UNDP I GEF
DANUBE
REGIONAL
PROJECT

November, 2006

FINAL REPORT FOR UNDP/GEF DANUBE REGION PROJECT

DEVELOPMENT OF M2 METHODOLOGY / CHECKLIST

WORKING FOR THE DANUBE AND ITS PEOPLE

AUTHOR

PREPARED BY:

Federal Environment Agency Ltd., Austria

(Umweltbundesamt)

AUTHOR:

Hermine Weber

Federal Environment Agency Ltd., Austria,
Umweltbundesamt GmbH Spittelauer
Lände 5
A 1090 Vienna

PREFACE

The Federal Environment Agency ltd., Austria was instructed to perform services "Development of M2 methodology / checklist" (Project No. RER/03/G31/A/1G/31) as specified in the small contract for services by UNDP/GEF Danube Regional Project of 31 March 2005.

TABLE OF CONTENTS

1 Description of Required Services 13
2 Inception Report/Progress Reports 15
3 M1 methodology 17
3.1 Problem to be solved 17
3.2 Goals 17
3.3 Description of the methodology 17
3.4 Conclusions: 20
4 Task 1: Development of M2 methodology 21
4.1 Factors for M2 methodology 21
4.2 Classification system for M2 methodology 22
5 Task 2: Revised ranking of contaminated sites using M2 methodology 23
5.1 Existing data set 23
5.2 Output of the data set 24
5.2.1 Contaminated deposit sites: 26
5.2.2 Output of the data set regarding the considered countries: 30
5.2.3 Contaminated industrial and/or abandoned industrial sites: 31
5.3 Summary: 33
5.3.1 Deposit sites: 33
5.3.2 Industrial and/or abandoned industrial sites: 34
5.4 Solution/recommendations to the ICPDR: 34
6 Task 3: Revised checklist for site investigation 35
6.1 Checklist for the investigation and risk assessment of contaminated sites in flood risk areas 35
6.2 Recommendations 38
7 Meetings 41
7.1 31st APC-EG meeting in Bratislava (7th and 8th April 2005) 41
7.2 Meeting in Vienna (29th July 2005) 41
7.3 32nd APC-EG meeting in Berlin (23rd, 24th September 2005) 41
7.4 Workshop on M2 methodology and refineries pilot project (17. July 2006 and 1st AP Task Group Meeting in Constanta, Rumania (20.-21. July 2006) 42
8 Recommended Solutions 47
9 Literature 49

LIST OF APPENDIX AND ANNEXES

Appendix 1 Working list of reported contaminated sites (data set)

- Table (a): All reported deposit and industrial/abandoned sites (97 records)
- Table (b): All reported deposit and industrial/abandoned sites (97 records) (coloured)
- Table (c): Reported deposit sites, Slovakia (18 records)
- Table (d): Reported deposit sites, Hungary (32 records)
- Table (e): Reported deposit sites, Romania (25 records)
- Table (f): Reported deposit and industrial sites, Austria (5 deposit sites, 11 industrial sites)
- Table (g): Reported deposit sites, Germany (2 records)
- Table (h): Reported deposit sites, Ukraine (3 records)
- Table (i): Reported deposit sites, Czech Republic (1 record)
- Table (j): Reported deposit sites (Igor Liska, Version 13.06.2005) (98 records)

Appendix 2: Checklist for the Investigation and Risk Assessment of Contaminated Sites in Flood Risk Areas

- Annex 1: Questionnaire of Contaminates Sites in Flood Risk Areas
- Annex 2: Branch Catalogue of Germany
- Annex 3: European Waste Catalogue

LIST OF TABLES

Table 1 and Table 2 Excerpt from the European Waste Catalogue and from the Branch Catalogue of Germany 19
Table 3 Factors for "flooding potential" (FP) 21
Table 4 Factors for "safety measures" (SM) 21
Table 5 Classification system – priority classes 22
Table 6 Results of the M1 methodology for deposit sites 26
Table 7 Overview of reported information regarding "flooding potential" and "safety measures" and output of M2 methodology for deposit sites 28
Table 8 Determined contaminated deposit sites with an M2-value ≥ 50 29
Table 9 Overview of reported information regarding "flooding potential" and "safety measures" and output of M2 methodology for industrial sites 32
Table 10 Determined contaminated industrial sites with an M2-value ≥ 50 33
Table 11 Evaluation table for deposit sites 44

LIST OF PICTURES AND GRAPHS

Figure 1 and Figure 2 Evaluation tables with extended size classes 20
Figure 3 Total reported contaminated sites 25
Figure 4 Reported deposit sites and industrial sites 26
Figure 5 (a, b, c, d) Contribution of the relevant contaminated deposit sites (M1 methodology) 27
Figure 6 (a, b, c, d) Contribution of the relevant contaminated deposit sites (M2 methodology) 31
Figure 7 Contribution of the relevant contaminated deposit sites (M2 methodology) 33
Figure 8 Flowchart of the assessment of contaminated sites in flood risk areas 37

Picture 1 Map from Rompetrol, Navodari, Rumania, 20th July 2006 42
Picture 2 Participants of the workshop at Rompetrol (in front of the main-entrance of Rompetrol), 20th July 2006 43
Picture 3 Contaminated deposit site (oil sludge pond), 20th July 2006 43
Picture 4 Participants of the "workshop on M2 mehtodology" at Rompetrol, 20th July 2006 ... 45

ABBREVIATIONS

DRB	Danube River Basin
DRP	Danube Regional Project
EG	Expert Group
EU	European Union
ICPDR	International Commission for the Protection of the Danube River
UNDP	United Nations Development Programme
CS	Contaminated Sites
WGI	Working Group Inventory
APC EG	Accident Prevent and Control Expert Group

EXECUTIVE SUMMARY

PURPOSE OF THE PROJECT

The aim of this project was to develop methodologies for assessment and ranking of the risks from contaminated sites in potential flood risk areas within the Danube River Basin and to develop Checklists for site inspections of high risk contaminated sites.

