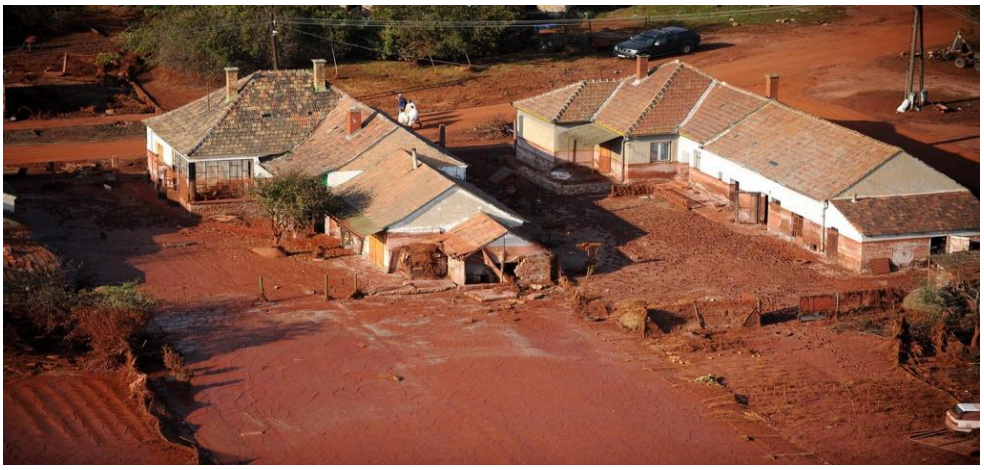
Further in order to strengthen and coordinate such international cooperation Ukraine should ratify the UNECE TEIA Convention.

Today Ukraine is on the list of the countries with a well-developed mining industry, so it is a crucial issue to protect the environment from the negative impact of large tailings of industrial waste. Most relevant is problem for Dnipropetrovsk and Donetsk regions, where the largest tailings of industrial waste in Ukraine and Europe are situated.

The long term exploitation of tailings resulted in a situation where a huge amount of liquid and solid industrial wastes is accumulated near the mining enterprises. The majority of tailings in Ukraine are constructed without fulfilling necessary sanitary requirements and is being exploited with huge overloads. Moreover, the emergency situations are likely to happen when in a case of salvo emissions of wastewater into water bodies.

The analysis conducted by the International Commission for the Protection of the Danube River, the greatest potential risk for the Danube basin are large tailings in mining enterprises. In October 2010 the environmental accident in the Hungarian town of Kolontar took place. The reason was the collapse of the reservoir of toxic waste at the large aluminum production facility. As a result of this accident, nine people were killed and large areas of the landscape for years were contaminated with the so-called red mud, and the whole Danube basin was contaminated with toxic substances. This disaster was the biggest environmental catastrophe in the Danube River Basin so far.

Figure A 1.1: Kolontar, Hungary 2010



Picture retrieved from: www.washingtonpost.com

Heavy environmental damage was caused to the environment of the Danube River Basin, for example, as a result of the outbreak of liquid waste storage dam on the territory of gold mining companies in the Romanian city of Baia Mare and Baia Borsa about 10 years ago.

Figure A 1.2: Nikolaiev, Ukraine, 2011

Picture retrieved from: www.niknwes.in.ua

In January 2011, in the Ukrainian city Nikolaiev the same technological disaster took place. On the Nikolaiev Alumina plant tailings got dried and the wastes were released in the form of dry red dust. The zone of contamination in ten square kilometers hit the soil, atmosphere, groundwater and surface water locations.

Severe disaster on the Nikolaeiv Alumina plant happened in winter of 2012, when due to the strong winds thousands of tons of red dust rose into the air and fell on the territory of several tens of square kilometers, covering several villages, land, pastures, rivers and Bug river estuary with red dust. In spring, when ice melted and spring rains flushed – the red dust from the surface all

this multi-ton mass of red mud got into the water of Bug river. The accident was caused by mistakes in the technical regulations or non-compliance with these regulations to maintain the water table at the surface of the tailings, but also the absence of other effective dust control measures on these tailings.

These extensive disasters show that the biggest threat for the Danube basin comes from tailings located in Ukraine, Romania and Hungary. Unfortunately, in Ukraine the problem is not limited only to the Danube basin (Carpathian region) - in the Dnipro Basin (Dnepropetrovsk region) there are also huge tailings, which constitute a serious threat to the entire Black Sea basin.

At the end of the 1990s an accident has occurred at the TMF of sludge and mine waters in the Svidovok ravine owned by State Enterprise "Pavlogradugol" in the Pavlograd district of the Dnipropetrovsk region. A locking shield (dam beam) in the tailings outfall was broken, which resulted in the release of more than 4 million m^3 of sludge and mine waters into the Samara River. The sludge consisted of pulp of coal ash, fine fractions of coal, and oil products. The accident has led to the massive death of fish and other aquatic organisms in the Samara River. The release of the total quantity of tailings materials of about 10 million m3 has been stopped only after dozens of sandbags were dumped in the ravine mouth. The cause of the accident was improper technical design of the TMF and the absence of a catchment pond where these wastes could be diverted preventing them from entering the Samara River.

Figure A 1.3: Abandoned tailings in Dnipropetrovsk, Ukraine

Picture retrieved from: www.wikimapia.org

In the early 2000s, a catastrophic mine water leakage to the karst aquifer has occurred at the TMF in the Svistunova ravine near the city of Krivyy Rih where tailings materials from several iron ore mining and processing plants are dumped. The causes of the accident were wrong selection of the TMF location on the tectonic fault between Krivoy Rog and Kremenchug with frequent tectonic shifts as well as the errors in the design without taking special technical measures for TMF design

and construction in the area of tectonic faults.

As a result of this catastrophe more than 6 million m^3 of mineralized waters were released into the aquifers. The tailings materials contain high amounts of iron and other heavy metals and salinity of the water fraction in the tailings materials was about 50 g/l, so this accident has resulted in the groundwater contamination over a large area.

On December 15, 2005 several hundred kilograms of calcium hypochlorite were released into the Sivka River from the TMF of fertilizer production waste operated by "Fertilizer Plant" located in Kalush city, in the Ivano-Frankivsk region. This caused a massive fish death in the Sivka River. The Ministry of Environment and Ministry of Emergency Situations of the Republic of Moldova were concerned about the accident, because the Sivka River is a tributary of the Dniester River. Environmentalists estimated that the dumping has caused an extensive damage to the biogeocenose of the Sivka River. The cause of the accident was the failure to comply with technical regulations of TMF operation.