The "M2 methodology" will be an enhancement of an approach already developed within the region known as "M1 methodology".

In a further step the ranking of contaminated sites in the Danube River Basin by using the existing data sets prepared under the M1 assessment of contaminated sites (about 100 contaminated sites in flood risk areas are listed within the Danube River Basin) needs to be revised, in accordance with the safety measures and the risk of flooding at the site.

BACKGROUND INFORMATION

The Danube Regional Project (DRP) has been established to contribute to the sustainable human development in the Danube River Basin (DRB) through reinforcing the capacities in the basin to develop effective co-operation in order to ensure the protection of the Danube River. The objective of the DRP is to complete the activities of the International Commission for the Protection of the Danube River (ICPDR), to provide a regional approach to the development of national policies, legislation and the definition of actions for nutrient reduction and pollution control in the DRB.

The tasks of the ICPDR are mandated by the "Convention on Cooperation for the Protection and Sustainable Use of the Danube River" (Danube River Protection Convention, DRPC). From this Convention also derive the responsibilities of the ICPDR directed towards ensuring its implementation and to enhancing the cooperation of the Contracting Parties fulfilling their respective obligations.

The ICPDR and its Expert Group on Accident Prevention and Control (APC EG) have established a methodology (referred to as M1 methodology) for the pre-assessment of contaminated sites in flood risk areas. The DRP working with the APC EG, has supported the development of a checklist assessment of at-risk contaminated sites. A more detailed assessment and ranking of the potential risks of contaminated sites in flood risk areas was required, necessitating the development of a more precise ranking system and revised checklist for the assessment of the higher risk contaminated sites.

The APC EG and its Working Group on Inventories (WGI) have developed and applied an initial screening of contaminated sites using the M1 methodology. This has been a desk-based assessment based of:

- Identification of contaminated sites above a specified size (including landfills, industrial, military sites etc.) in potential flood areas;
- A pre-assessment using evaluation tables agreed by the APC EG;
- Development of factors based on the size of the contaminated site and waste type;
- A risk value, which dictated if further investigation was required.

The M2 methodology will use the M1 evaluations as an initial starting point for the revised assessment. This assessment and ranking will be refined by the inclusion of a "flooding potential factor" (FP) and an evaluation of "safety measures" (SM) available at the site (see chapter 4, Task 1: Development of M2 methodology).

It was expected that the operational use of the M2 methodology assessment will involve a site inspection. To facilitate the site inspection, a checklist was further elaborated in this assignment (see chapter 7.4 and Appendix 2).

This assignment is an activity (referred to as Accident Emergency Response – DRP Output 2.3) within the DRP overall programme under its objective 2 – Capacity Building and Transboundary Co-operation.

Outputs of the Phase 1 of the DRP are available from the DRP´s web site – www.undp-drp.org and the activities of the APC EG (and the WGE) are available from the ICPDR´s web site – www.icpdr.org.

SUMMARY

Development of M2 methodology

One aim of this project was to develop the M2 methodology for assessment and ranking of the risks from contaminated sites in flood risk areas within the Danube River Basin.

The M2 methodology will use the M1 evaluation as an initial starting point and a further enhancement by the factor FP (flooding potential) (see Table 3) and the factor SM (set safety measures at the site) (see Table 4). The M2-value can be calculated by the formula

$$M2 = M1 * FP * SM$$

The M2-value can be classified into 4 priority classes (see Table 5). For each priority class 1, 2, 3 and 4 the necessity for the need for further measures to be established at the contaminated site to improve the safety of contaminated site in flood risk areas and to reduce the risk of contamination related on waters is proposed. This was discussed and agreed by the members of the APC-EG in July 2006 in Constanta (Rumania).

Revised data-sets (working list)

A further task of this contract was to revise the existing data set (working list) prepared under the M1 assessment of contaminated sites and to refine the ranking of these sites in accordance with the safety measures (SM) and the risk of flooding (FP) (M2 methodology).

13 countries of the Danube River Basin (Slovakia, Hungary, Romania, Austria, Germany, Ukraine, Czech Republic, Slovenia, Bosnia&Herzegovina, Croatia, Moldova, Bulgaria and Serbia) were ask to report their contaminated sites (deposit sites and industrial and/or abandoned industrial sites) to the APC-EG. 7 countries (Slovakia, Hungary, Romania, Austria, Germany, Ukraine and Czech Republic) reported in total 97 contaminated sites (86 deposit sites, 11 industrial sites and/or abandoned industrial sites).

Deposit sites:

The paper "Methodology for the Pre-Assessment of Suspected Contaminated Sites in the Danube River Basin (M1 methodology), September 2004" propose a minimum-size for deposit sites to be investigated from about 100.000 m³. The consultant however recommends for deposit sites a minimum-volume of about 10.000 m³. This was agreed with the UNDP and ICPDR in October 2006

76 deposit sites (out of reported 86 deposit sites) have a volume higher or equal 10.000 m³ (10 sites are smaller 10.000 m³) (see Table 6).

After applying the M1 methodology (by using the evaluation tables) 43 deposit sites show an M1-value higher or equal 47 → that mean, that further investigations (by taking into account the flooding potential (FP) and the safety measures (SM)) are necessary. For one site no information about the type of waste was reported, therefore no evaluation of the M1-value could be made. The remaining 42 of the investigated deposit sites (out of 86 deposit sites) show an M1-value smaller than 47 → this sites can be sorted out and are no longer relevant (unless the suspicion is not totally excluded) for the M2 methodology.

43 contaminated sites show an M1-value ≥ 47, but for only 23 sites sufficient information about the "flooding potential" and "safety measures" is given. After the run of the M2 methodology 12 contaminated deposit sites (out of 23) show an M2-value higher or equal 47. For those contaminated sites further "short-, middle- and long-term-measures" are necessary.