Figure A 1.4 Kalush, Ukraine, 2005

Picture retrieved from: http://news.if.ua/tag/екологія

The lessons learned from these incidents highlight the need for a clear regulatory framework to ensure the ongoing safe and environmentally responsible management of tailings, as this is one of the main environmental issues to be addressed by the mining and extractive industries.

In 2008 UNECE has developed “Safety Guidelines and Best Practices for Tailings Management Facilities”, and to all the member countries of the UNECE it was recommended to apply this document.

Within the international community it has long been known about the need to improve the safety of industrial tailings. Moreover, within the framework of the UNECE "Convention Transboundary Effects of Industrial Accidents" the need for supportive measures to implement "Safety Guidelines and Good Practices for Tailings management Facilities" is obvious.

Industry expansion leads consequently to the increase of accidents worldwide and in Ukraine as well. The statistics of the big industrial accidents show that the majority of them are connected with dangerous substances used during production process. Dangerous substances can spread over wide distances, causing pollution of vast territories and irreversible ecological consequences. That is why the reduction of economic losses, prevention of human victims and negative ecological impact is impossible without the existence of adequate legislation and creation of safe and responsible enterprises. The necessary legislation was adopted in the European Union in order to harmonize the national legislation and to prevent industrial accidents. The international mechanism to address this issue is the UNECE Convention on the transboundary effects of industrial accidents (1992).

This UNECE TEIA Convention applies to the prevention of, preparedness for and response to industrial accidents capable of causing transboundary effects, including the effects of such accidents caused by natural disasters, and to international cooperation concerning mutual assistance, research and development, exchange of information and exchange of technology in the area of prevention of, preparedness for and response to industrial accidents [7].

The UNECE TEIA Convention was signed by Ukraine on 21 May 2003, but in order to cooperate with other countries-parts of the Convention Ukraine needs to ratify it. In this regard there is a need to make the impact assessment analysis of the ratification of the Convention by Ukraine in order to identify the priorities for implementation and enforcement.

Economic assessment of the ratification of the UNECE TEIA Convention, as well as the policy assessment, was done in order to overview the entire situation and to point positive and challenging aspects of such ratification.

The conducted economical assessment of the impact of the ratification of the UNECE TEIA Convention showed several positive consequences [8]:

creation of the Industrial Accident Notification System;

identification of the hazardous activities in order to take the appropriate measures for the prevention of industrial accidents, including measures to induce action by operators to reduce the risk of industrial accidents;

conduction of the negotiations with the relevant parties in a case when hazardous activities may have transboundary effects;

appropriate measures will be taken to establish and maintain adequate emergency preparedness to respond to industrial accidents;

adequate information supply will be ensured to the public in the areas capable of being affected

by an industrial accident arising out of a hazardous activity and giving an opportunity to the public to participate in relevant procedures;

the work of appropriate industrial accident notification system will be ensured;

appropriate rules, criteria and procedures in the sphere of responsibility will be created;

exchange of information and experience, exchange of technologies for the prevention of, preparedness for and response to the effects of industrial accidents will be ensured.

Moreover, the UNECE TEIA Convention provides for the possibility of combining the joint efforts of the Parties in preventing and overcoming the consequences of transboundary industrial accidents. The Parties will facilitate the exchange of technologies, including on a financial basis, and promote research and development in the field of prevention of, preparedness for, and response to, to strengthen direct contacts and cooperation in the industry, promote the exchange of information and relevant experience in this area, in particular, in spheres of design and engineering services, equipment or financing. It is also important to note the provisions of Article 17 of the UNECE TEIA Convention, the implementation of which will contribute to the implementation of effective cooperation between the competent authorities of the Parties.

However, there are studies, which indicate that the ratification of the UNECE TEIA Convention would lead to negative economic effects for Ukraine.

Among the possible refusals or delay to ratify the UNECE TEIA Convention scientists consider the existing Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters, which was adopted and signed by 22 countries at the Ministerial Conference "Environment for Europe" in Kyiv, Ukraine, on 21 May 2003 (2 more countries signed the Protocol later in 2003) (9). The Protocol is open for ratification by States Parties to one or both of two conventions: the Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the Convention on the Transboundary Effects of Industrial Accidents. Ukraine it its turn has ratified the Convention on the Protection and Use of Transboundary Watercourses and International Lakes [10] which gives it legal grounds to accede to the Protocol.

Moreover, bilateral Treaty on Cooperation in the Field of Protection and Sustainable Development of the Dniester River Basin was signed between the Republic of Moldova and Ukraine on the 29 November 2012 in the framework of the Meeting of the Parties to UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention).

From a scientific and practical point of view it is important to clarify the situation and to identify the causes of failure of the ratification of the Protocol in Ukraine.

According to Article 1 of the Protocol: “The objective of the present Protocol is to provide for a comprehensive regime for civil liability and for adequate and prompt compensation for damage caused by the transboundary effects of industrial accidents on transboundary waters” [11]. Thus, the objective of the Protocol is related to Principles 13 and 16 of the Rio Declaration on Environ-

ment and Development [12], to the UNECE Code of Conduct on Accidental Pollution of Transboundary Inland Waters [13], and to the “polluter pays principle", which is a general principle of international environmental law.

The Protocol will give individuals affected by the transboundary impact of industrial accidents on international watercourses (e.g. fishermen or operators of downstream waterworks) legal bases for adequate and prompt compensation. Companies will be liable for accidents at industrial installations, including tailing dams, but only to damage suffered in a Party other than the Party where the industrial accident has occurred. Physical damage, damage to property, loss of income, the cost of reinstatement and response measures is being covered by the Protocol.

The Protocol also sets financial limits of liability depending on the risk of the activity, i.e. the quantities of the hazardous substances that are or may be present and their toxicity or the risk they pose to the environment. To cover this liability, companies will have to establish financial securities, such as insurance or other guarantees.

Today the Protocol is a sound international legal document that can provide the solutions for its intended objectives. The developers of the Protocol expressed in its Preamble the willingness at a later stage to expand the scope of its application. It means that at the current stage the Protocol does not cover all the objects that it initially was intended to cover (GMO, viruses and bacteria are among these key objects) [14].

Obviously, for most post-Soviet countries, a number of factors and, above all, high standards of financial guarantees provided by the Protocol constitute reasons for cautious attitude towards its ratification. However, it should be remembered that the Protocol primarily was intended to assist and promote the restoration of violated rights and compensation for damage and, therefore, should be seen as a unique mechanism for efficient utility rather than as a mean of punishment. “Because Ukraine as a state owes the Protocol's name (Kyiv), it should take a more active role in promoting its entry into force, at least by the own example of ratification” [15].

To conclude, it is worth mentioning that there are different arguments for and against the ratification of the UNECE TEIA Convention by Ukraine. But those negative arguments towards the ratification have mainly an economical character, which is understandable as Ukraine is still the economy in transition with financial constraints. The cost of compliance with the standards and associated conformity-assessment procedures of the UNECE TEIA Convention are exorbitant and unrealistic for Ukraine. However, the positive effects of the ratification of the UNECE TEIA Convention look more reassuring that it is worth to implement it in the national legislation of Ukraine. In this regard the UNECE Assistance Programme supports the implementation of the UNECE TEIA Convention to improve the industrial safety in recipient countries, but with principle that assistance can be effective only if a recipient country is capable of receiving this assistance and is willing to take advantage of it. Hopefully, Ukraine will be willing to take the full advantage of this Assistance Programme.

6. Conclusions and recommendations

After the detailed analysis of the Ukrainian legislation on compliance with the main principles and recommendations of the UNECE TMF Guidelines it can be concluded that the overall level of harmonization could be ranked as "medium". Indeed, a lot of progress was made by Ukraine in the past few years, however, full compliance cannot be reported at present. It should be pointed out that the current legislative framework on waste management lacks stimulating measures and the competences of the public authorities often overlap. There are a number of provisions of the legislation of Ukraine on tailings management facilities, which are identical to and fully respect the principles and recommendations of the UNECE TMF Guidelines. At the same time, there are certain legal provisions, which require further clarification, specification and amendments in light of the provided recommendations. One of the priorities is creation in Ukraine of a separate national register of closed, abandoned or orphaned tailings management facilities, and implementation of Article 5.1.9 of the State Construction Norms (B.2.4-5:2012) that only properly certified personnel should be engaged in the planning, design, construction, operation/management. Also closure of TMFs and the relevant competences should be described in the operation and management plan, etc.

The following conclusions can be provided:

1. There is a large number of the legal acts in Ukraine on tailings management facilities, sometimes with the similar or overlapping scope, which certainly does not align with the principle of 'legal certainty'. It is undisputable that further work on streamlining, transparency and simplification of the legal framework would be required for the effective functioning of the national legal system.
2. The legislation of Ukraine has a fragmented character with a majority of declarative provisions – every law refers to a number of other legal acts, which would not provide a direct answer to a particular query and that leads to confusion among who should apply and enforce the provisions. As a result, it is not surprising that most of the legal norms remain non-operational and their effect is minimal.
3. There is a recognized need to harmonize the legislation of Ukraine on tailings management facilities into one single act, according to the UNECE TMF Guidelines and best international and European practices.
4. Coordination among the competent authorities in charge of the TMF is a challenging task and therefore, creation of the main governmental institution (competent authority) that will be in charge of all issues of safety of the tailings management facilities interlinking with all the engaged governmental bodies could be recommended. This institution should be also responsible for coordination of work of all the main state bodies that have competency regulating the questions of construction, design and reconstruction of the TMF.
5. Ratification of the Convention on Transboundary Effects of Industrial Accidents by Ukraine will contribute to the effective cooperation between the competent authorities of the Parties to

the UNECE TEIA Convention in order to protect people and the environment from the effects of industrial accidents in the interest of present and future generations.

6. According to the indicators for self-evaluation of progress achieved in the implementation of the Convention on the Transboundary Effects of Industrial Accidents, Ukraine does not have fully operational legislative mechanism yet and still needs to take actions to address challenges.

List of detailed recommendations based on the assessment conducted:

1. To ratify the UNECE Convention on transboundary effects of industrial accidents. By acceding to the Convention, Ukraine will protect human health and the environment against industrial accidents capable of causing transboundary effects, and prevent such accidents and will promote active international cooperation between the contracting parties before, during and after such accidents.
2. To harmonize the fragmented legislation of Ukraine on tailings management facilities by drafting the separate legislative or by making the necessary amendments to the existing legal acts which would include all the necessary principles and recommendations of the UNECE TMF Guidelines. In particular, further harmonization will be achieved by:

   2.1 Providing in Articles 5.1.5, 5.1.6 of the State Construction Norms (B.2.4-5:2012) that TMF operators have a primary responsibility for ensuring the safety of TMFs;

   2.2 Specifying in Article 5.1.9 of the State Construction Norms (B.2.4-5:2012) that only properly certified personnel should be engaged in the planning, design, construction, operation/management and closure of TMFs and the relevant competences should be described in the operation and management plan;

   2.3 Adding to the State Construction Norms (B.2.4-5:2012) special provisions on the adequate qualification and certification of the personnel and responsible individuals of the TMF;

   2.4 Supplementing the State Construction Norms (B.2.4-5:2012) by special provisions on the international cooperation in case of industrial accidents for its prevention and eliminating of the effects;

   2.5 Incorporating to the Ukrainian legislation the provisions on implementation of the Aarhus Convention, in line with the results of the round table held on April 23, 2013 in the Ministry of Ecology and Natural Resources of Ukraine;

   2.6 Establishing coordinated mechanism between the competent state authorities;

   2.7 Creating and maintaining a separate national register of closed, abandoned or orphaned TMFs and require the implementation of a risk assessment to assess possible risks for future accidents and spills;

   2.8 Amending the State Construction Norms and taking into account provisions on monitoring of TMFs by its operator;

2.9 Adding provisions on the development of external emergency plans by relevant state authorities to apply to the tailings management facilities with significant risk in case of accidents to Article 11 of the Law of Ukraine 'On highly hazardous objects';

2.10 Requiring assessment of closed, abandoned or orphaned TMFs by competent state authorities, by the State Construction Norms;

2.11 Supplementing the legislation of Ukraine provisions on the need for competent authorities to make plans for risk reduction measures and/or monitoring for closed, abandoned or orphaned TMFs;

2.12 Adding to the State Construction Norms (B.2.4-5:2012) provisions on the need to perform (fire) safety audits for the TMF facilities;

2.13 Highlighting the importance of trainings for inspectors by the legislation of Ukraine.

3. To identify the responsible governmental body for monitoring and coordination of work of all the public authorities in charge of the safety, construction, design and reconstruction of the TMFs. Such a role of the Authorized body could be played by the Ministry of Ecology and Natural Resources – coordinating the work of all the other governmental institutions dealing with the questions of construction, design, reconstruction and safety of the TMFs. To that effect, special powers and functions of this body should be envisaged in the Regulation on the Ministry of Ecology and Natural Resources, approved by the decree of the President of Ukraine.