For approximately 50 % (12 contaminated deposit site out of 23 contaminated deposit sites with all relevant information) of the reported contaminated deposit sites "short-, middle- and long-term-measures" are recommended.

Industrial and/or abandoned industrial sites:

Regarding contaminated industrial and/or abandoned industrial sites the information is poor. Only Austria reported sufficient information (11 contaminated industrial and/or abandoned industrial sites) about the present situation of contaminated industrial sites in their countries. Germany reported no relevant industrial and/or abandoned industrial site within the Danube River Basin.

All reported 11 contaminated industrial sites from Austria deliver an M1-value higher 50. After applying the M2 methodology (by taking into account the "flooding potential" and "safety measures") 3 contaminated industrial sites show an M2-value higher 50. For those 3 sites "short-, middle- and long-term-measures" are necessary.

For approximately 27 % (3 contaminated industrial site out of 11 contaminated industrial sites) of the reported contaminated industrial sites "short-, middle- and long-term-measures" are necessary.

Solution/recommendations to the ICPDR:

Because of the lack of reported contaminated sites within the Danube River Basin, the Umweltbundesamt Vienna will recommend to the ICPDR for future activities following steps (request from the APC-EG, 32nd APC-EG-meeting):

- statistical extrapolation of the estimated number of contaminated sites in flood risk areas (basis data from Austria) to get an idea how many contaminated sites (deposit sites and industrial sites) can be expected within the Danube River Basin
- support for the Danube-countries in collecting contaminated sites (deposit sites and industrial and/or abandoned industrial sites)
- providing of financial funds for the Danube Countries to built up a national collecting system of contaminated sites for selected countries
- support with technical experts if necessary
- continue of collecting contaminated sites in flood risk areas within the Danube River Basin
- set prevention measures and remediation activities (for contaminated sites with an M2-value ≥ 50).

Checklist:

The third main-task was to rework the 4th draft of the "Checklist for the Investigation and Risk Assessment of Contaminated Sites in Flood Risk Areas" (delivered by the International Commission of the protection of the Danube River, APC-EG).

The reworked checklist will serve as a hand guide for a desk-study and for a first visit of sites, suspected to be contaminated by substances hazardous to water.

The incorporated M1 and M2 methodology will allow the competent authorities to classify the contaminated sites in flood risk areas into the 4 priority classes. The checklist includes also general information for proposed safety measures (short, middle and long term measures) and recommendations which will allow the authorities to reduce the risk at a contaminated site in flood risk areas and to increase public safety and to protect the environment in the Danube River Basin.

The purpose of a fist desk-study and site visit is to find out:

- where highly contaminated zones are suspected and located within flood risk areas
- whether immediate action is needed

The checklist covers contaminated sites as follows:

- deposit sites (minimum volume: 10.000 m^3) (e.g. old, unsorted landfills, waste deposals),
- industrial sites and/or abandoned industrial sites (minimum area: 5.000 m^2) (e.g. closed down industrial sites, mining sites, sewage sludge/water treatment, or other sources of contamination (past incidents, leakages, operational losses))

Contaminated sites with radioactive substances are excluded.

The reworked checklist "Checklist for the Investigation and Risk Assessment of Contaminated Sites in Flood Risk Areas" was tested in July 2006 in Constanta Rumania at a contaminated site (Rompetrol in Navodari, Constanta, Rumania (see Appendix 1, Table 1, item 97)).

The checklist was discussed and agreed by the members of the seminar "workshop on M2 methodology and refineries pilot project"(20th, 21st July 2006). Comments on the tested checklist were incorporated into the checklist by the author.

1 DESCRIPTION OF REQUIRED SERVICES

The consultant was expected to participate in a site visit by the WGI to test the Checklist and to incorporate any necessary changes. Further more, to attend up to two APC EG meetings (location of the meetings within the Danube River Basin).

Additionally the Consultant was expected to undertake the following tasks:

- Develop a methodology and classification system for the ranking of contaminated sites in flood risk areas and to propose an approach for using this methodology (M2 methodology). This should be discussed and agreed in a meeting of the WGI (Working Group of Inventories).
- Using the existing data sets prepared under the M1 assessment of contaminated sites, to refine the ranking of these sites in accordance with the safety measures at the site and the risk of flooding. This will result in the identification of the highest priority sites needing action.
- Develop checklist for site inspections of high risk contaminated sites

2 INCEPTION REPORT/PROGRESS REPORTS

The Consultant was expected to start with an Inception Report and to provide brief reports every 2 months, indicating work completed and on-going, any problems and solutions recommended.

The Contractor calculated five Progress Reports for this project. Within this duration time (March 2005 until May 2006) 7 Progress Reports were carried out.

- Inception Report, April 2005
- 1st Progress Report, May 2005
- 2nd Progress Report, July 2005
- 3rd Progress Report, September 2005
- 4th Progress Report, November 2005
- 5th Progress Report, January 2006
- 6th Progress Report, March 2006
- 7th Progress Report, May 2006

The Inception Report and all Progress Reports you will find at the CD (delivered with the Final Report, November 2006).

3 M1 METHODOLOGY

Excerpt from "Methodology for the Pre-Assessment of Suspected Contaminated Sites in the Danube River Basin (M1 methodology)", September 2004:

Contaminated sites generated by former industrial activities pose a potential danger for the environment. This refers in particular to contaminated sites containing hazardous substances, which could lead to a significant contamination of water bodies, in case the substances are mobilized (e.g. by flood). During recent years dramatic floods on the Elbe, the Danube and the Oder have shown that the toxic impact of those contaminated sites could cause a significant threat to water bodies in Europe. For that reason the ICPDR decided to draw up a basin wide inventory of contaminated sites (CS) in flood risk areas in the Danube River Basin.

3.1 Problem to be solved

For the Danube River Basin recommendations are necessary, which would enable the competent authorities of the riparian countries to perform the following activities:

- Establishment of a methodology for a preliminary risk assessment of the CS reported in the inventory of the Danube countries
- Drawing up the recommendations for respective safety measures which could serve as regulatory guidelines.
- Drafting a Measure Catalogue as a handbook for the implementation of these safety guidelines.