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Annexes

Annex I: Table of compliance of the legislation of Ukraine with the UNECE TMF Guidelines

Table A 1.1: Table of compliance of the legislation of Ukraine with the UNECE TMF Guidelines

Principles of the UNECE "Safety Guidelines and Best Practices for Tailings Management Facilities"	National legislation of Ukraine	Level of compliance	Identification of changes needed to Ukrainian legislation	Responsible institution(s)
1. Section III, point 24: Governments should provide leadership and create minimum administrative frameworks to facilitate the development, safe operation and decommissioning of TMFs	Articles 3, 4 of the Law of Ukraine On highly hazardous objects: "State supervision and control over activities related to highly risky objects, is realized by the competent authorities, including central authorities and their regional offices". According to the Article 3 of the Law of Ukraine 'On the basic principles of public control over the economic activities' the state control is executed according to the principles of priority of safe environment for the human beings, of the objectivity of the state control and of the non-interference into the economic activity of the operators by the state authorities.	High	No adaptation is needed	Cabinet of Ministers of Ukraine; State Department on Labour Safety; Ministry of Labour and Social Policy; Ministry of Ecology and Natural Resources of Ukraine; Ministry of Health of Ukraine; State Emergency Service of Ukraine; State Committee on Archi-

				tecture and Construction
2. Section III, point 25: The operators of TMFs have the primary responsibility for ensuring safety of TMFs and for formulating and applying safety management procedures, as well as for utilizing technology and management systems to improve safety and reduce risks.	According to the Article 11 of the law of Ukraine On highly hazardous objects – every undertaking with serious risk should have an emergency plan for the localization in a case of industrial accidents. According to the Article 5.1.1 of the State Construction Norms (B.2.4-5:2012) – tailings management facilities should be built or re-/constructed according to the designed projects. Articles 5.1.5, 5.1.6 and 5.1.9 set the requirements for the safety of the chosen territory for tailings and management plan for the safety of the re-/construction of tailings.	Medium	It is recommended to specify in the Articles 5.1.5, 5.1.6 of the State Construction Norms (B.2.4-5:2012) that TMF operators have a primary responsibility for ensuring the safety of TMFs	TMF operators; Executive bodies of local councils, Kiev or Sevastopol City State Administration
3. Section III, point 26: TMFs should be planned, constructed, operated and closed applying a case-by-case or site-by-site approach, as a result of varying climate and hydrology, topography, geology, tailings properties and other conditions.	According to the Article 5.2.3. of the State Construction Norms (B.2.4-5:2012) – TMFs should be planned according to the sanitary classification of the undertakings set in the 'State sanitary rules for the development and construction of cities' and according to the category of the difficulty of the construction object (State Construction Norms A.2.2-3). Article 5.2.4.3. of the State Construction Norms (B.2.4-5:2012) clarifies that the construction of the enclosing structures should be planned taking into account geotechnical, hydro geological, topographical and seismic conditions as well as characteristics of the soil	High	No adaptation is needed	TMF operators; Executive bodies of local councils, Kiev or Sevastopol City State Administration; Cabinet of Ministers of Ukraine; Ministry of Regional Development, Construction and Municipal Housing of Ukraine

4. Section III, point 27: Only competent – properly certified (in accordance with the national legislative, regulatory and safety management norms) – personnel should be engaged in the planning, design, construction, operation/management and closure of TMFs and the relevant competences should be described in the operation and management plan	Article 5.1.9. of the State Construction Norms (B.2.4-5:2012) sets that the management plan of the TMF should contain the information on the labor protection, sanitary norms for workers and the graphics of the quantity of workers needed.	Low	It is recommended to specify in the Article 5.1.9 of the State Construction Norms (B.2.4-5:2012) that only properly certified personnel should be engaged in the planning, design, construction, operation/management and closure of TMFs and the relevant competences should be described in the operation and management plan	TMF operators; Executive bodies of local councils, Kiev or Sevastopol City State Administration; State Department on Labor Safety; Ministry of Labor and Social Policy
5. Section III, point 28: A systematic approach to managing TMF safety should be acknowledged by all stakeholders, and the high-quality life-cycle "planning – construction – operation – closure – rehabilitation" approach should be ensured in all cases	Articles 5.2., 5.2.2-5.2.3. and 5.2.7.-5.2.7.9. of the State Construction Norms (B.2.4-5:2012) set a systematic approach to managing TMF safety from planning to rehabilitation.	High	No adaptation is needed	TMF operators
6. Section III, point 29: Understanding of processes in the life	Articles 5.2., 5.2.2-5.2.3. and 5.2.7.-5.2.7.9. of the State Construction Norms (B.2.4-5:2012) set a systematic approach to	High	No adaptation is needed	TMF operators; Executive bod-

cycle of a TMF should be developed at the planning and design stage of the TMF, and should be further refined through practice and simulations	managing TMF safety from planning to rehabilitation.			ies of local councils, Kiev or Sevastopol city state administration; Ministry of Regional Development, Construction and Municipal Housing of Ukraine
7. Section III, point 30: The safety of TMFs depends especially on the individuals responsible for TMF planning and design (and approval), construction companies, operators, government and commercial inspectors, rescue services and professionals in closure and rehabilitation. Therefore, such persons should be adequately trained and qualified as well as certified when required.	According to the Articles 5.1.13 and 5.1.14 of the State Construction Norms (B.2.4-5:2012) planning and design of the TMF should be made according to the specified state sanitary and construction norms (1.1-12, 2.4-3, 2.01.14, 02.02, 2 06.05 etc).	Medium	It is recommended to add to the State Construction Norms (B.2.4-5:2012) special provisions on the adequate qualification and certification of the personnel and responsible individuals of the TMF	TMF operators; Executive bodies of local councils, Kiev or Sevastopol city state administration; Ministry of Regional Development, Construction and Municipal Housing of Ukraine; State Department on Labor Safety; Ministry of Labor and Social policy