3.2 Goals

The major goal was to develop in a first step a methodology for an initial risk assessment of contaminated sites in flood risk areas, based on the data from the inventory of contaminated sites in the Danube River Basin. However, in principle, the M1 methodology is applicable to the pre-assessment of any contaminated sites. The reported sites where a high risk potential is assumed should be screened by a preliminary assessment. This methodology will serve as a guide for the elaboration of safety recommendations and a concrete measure catalogue in the next steps.

In the next step the detailed analysis of the priority hot spots will lead to the elaboration of safety recommendations for contaminated sites. Together with a detailed measure catalogue these recommendations will serve for a checklist which will allow the competent authorities to improve the safety of the contaminated sites and to reduce the risk of contamination of surface waters.

3.3 Description of the methodology

The methodology allows the initial risk assessment of contaminated sites by applying the following parameters:

- The toxic potential of soil or waste (it depends on the harmful substances to be expected in a type of waste or in a specific industrial branch and it is expressed as a risk value).
- The volume of an old deposit or the area of an old industrial site.

For each waste type of the EUROPEAN WASTE CATALOGUE (examples given in Table 1) and for each branch of the BRANCH CATALOGUE OF GERMANY (examples given in Table 1) a risk-value r0 was proposed in classes from 1 to 5. This risk factor r0 is derived by experience gained in several German Federal States (e.g. Saxony) and it takes into account the toxic potential of soil or waste that can be expected from a branch or waste specific contamination.

For a concrete waste type or industrial branch a range of risk is given (e.g. r0 from 3-5). The first figure corresponds to the lowest class of risk to be expected, the higher figure indicates the highest class of risk to be expected ("worst case scenario"). This opens up the possibility for an expert judgement to adjust the r0 value if further information about the site is available (e.g. if the contaminants are known). In this case the liability of the assessment is improved. In the other cases, the average risk value is calculated and rounded up. The risk values r0 should be between 1 and 5.

The risk values are linked with the site magnitude (specified in case of old deposits as volume [m³] or in case of old industrial sites as surface area classes [m²]) to an "initial risk factor" m1, which gives an information about the potential risk of each site (see example in Figure 1).

For example:

A site with a contaminated volume of 200.000 m³ with a risk value of 5 receives an M1-value of 55.

A site with a contaminated area of 15.000 m2 with a risk value of 4 receives an M1-value of 51.

To select the sites with a high priority the assessment was concentrated only at those sites, which are potentially impacted by floods. Additionally only those sites should be investigated, which include more than 100.000 m³ of contaminated volume or cover an area larger than 5.000 m².

The consultant however recommends all sites which include more than 10.000 m³ of contaminated volume (deposit sites, landfills) to be investigated. The evaluation table for contaminated volume lager or equal 10.000 m³ shows M1-values higher 50 (see Figure 1), which are relevant for the next investigation (M2 methodology).

This matter was discussed agreed by UNDP (Mr. P. Whalley) and ICPDR (Mrs. M. Popovici) in October 2006.

Table 1 and Table 2 Excerpt from the European Waste Catalogue and from the Branch Catalogue of Germany

Table 1:

List of wastes pursuant to Article 1 (a) of Council Directive 75/442/EEC on waste (EUROPEAN WASTE CATALOGUE).

e.g.

CODE	WASTE TYPE	r_0 VALUE	
		Average	(Min,Max)
010000	WASTE RESULTING FROM EXPLORATION, MINING, DRESSING AND FURTHER TREATMENT OF MINERALS AND QUARRY		
010100	Waste from mineral excavation	3.5	(1.0 6.0)
010101	Waste from mineral metalliferous excavation	5.0	(4.0 6.0)
010102	Waste from mineral non-metalliferous excavation	2.5	(2.0 3.0)
010200	Waste from mineral dressing	3.5	(1.0 6.0)
010201	Waste from the dressing of metalliferous minerals	5.0	(4.0 6.0)
010202	Waste from the dressing of non-metalliferous minerals	2.5	(2.0 3.0)
010300	Waste from further physical and chemical processing of metalliferous minerals	4.0	(3.0 5.0)
010301	Tailings	3.0	(2.0 4.0)

The r0 values “5” and “6” are both considered as being “5”.

Table 2:

Branch related hazard classifying of Industries (BRANCH CATALOGUE OF GERMANY)

e.g.

BRANCH No.	BRANCH NAME	CLASS OF HAZARD, r_0 Min and Max
	MANUFACTURING AND PROCESSING INDUSTRIES	
0005	Gas, mining, related products	2-5
0010	Gas production (town gas)	4-5
0020	Coal mining	3-4
0021	Brown coal mining and briquette production	3-4
0022	Ferrous ores mining	2-5
0023	Production of non-ferrous metals	3-5
0024	Potassium and rock salt mining	2-2
0025	Petroleum and natural gas extraction	3-4
0030	Cocking	4-5
0040	Briquettes coal production	3-4

Figure 1 and Figure 2 Evaluation tables with extended size classes

Evaluation table for industrial sites:

M1-value for industrial sites with regard to hazard potential					
Area (m²)	Class of hazard, r0				
	1	2	3	4	5
1.000-4.999	0	18	36	46	48
5.000-9.999	0	20	40	49	50
10.000-19.999	0	21	42	51	52
20.000-49.999	0	22	43	53	54
50.000-99.999	0	22	45	55	56
100.000-499.999	0	23	46	57	58
500.000-999.999	0	24	47	58	59
≥1.000.000	0	24	48	59	60

(e.g.: surface area of 15.000 m², r0 = 4 → M1 = 51)

Evaluation table for deposit sites:

M1-values for deposits with regard to hazard potential					
Volume (m³)	Class of hazard, r0 (by type of wastes)				
	1	2	3	4	5
5.000-9.999	2	10	23	39	49
10.000-19.999	3	13	27	41	51
20.000-49.999	4	15	31	43	53
50.000-99.999	5	17	34	45	54
100.000-499.999	5	19	37	47	55
500.000-999.999	5	20	40	49	56
1.000.000-1.999.999	5	22	42	50	57
≥2.000.000	5	28	45	53	60

(e.g.: volume of 200.000 m³, r0 = 5 → M1 = 55)

3.4 Conclusions:

The presented evaluation tables serve for the pre-assessment of the contaminated sites (waste deposits and abandoned industrial sites). The tables should be looked upon as a first screening of those sites, which have to be preferably visited and further investigated. A finer ranking is not possible at this investigation stage, because the inaccuracy of the data is very high. All sites with an initial risk value equal or higher 50 should be inspected to perform a risk assessment by using the checklists. For a better differentiation of the m1-ranked sites the criterion of flood probability should be applied (M2 methodology).

4 TASK 1: DEVELOPMENT OF M2 METHODOLOGY

The consultant was expected to develop a methodology and classification system for the ranking of contaminated sites subject to flood risks and to propose an approach for using the methodology.

To refine the ranking of the sites prepared under the m1 assessment of contaminated sites an enhanced methodology (i.e. M2 methodology) has to be developed taking into account the safety measures (SM) at the site and the risk of flooding (FP).

In Table 3 and Table 4 the factors for "safety measures" and "flooding potential" are listed. These factors have been agreed upon by the participants of the Accident Prevention and Control Expert Group (APC EG).

4.1 Factors for M2 methodology

In the following tables the relevant factors for the M2 methodology is given.

Table 3 Factors for "flooding potential" (FP)

Flooding potential	Flood-frequency (years)	Factor of flooding potential (FP)
Low	> 100	0
Medium	≤ 100	1
High	< 30	3
Very high	< 10	10

Table 4 Factors for "safety measures" (SM)

Level of set safety measures (MS) is/are	Description	Factor for safety measures (SM)
Low	No safety measures are set	3
Medium	Safety measures are set partly	2
High	Necessary safety measures are set	1

For the "flooding potential" (FP) a score from 0 to 10 (e.g. water flooding occurs once in 10 years → factor FP = 10), and for the "safety measures" (SM) a score from 1 to 3 (e.g. all required safety measures are implemented on a specific site → factor SM = 1) has been set.

For example:

The factor of safety measures is 1 when the level of set safety measures and/or preventive measures to lower the risk at the site is high.

The factor of safety measures is 3 when the level of set safety measures and/or preventive measures to lower the risk at the site is low.

To receive the M2-values for m2 assessment the formula is as follows:

$$M2 = M1 \times FP \times SM$$

FP … factor flooding potential; SM … factor safety measures;

M1 … M1-value from evaluation tables taking into account the volume/area and risk potential from a specific contaminated deposit/industrial- and/or abandoned site.

4.2 Classification system for M2 methodology

In a further step the contaminated sites will be classified into priority classes (by considering the determined M2-value). For all contaminated sites within the priority classes 1, 2 or 3 preventive and/or remediation measures have to be set at the sites to improve the safety of the contaminated site and to reduce the risk of contamination related on waters (see Table 5).

This proposal was discussed and agreed by the members of the APC-EG in July 2006 in Constanta.

Table 5 Classification system – priority classes

Priority class for remediation	M2-values	Need for further measures to be established at the site
1	≥1000 – 1.800	Very high
2	≥250 - <1000	High
3	≥50 - <250	Relevant
4	<50	Low

5 TASK 2: REVISED RANKING OF CONTAMINATED SITES USING M2 METHODOLOGY

5.1 Existing data set

A further main task of this contract was to revise the existing data set (working list) prepared under the M1 assessment of contaminated sites and to refine the ranking of these sites in accordance with the safety measures (SM) and the risk of flooding (FP) (M2 methodology).

The consultant (Hermine Weber) received several documents (existing data set, working-list) (listed below) from Mr. Igor Liska (ICPDR) (13th June 2005):

- The existing data set with the reported data (Version 6th April 2004)
- Correspondence from the countries regarding the information of the data set

The countries of the Danube River Basin were ask to report old contaminated sites in flood risk areas within the Danube River basin, i.e. old deposit sites and old industrial and/or abandoned industrial sites (also military sites). Sites contaminated with radio active substances were excluded.

The version of the data set from 6th April 2004 contains 98 recorded contaminated sites reported from 7 countries (Slovakia, Hungary, Romania, Germany, Austria, Ukraine and Czech Republic). From Slovenia, Bosnia & Herzegovina, Croatia, Moldova, Bulgaria and Serbia no contaminated sites were recorded.

The consultant tried to receive more information about contaminated sites (especially industrial sites) from the riparian countries, because the lack of information was remarkable.

On 2nd August 2005 the consultant sent a mail to the members of the APC-EG with the request to check the 98 reported contaminated sites and to give – if necessary – more information on the factors "flooding potential" and "safety measures" (see mail below).

Dear members of the APC EG,

Regarding the OCS (old contaminated sites) within the Danube catchment area the "Umweltbundesamt Vienna" revised the existing data sets (prepared under M1 assessment) taking into account the factors for "flooding potential" and "safety measures".

I would like to ask you all to check your reported sites for any changes or faults and to respond your comments until the latest until middle of September – 16th Sept. 2005.

Please find enclosed the refined data sets (excel-file) and a brief summary (given below).

Thank you for your cooperation,
Best regards
Hermine Weber

Only a few countries reported more information about the situation regarding contaminated sites in their countries:

15.09.2005: Hungary: no further comments

19.09.2005: Slovakia: after a revaluation of the contaminated sites in Slovakia two sites could be taken out of the working list: (1) (Skadka odpadov OFZ Siroke - Bezmenný creek) and (2), Teplaren, Povazska Bystrica - Ziar (in tube)) (see

Appendix 1, Table (j): Reported deposit sites (Igor Liska, Version: 13.06.2005), Nr. 19 and Nr. 51).