8. Section III, point 31: TMFs should be operated in accordance with the construction, safety and environmental norms of the country concerned, taking into account internationally established best practice, and on the basis of an operating and management plan (operation manual) evaluated and accepted by the relevant competent authority, as appropriate	Article 12 of the Law of Ukraine On highly hazardous objects sets the procedures for construction or/and reconstruction of the highly hazardous objects. Economic entity, which plans to build and/or reconstruct highly risky object, must obtain a permit for construction of the facility in accordance with the law on urban planning. The executive bodies of local councils, Kiev or Sevastopol City State Administration make the decisions whether to allow or forbid the construction of such hazardous objects. According to the Articles 5.1 – 5.1.14. of the State Construction Norms (B.2.4-5:2012) TMFs are planned and operated according to the construction, safety and environmental laws.	High	No adaptation is needed	Executive bodies of local councils, Kiev or Sevastopol City State Administration
9. Section III, point 32: TMFs should be classified based on a risk assessment taking into account parameters as specified in the annex to these guidelines	According to the Decree of the Cabinet of Ministers of Ukraine On the criteria of classification of the undertakings according to the level of risks of its activities for the environment and human health (2008, No. 212) – there are three levels of risky undertakings, according to the existence of hazardous substances in its activities. Article 5.2.2. of the State Construction Norms (B.2.4-5:2012) classifies TMFs according to the type of construction; way of construction; way of filling; type of foundations and according to the terrain	High	No adaptation is needed	Cabinet of Ministers of Ukraine; Ministry of Regional Development, Construction and Municipal Housing of Ukraine
10. Section III, point 33: Land-use planning, hydrological and geological considerations should be taken into account when evaluating optimum TMF placing and intended post-operational use	According to the Article 5.2.3. of the State Construction Norms (B.2.4-5:2012) – TMFs should be planned according to the sanitary classification of the undertakings set in the 'State sanitary rules for the development and construction of cities' and according to the category of the difficulty of the construction object (State Construction Norms A.2.2-3). Article 5.2.4.3. of the State Construction Norms (B.2.4-5:2012) clarifies that the construction of the enclosing structures should be planned taking into account geotechnical, hydro geological, topographical and seismic conditions as well as characteristics of the soil	High	No adaptation is needed	Ministry of Regional Development, Construction and Municipal Housing of Ukraine; State Agency of Land Resources of Ukraine

11. Section III, point 34: For TMFs which pose a potential risk to neighbouring communities and land-uses due to their size or presence of hazardous materials, information to and involvement of these communities and individuals, in accordance also with internationally recognized procedures, should be ensured for the purpose of drawing up an emergency plan that the community understands	Article 18 of the Law of Ukraine On highly hazardous objects: "Ukraine participates in international cooperation in the field of industrial accidents prevention, restriction and elimination of its effects." Moreover, Ukraine has signed 44 bilateral agreements on cooperation in the field of environmental protection.	Medium	It is recommended to add to the State Construction Norms (B.2.4-5:2012) special provisions on the international cooperation in case of industrial accidents for its prevention and eliminating of the effects	Cabinet of Ministers of Ukraine; TMF operators
12. Section III, point 35: Projects for TMF construction which have the potential to cause adverse environmental impacts across borders should be notified and consulted between Governments of neighbouring countries and the UNECE Espoo Convention and its provision to perform an environmental impact assessment should be applied	Article 18 of the Law of Ukraine On highly hazardous objects: "Ukraine participates in international cooperation in the field of industrial accidents prevention, restriction and elimination of its effects." Ukraine has signed 44 bilateral agreements on cooperation in the field of environmental protection. Moreover, on 20 June 1999 Ukraine has ratified the EPSOO Convention (Convention on Environmental Impact Assessment in a Transboundary Context, 1991)	Medium	However legally Ukraine declared its active participation in international cooperation in the field of industrial accidents prevention, restriction and elimination of its effects – in practice it is not possible to check whether these provisions are observed	Cabinet of Ministers of Ukraine; TMF operators; State Emergency Service of Ukraine
13. Section III, point 36: TMFs should be operated in accordance	The issue of dissemination of environmental information in general is regulated by the Law of Ukraine "On access to public infor-	Low	It is recommended to in-	Ministry of Ecology and

with the provisions of the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention). Where the subject of concern is of transboundary nature, the principles of the Almaty Guidelines on Promoting the Application of the Principles of the Aarhus Convention in International Forums (http://www.unece.org/env/pp/ppif.htm) should apply	mation", but the question of access to the information about permits and reports to assess the environmental impact and risk is not resolved properly. However the Cabinet of Ministers of Ukraine on 27 December 2008 approved the Action Plan for the implementation of the decisions of the Parties to the Aarhus Convention, still Ukraine limits the access to the environmental information by indicating only one state body – Ministry of ecology and natural resources – as a body which is obliged to give access to such information.		clude in the legislation of Ukraine the provisions on implementation of the Aarhus Convention, according to the results of the round table held on April 23, 2013 in the Ministry of ecology and natural resources of Ukraine	Natural Resources of Ukraine; Cabinet of Ministers of Ukraine

Annex II: Table of compliance of the legislation of Ukraine with UNECE TMF Guidelines for – member countries (I)

Table A 1.2: Table of compliance of the legislation of Ukraine with UNECE TMF Guidelines for – member countries (I)

Recommendation of the UNECE "Safety Guidelines and Best Practices for Tailings Management Facilities"	National legislation of Ukraine	Level of compliance	Identification of changes needed to Ukrainian legislation	Responsible institution(s)
1. Section IV, point 40: UNECE member countries should identify competent authorities at the national, subnational and local levels that are given access to the necessary human resources and professional competences for the tasks foreseen in these recommendations	Articles 3, 4 of the Law of Ukraine on highly hazardous objects: "State supervision and control over activities related to highly risky objects, is realized by the competent authorities, including central authorities and their regional offices". The Law of Ukraine on the basic principles of public control over the economic activities (2007) defines the legal and institutional framework, main principles and procedures of the state supervision (control) of economic activities, and also the powers of state supervision (control), the rights, duties and responsibilities of entities in the course of state supervision (control).	High	No adaptation is needed	Cabinet of Ministers of Ukraine; State Department on Labor Safety; Ministry of Labor and Social Policy; State Emergency Service of Ukraine; Ministry of Health of Ukraine; State Committee on Architecture and Construction
2. Section IV, point 41: UNECE member countries should adopt and enforce adequate legislation for ensuring the safe construction, operation, maintenance and closure of TMFs, including legislation for handling abandoned and orphaned sites from past activities. They should also make appropriate	Article 12 of the Law of Ukraine 'On highly hazardous objects' sets the procedures for construction or/and reconstruction of the highly risky objects. Economic entity, which plans to build and/or reconstruct highly risky object, must obtain a permit for construction of the	Medium	It is recommended to foresee in the legislation of Ukraine the establishment of a coordinated	Cabinet of Ministers of Ukraine; Ministry of Regional Development, Construction and Munici-