21.9.2005: Germany: 2 comments: (1) there are no industrial sites relevant for Germany and (2) r0-Value for Deponie Peterswöhrd is 3.5 instead of 5 (see Appendix 1, Table (j): Reported deposit sites (Igor Liska, Version: 13.06.2005), Nr. 10).

According the minutes of the 32nd APC-EG-meeting in Berlin, the countries reported problems of collecting data of contaminated sites in flood risk areas within the Danube River Basin.

The major reason is because of the missing legislative basis and financial support.

Other reasons might be:

- No or insufficient collection system of contaminated sites
- Lack of financial funds
- Lack of technical experts

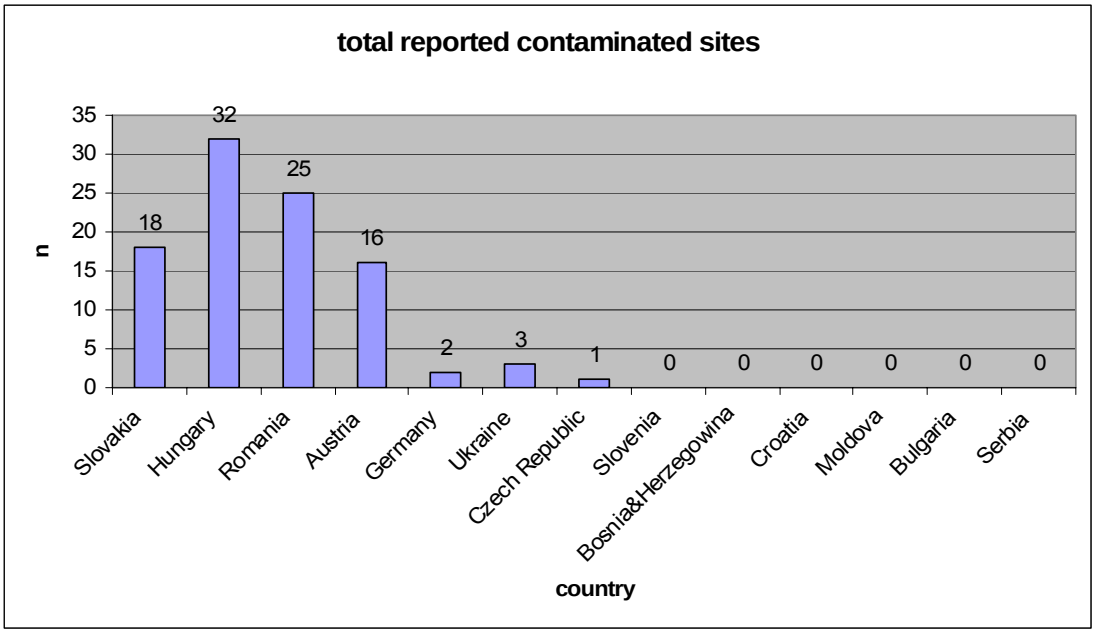
After a site visit in Constanta Rumania (20th July 2006) to test the proposed "Checklist for the Investigation and Risk Assessment of Contaminated Sites in Flood Risk Areas" the consultant extended the working list (data sets) with one more contaminated deposit site "Rompetrol in Navodari, Constanta, Romania, oil sludge pond, industrial deposit" (see Appendix 1, Table (a), item 97).

5.2 Output of the data set

The revised data set (July 2006) (working list) contains 97 contaminated sites (see Figure 3 and Appendix 1, Table (a)):

Slovakia:	18 contaminated sites
Hungary:	32 "
Romania:	25 "
Austria:	16 "
Germany:	2 "
Ukraine:	3 "
Czech Republic:	1 contaminated site
Total:	**97 contaminated sites**

Figure 3 Total reported contaminated sites



Seven countries (Slovakia, Hungary, Romania, Germany, Austria, Ukraine and Czech Republic) reported deposit sites in flood risk areas. But only 4 countries (Hungary, Romania, Austria and Germany) reported additional information about the flooding situation and the safety measures set at a contaminated site (see Table 7).

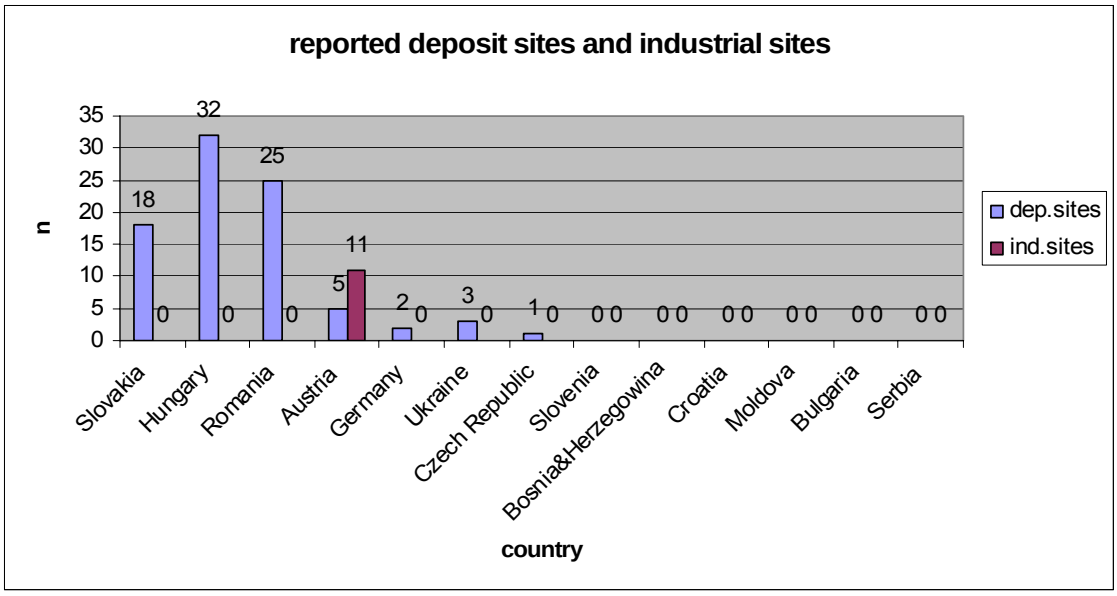
Reported deposit sites and industrial sites (see Figure 4 and Appendix 1, Table (b)):