institutional arrangements, through, inter alia, the establishment of a coordinating mechanism comprising key players concerned	facility in accordance with the law on urban planning. The executive bodies of local councils, Kiev or Sevastopol City State Administration make the decisions whether to allow or forbid the construction of such hazardous objects. According to the Articles 5.1 – 5.1.14 of the State Construction Norms (B.2.4-5:2012) TMFs are planned and operated according to the construction, safety and environmental laws.		mechanism between the key players	pal Housing of Ukraine; Executive bodies of local councils, Kiev and Sevastopol City State Administration
3. Section IV, point 42: UNECE member countries should ensure that if not done so, national inventories of operational as well as closed, abandoned or orphaned TMFs that may constitute a risk to human health or the environment are elaborated and maintained. National inventories of closed, abandoned or orphaned TMFs should consider both current impacts and risks for future negative effects (accidents and spills)	Article 5.2.7 of the State Construction Norms (B.2.4-5:2012) establishes the procedure of closure and recultivation of the TMFs. However in Ukrainian legislation there is no inventory of closed, abandoned or orphaned TMFs - according to the Procedure for maintaining the register of the objects of creation and recycling of hazardous wastes (1998, No 1360) Ukraine has created a register of highly hazardous objects	Medium	It is recommended to create a separate national register of closed, abandoned or orphaned TMFs and require the implementation of a risk assessment to assess possible risks for future accidents and spills	Ministry of Regional Development, Construction and Municipal Housing of Ukraine
4. Section IV, point 43: UNECE member countries should share experience and information on good practice for TMF safety in all the phases of its life cycle on a regular basis	Article 18 of the Law of Ukraine 'On highly hazardous objects': “Ukraine participates in international cooperation in the field of industrial accidents prevention, restriction and elimination of its effects.”	Medium	However legally Ukraine declared its active participation in international cooperation in the field of industrial accidents prevention, restriction and elimination of its ef-	Cabinet of Ministers of Ukraine; Ministry of Ecology and Natural Resources of Ukraine; Ministry of Regional Development, Construction and Municipal Hous-

			fects – in practice it is not possible to check whether these provisions are observed	ing of Ukraine

Table A 1.3: Table of compliance of the legislation of Ukraine with UNECE safety guidelines for – competent authorities (II)

Recommendation of the UNECE "Safety Guidelines and Best Practices for Tailings Management Facilities"	National legislation of Ukraine	Level of compliance	Identification of changes needed to Ukrainian legislation	Responsible institution(s)
1. Section IV, point 44: Competent authorities should ensure that all relevant authorities involved in TMF safety should cooperate with each other, preferably within an integrated system in which one authority plays a coordinating role	According to the Article 3 of the Decree of the Cabinet of Ministers of Ukraine (No.956, 2002) On identification and declaring of the security of high-risk objects the State Department on Labor Safety is responsible for coordination of work of the other central executive bodies of Ukraine in the field of management of high-risk objects.	High	No adaptation is needed	State Department on Labor Safety; Ministry of labor and social policy; Ministry of Ecology and Natural Resources of Ukraine; Ministry of health of Ukraine; State Emergency Service of Ukraine; State Committee on Architecture and

				Construction
2. Section IV, point 45: Competent authorities should notify their counterparts in neighbouring countries about the TMFs which in the event of an accident could cause transboundary effects	Article 18 of the Law of Ukraine on highly hazardous objects: "Ukraine participates in international cooperation in the field of industrial accidents prevention, restriction and elimination of its effects. Ukraine has signed 44 bilateral agreements on cooperation in the field of environmental protection. According to the Decree of the President of Ukraine No.20\2013 – the State Emergency Service of Ukraine has become a central executive body of Ukraine responsible for the sphere of civil protection in emergency situations. And according to the point 4 of the Article 17 of the Code of Civil Protection of Ukraine (BBP, 2013, No.34-35) in a case of industrial accident which can cause transboundary effect the State Emergency Service is responsible for notification of neighboring countries	High	No adaptation is needed	Cabinet of Ministers of Ukraine; State Emergency Service of Ukraine; Ministry of Ecology and Natural Resources of Ukraine; Ministry of Regional Development, Construction and Municipal Housing of Ukraine
3. Section IV, point 46: Competent authorities should introduce authorization and/or a licensing procedure to permit the construction of a TMF	Article 12 of the Law of Ukraine on highly hazardous objects sets the procedures for construction or/and reconstruction of the highly risky objects. Economic entity, which plans to build and/or reconstruct highly risky object, must obtain a permit for construction of the facility in accordance with the law on urban planning. The executive bodies of local councils, Kiev or Sevastopol City State Administration make the decisions whether to allow or forbid the construction of such hazardous objects.	High	No adaptation is needed	State Department on Labor Safety; Ministry of Labor and Social Policy; Ministry of Ecology and Natural Resources of Ukraine; Ministry of Health of Ukraine;

				State Emergency Service of Ukraine; State Committee on Architecture and Construction
4. Section IV, point 47: Competent authorities should evaluate and approve the design, operations and management plans (operation manual) drawn up by operators	Article 12 of the Law of Ukraine on highly hazardous objects sets the procedures for construction or/and reconstruction of the highly risky objects. Economic entity, which plans to build and/or reconstruct highly risky object, must obtain a permit for construction of the facility in accordance with the law on urban planning. The necessary documents needed to obtain the permit include technical and economic justification of the construction of such objects; information on possible accidents and the results of public expertise. According to the Procedure for maintaining the register of the objects of creation and recycling of hazardous wastes (1998, N 1360) Ukraine has created a register of highly hazardous objects. According to the Articles 5.1 – 5.1.14 of the State Construction Norms (B.2.4-5:2012) TMFs are planned and operated according to the construction, safety and environmental laws.	High	No adaptation is needed	The Council of Ministers of the Autonomous Republic of Crimea, regional, Kyiv and Sevastopol city state administrations with local authorities of State Sanitary and Epidemiological Surveillance Service
5. Section IV, point 48: Competent authorities should verify and endorse the TMF monitoring performed by the operator (or his agent) so that it fulfils set quality standards	According to the Article 15 of the Law 'On highly hazardous objects' the operators of the hazardous objects are responsible for informing central and local executive bodies of Ukraine and mass media about the situation on these objects. In its turn the central executive bodies	Medium	It is recommended that State Construction Norms are amended taking into account pro-	State Department on Labor Safety; Ministry of Labor and Social Policy

	responsible for civil protection in Ukraine inform population and neighboring countries in case of industrial accidents. Moreover, according to the Decree of the Ministry of Emergency Situations (No.63, 28.09.2004) 'On approval of the State Supervision of civil protection and technological safety of potentially hazardous objects' there are three types of state supervision - integrated, control and operational.		visions on monitoring of TMFs by its operator	of Ukraine; Ministry of Ecology and Natural Resources of Ukraine; Ministry of Health of Ukraine; State Emergency Service of Ukraine; State Committee on Architecture and Construction; The Council of Ministers of the Autonomous Republic of Crimea, regional, Kyiv and Sevastopol city state administrations with local authorities of State Sanitary and Epidemiological Surveillance Service
6. Section IV, point 49: Competent authorities should ensure that TMF operators develop internal emergency plans for TMFs with significant risks and that they provide necessary information to the public and to relevant authorities, and cooperate	According to the Article 4.5.1 of the Decree of the Ministry of Labor and Social Policy N 112, 17.06.99 – the operator of the hazardous undertaking must adopt the internal emergency plan. This plan should also be agreed with local	High	No adaptation is needed	State Department on Labor Safety; State Emergency Service of Ukraine

with relevant authorities on preparing external plans	bodies of state sanitary and epidemiological service, with local bodies of the Ministry of emergency and, if appropriate, with local governments. According to the Decree of the Ministry of Emergency Situations (No.63, 28.09.2004) 'On approval of the State Supervision of civil protection and technological safety of potentially hazardous objects' there are three types of state supervision - integrated, control and operational. During the integrated supervision inspector checks all the issues relevant to the management of the TMF. And during the control – inspector checks if the previous violations were eliminated.			
7. Section IV, point 50: For TMFs with significant risks to outside communities, relevant authorities shall develop external emergency plans in association with operators, community groups, local authorities and rescue services, and apply these plans off-site in the event of accidents	According to the Article 11 of the Law of Ukraine 'On highly hazardous objects' – every undertaking with serious risk should have an emergency plan for the localization in a case of industrial accidents, with information of relevant neighboring countries in case of industrial accident with transboundary effect. According to the Article 5.1.1 of the State Construction Norms (B.2.4-5:2012) – tailings management facilities should be built or re-/constructed according to the designed projects. Articles 5.1.5, 5.1.6 and 5.1.9 set the requirements for the safety of the chosen territory for tailings and management plan for the safety of the re-/construction of tailings.	Low	It is recommended to precise in the Articles 5.1.5, 5.1.6 of the State Construction Norms (B.2.4-5:2012) that TMF operators have a primary responsibility for ensuring the safety of TMFs. It is also recommended to add the provisions on the development of external emergency plans by relevant	State Department on Labor Safety; State Emergency Service of Ukraine

			state authorities to apply to the TMFs with significant risk in case of accidents to the Article 11 of the Law of Ukraine 'On highly hazardous objects'	
8. Section IV, point 51: Competent authorities should ensure that the internal and external emergency plans are reviewed and tested periodically and, where necessary, revised and updated	According to the Article 11 of the Law of Ukraine 'On highly hazardous objects' – central executive bodies of Ukraine responsible for the state policy in the sphere of civil protection approve the emergency plans on hazardous objects. Such emergency plan is a subject for review every 5 years or earlier in a case of reasonable requirement from the local executive bodies.	High	No adaptation is needed	State Department on Labor Safety; State Emergency Service of Ukraine
9. Section IV, point 52: Competent authorities should apply methodologies for risk identification and assessment of closed, abandoned or orphaned TMFs using a step-by -step approach, starting with a basic screening of sites, whereby resources are gradually directed towards sites with the highest risk	According to the Decree of the Cabinet of Ministers of Ukraine On the criteria of classification of the undertakings according to the level of risks of its activities for the environment and human health (2008, No. 212) – there are three levels of risky undertakings, according to the existence of hazardous substances in its activities. Article 5.2.2 of the State Construction Norms (B.2.4-5:2012) classifies TMFs according to the type of construction; way of construction; way of filling; type of foundations and according to the terrain.	Medium	It is recommended to add the provisions on the assessment of closed, abandoned or orphaned TMFs by competent state authorities to the legislation of Ukraine, particularly to the State Construction Norms	Cabinet of Ministers of Ukraine; Ministry of Regional Development, Construction and Municipal Housing of Ukraine

10. Section IV, point 53: Based on the risks identified, competent authorities should make plans for risk reduction measures and/or monitoring (early warning) for closed, abandoned or orphaned TMFs	There's no legislation	Low	It is recommended to add to the legislation of Ukraine provisions on the need for competent authorities to make plans for risk reduction measures and/or monitoring for closed, abandoned or orphaned TMFs	Cabinet of Ministers of Ukraine; Ministry of Regional Development, Construction and Municipal Housing of Ukraine
11. Section IV, point 54: Competent authorities should ensure (i.e. organize or arrange) training of inspectors on an ongoing basis so that the inspections are performed effectively. In addition, non-mining professionals dealing with environmental impact assessment and land-use planning for mining projects should be trained on tailings issues	There's no legislation	Low	It is recommended to add to the legislation of Ukraine provisions on the training of the inspectors	Ministry of Regional Development, Construction and Municipal Housing of Ukraine; State Department on Labor Safety; Ministry of Labor and Social Policy
12. Section IV, point 55: Competent authorities should encourage and engage in a “train the trainers” programme at existing educational institutions, so that trainers attain the necessary capacity for training company and government staff. Where possible, use can be made of international training programmes offered by various national and Unit-	There is no legislation	Low	It is recommended to add to the legislation of Ukraine provisions on the training programs for inspectors	Cabinet of ministers of Ukraine; Ministry of Education and Science of Ukraine

ed Nations institutions				
13. Section IV, point 56: Competent authorities should ensure meaningful public participation and easy access to information in accordance with the relevant provisions of the Convention on the Transboundary Effects of Industrial Accidents, the Convention on the Protection and Use of Transboundary Watercourses and International Lakes and in particular the Aarhus Convention	The issue of dissemination of environmental information in general is regulated by the Law of Ukraine "On access to public information", but the question of access to the information about permits and reports to assess the environmental impact and risk is not resolved properly. However the Cabinet of Ministers of Ukraine on 27 December 2008 approved the Action Plan for the implementation of the decisions of the Parties to the Aarhus Convention, still Ukraine limits the access to the environmental information by indicating only one state body – Ministry of ecology and natural resources – as a body which is obliged to give access to such information	Low	It is recommended to include in the legislation of Ukraine the provisions on implementation of the Aarhus Convention, according to the results of the round table held on April 23, 2013 in the Ministry of ecology and natural resources of Ukraine	Ministry of Ecology and Natural Resources of Ukraine