Slovakia:	deposit sites:	18;	industrial sites:	no information
Hungary:	deposit sites:	32;	industrial sites:	no information
Romania:	deposit sites:	25;	industrial sites:	no information
Austria:	deposit sites:	5;	industrial sites:	11
Germany:	deposit sites:	2;	industrial sites:	0 (no relevant ind. Sites)
Ukraine:	deposit sites:	3;	industrial sites:	no information
Czech Rep.:	deposit sites:	1;	industrial sites:	no information

all other countries: dep.sites and industrial sites: no information

Total: deposit sites: 86; industrial sites: 11; Σ 97

Figure 4 Reported deposit sites and industrial sites



5.2.1 Contaminated deposit sites:

For one site in Romania (item 1: Tulcea, Turcoaia, sterile pond) no information about the type of waste is given, therefore no evaluation of the M1-value could be made.

After the first evaluation of the M1-value (M1 methodology) by using the evaluation tables (see Figure 1 and Figure 1) the out-put can be sown as follows:

Table 6 Results of the M1 methodology for deposit sites

country	CS in total	deposit sites	dep.sites ≥ 100.000 m³	dep.sites ≥ 10.000 m³	dep.sites < 10.000 m³	M1 ≥ 50	M1 ≥ 47	M1 < 47
Slovakia	18	18	15	18	0	4	14	4
Hungary	32	32	27	31	1	6	10	22
Romania	25	25	16	17	8	8	12	12
Austria	16	5	5	5	0	3	3	2
Germany	2	2	2	2	0	0	1	1
Ukraine	3	3	1	3	0	2	2	1
Czech Republic	1	1	0	0	1	0	1	0
Slovenia	no data	no data	no data	no data	no data	no data	no data	no data
Bosnia& Herzegovina	no data	no data	no data	no data	no data	no data	no data	no data
Croatia	no data	no data	no data	no data	no data	no data	no data	no data

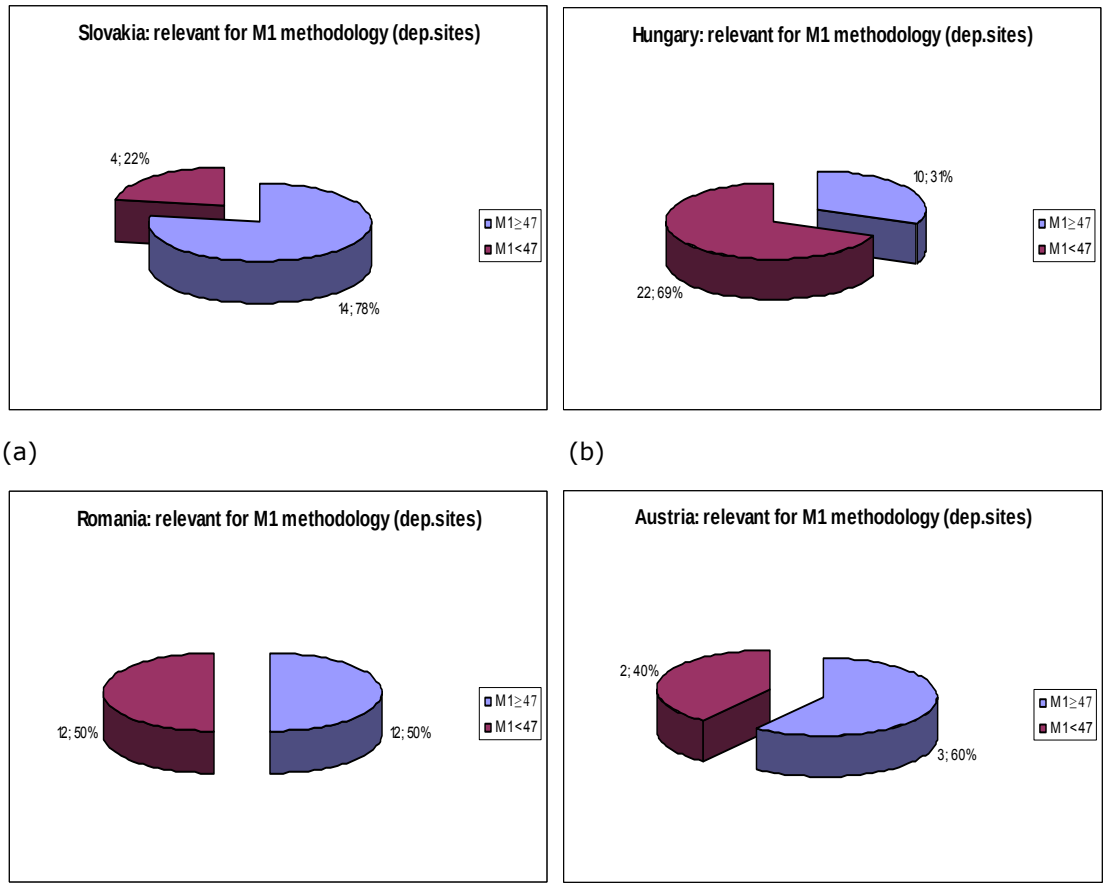
country	CS in total	deposit sites	dep.sites ≥ 100.000 m³	dep.sites ≥ 10.000 m³	dep.sites < 10.000 m³	M1 ≥ 50	M1 ≥ 47	M1 < 47
Moldova	no data	no data	no data	no data	no data	no data	no data	no data
Bulgaria	no data	no data	no data	no data	no data	no data	no data	no data
Serbia	no data	no data	no data	no data	no data	no data	no data	no data
Total	97	86	66	76	10	23	43	42

The cut-off value for the calculation of the M2-value is M1≥50.