Table A 1.4: Table of compliance of the legislation of Ukraine with UNECE safety guidelines for – tailings management facilities operators (III)

Recommendation of the UNECE "Safety Guidelines and Best Practices for Tailings Management Facilities"	National legislation of Ukraine	Level of compliance	Identification of changes needed to Ukrainian legislation	Responsible institution(s)
1. Section IV, point 57: All TMFs should have an operation and management plan (operating manual) that is available to all personnel, local inhabitants, government inspectors and other relevant stakeholders. All documents relating to planning, design and construction should be maintained in	According to the Article 11 of the law of Ukraine 'On highly hazardous objects' – every undertaking with serious risk should have an emergency plan for the localization in a case of industrial accidents. According to the Articles 5.1 – 5.1.14 of the State Construction Norms (B.2.4-	High	No adaptation is needed	TMF operators

an accessible way, with records kept permanently for future reference	5:2012) TMFs are planned and operated according to the construction, safety and environmental laws. Article 5.1.12 particularly sets that management plan should contain the information on planning, design, construction and maintenance of TMFs. According to the Code of Civil protection the evacuation plan should be maintained in an accessible way. Moreover, this question is also regulated by State Norms 3273-95. Safety of industrial enterprises. Terms and conditions			
2. Section IV, point 58: TMF operators should monitor the TMF in accordance with the operation and management plan as approved by the competent authorities	According to the Articles 5.1 – 5.1.14 of the State Construction Norms (B.2.4-5:2012) TMFs are planned and operated according to the construction, safety and environmental laws	High	No adaptation is needed	TMF operators
3. Section IV, point 59: TMF operators should draw up and implement internal emergency plans and apply them on-site whenever a tangible risk for major accidents to occur has been identified or an uncontrolled event occurs that could lead to a major accident or a major accident has occurred. TMF operators should review, test, revise and update the internal emergency plans periodically, and always when there has been a change in the mine operation and management	According to the Article 11 of the law of Ukraine On highly hazardous objects – every undertaking with serious risk should have an emergency plan for the localization in a case of industrial accidents. According to the Code of Civil protection the evacuation plan should be maintained in an accessible way. According to the Article 4.5.1 of the Decree of the Ministry of Labor and Social Policy N 112, 17.06.99 – the operator of the hazardous undertaking must adopt the internal emergency plan. This plan should also be agreed with local bodies of state sanitary and epidemiological service, with local bodies of the Ministry of emergency and, if appropriate, with local governments	High	No adaptation is needed	TMF operators
4. Section IV, point 60: The TMF operator should notify competent authorities in the event of emer-	According to the Article 11 of the law of Ukraine 'On highly hazardous objects' – in a case of a	High	No adaptation is needed	TMF operators

gencies that have occurred on the site	threat of an accident with transboundary effect the localization and emergency plans should include immediate informing of the authorities of the State whose territory may be affected by the consequences of such an accident. According to the Article 15 of the Law 'On highly hazardous objects' the operators of the hazardous objects are responsible for informing central and local executive bodies of Ukraine and mass media about the situation on these objects. In its turn the central executive bodies responsible for civil protection in Ukraine inform population and neighboring countries in case of industrial accidents. And according to the point 4 of the Article 17 of the Code of Civil Protection of Ukraine (BBP, 2013, No.34-35) in a case of industrial accident which can cause transboundary effect the State Emergency Service is responsible for notification of neighboring countries			
5. Section IV, point 61: TMF operators should cooperate with competent authorities and local communities in preparing external emergency plans	According to the para. 3 of the Article 11 of the law of Ukraine 'On highly hazardous objects' – the emergency plan should be agreed with the competent central executive bodies of Ukraine	High	No adaptation is needed	TMF operators
6. Section IV, point 62: TMF operators should train their personnel and reinforce and revise personnel's knowledge on safety, in particular on how to identify potentially harmful events and/or circumstances	Articles 5.10 and 6.10 of the State Construction Norms (B.2.4-5:2012) set the requirements for the labor protection for personnel during the construction of TMFs. According to the Regulations on training on safety (N 27,17.02.99, approved by the Ministry of labor and social policy) - all employees periodically are trained on the questions of labor protection in the form of briefings on safety, study the rules for providing first aid to victims of accidents, as well as	High	No adaptation is needed	TMF operators

	rules of behavior in case of accident. Workers, who perform hazardous work, are trained on safety at least once a year			
7. Section IV, point 63: TMF operators should implement safety audits for their facilities and promote the use of environmental management systems based on international standards	According to the legislation of Ukraine audit of the status of fire safety can be divided into external (conducted by the Fire Department) and internal (conducted by leaders and experts of the enterprise). Control over compliance with legislation on fire safety by the undertakings is made by the State Department of Fire Safety Emergencies of Ukraine. The rights and duties of public officers are set out in the Regulations of the State Fire Safety Department, approved by the Cabinet of Ministers No. 500 of 11 April 2002. Internal audit is conducted by the owner of the facility to verify compliance with fire safety management system with the requirements of legislation on fire safety. Furthermore, in accordance with the Law on Environmental Audit (24.06.2004 No. 1862 -IV) such audit is initiated by concerned executive authorities, local governments, as well as according to the initiative of the owners or managers of enterprises to assess the compliance of the company's activities with the legislation on the environmental protection. Also, Article 12 of the Law of Ukraine On Environmental Expertise (09.02.1995 No. 45/95) states that state, public and other environmental assessments are held in Ukraine	Medium	It is recommended to add to the State Construction Norms (B.2.4-5:2012) provisions on the need to perform safety audits for the TMF facilities.	TMF operators