By using a buffer-zone the following determination of the M2-value considers all contaminated deposit sites with an M1-value higher or equal 47 (M1≥47).

In Figure 5 (a, b, c, d) the relevant contaminated deposit sites (according the M1 methodology) for the countries Slovakia, Hungary, Romania and Austria are shown.

Figure 5 (a, b, c, d) Contribution of the relevant contaminated deposit sites (M1 methodology)



(a) (b)

(c) (d)

The next table (see Table 7) gives information about "flooding potential" and "safety measures" and the about the output of the M2 methodology.

Table 7 Overview of reported information regarding "flooding potential" and "safety measures" and output of M2 methodology for deposit sites

country	CS in total	deposit sites	M1 ≥ 47	M1 < 47	FP available	SM available	M2 ≥ 50	M2 < 50
Slovakia	18	18	14	4	yes	no data	no data for SM	no data for SM
Hungary	32	32	10	22	yes	yes	2	8
Romania	25	25 [1)]	12	12	yes	partly	9 [2)]	-
Austria	16	5	3	2	yes	yes	0	3
Germany	2	2	1	1	yes	yes	1	0
Ukraine	3	3	2	1	no data	no data	no data for FP,SM	no data for FP,SM
Czech Republic	1	1	1	0	no data	no data	no data for FP,SM	no data for FP,SM
Slovenia	no data	no data	no data	no data	no data	no data	no data	no data
Bosnia&Herzegovina	no data	no data	no data	no data	no data	no data	no data	no data
Croatia	no data	no data	no data	no data	no data	no data	no data	no data
Moldova	no data	no data	no data	no data	no data	no data	no data	no data
Bulgaria	no data	no data	no data	no data	no data	no data	no data	no data
Serbia	no data	no data	no data	no data	no data	no data	no data	no data
Total	97	86	43	42	-	-	12	11

FP … flooding potential; SM … safety measures

[1)] … including one site in Romania (Tulcea, Turcoaia, (see Appendix 1, Table (b), item: 1): no waste-information given

[2)] … for 3 deposit sites no data for SM

For 43 contaminated sites (out of 86 reported contaminated deposit sites) an M1-value ≥ 47 could be determined, but only for 23 deposit sites (Hungary 10, Romania 9, Austria 3 and Germany 1) with an M1-value ≥ 47 a further investigation (by applying the M2 methodology) could be made. For the remaining 20 contaminated sites with an M1-value ≥ 47 (Slovakia 14, Romania 3, Ukraine 2 and Czech Republic 1) insufficient information about the "flooding

potential" (FP) and/or the "safety measures" (SM) is given. From the countries Slovenia, Bosnia & Herzegovina, Croatia, Moldova, Bulgaria and Serbia no data for contaminated sites and/or information about "flooding potential" and "safety measures" are reported.

After applying the M2 methodology 12 contaminated deposit sites show an M2-value higher or equal 50 that means, that for those sites further "short, middle and long-term measures" are necessary.

Table 8 represents the relevant contaminated deposit sites after applying the M2 methodology and their classification in priority classes (see Appendix 1, Table (b)).

Table 8 Determined contaminated deposit sites with an M2-value ≥ 50

n	Item-Nr.	Country	Name	M2-value	Priority class
1	13	Romania	Sibiu, Copsa Mica, slags from primary and secondary melting	114	3
2	14	Romania	Hunedoara, Calan, not processed slag, lining and refractory waste materials, furnace slag, foundry shapes containing organic ligands, wastes from mixture preparation previously thermic processing, other tars	171	3
3	15	Romania	See 14 (double?)	171	3
4	26	Romania	Bacau, Letea Veche, Fuel burning	318	2
5	31	Hungary	Middle Tisa, Environmental Inspectorales Area, Szolnok, Beghin-Say Cukorgyar Inc., waste water sludge in lake	50	3
6	32	Romania	Teleorman, Tumu Magurele, Pyrite ash pond, not specified (wastes containing metals)	100	3
7	33	Romania	Sibiu, Copsa Mica, Tarnave Mare River, Visa brook, industrial waste, slags from primary and secondary melting	100	3
8	37	Romania	Dolj, Calafat, slag and ash pond from coal burning	98	3
9	46	Germany	Dillingen, Hühnerwörth, old deposit, municipal waste	141	3
10	50	Romania	Dolj, Calafat, industrial waste, wastes from sugar beet processing	141	3
11	52	Hungary	Middle Danube Environmental Inspectorates area, Budapest, Csepel-island Nord, abandon sewage, sludge depots, heavy metal and hydrocarbon polluted organic compounds	141	3
12	97	Romania	Rompetrol in Navodari, Constanta. Oil sludge pund	330	2

5.2.2 Output of the data set regarding the considered countries:

Hungary:

Hungary reported 32 deposit sites. One deposit site shows a volume smaller 10.000 m³ and is no longer relevant for the M1 methodology. For 10 contaminated deposit sites (out of 31) an M1-value higher or equal 47 could be determined. Sufficient information about "flooding potential" and "safety measures" is given. After running the M2 methodology 2 sites show an M2-value equal or higher 50. For this 2 deposit sites (see Table 8 and Figure 6 (a)) "short-, middle- and long-term-measures are necessary.

The reported deposit sites are listed in Appendix 1, Table (d).

Romania:

Romania reported 25 deposit sites. For one site no information about the type of waste is given (Appendix1, Table (b), Item Nr. 1). 12 contaminated deposit sites show an M1-value higher or equal 47, but only for 9 contaminated deposit sites the M2 Methodology could be applied. For the remaining 3 sites (Appendix 1, Table (b), Item Nr. 39, 53 and 54) less information about the "safety measures" is given.

For all 9 contaminated deposit sites (M2 methodology) an M2-value higher or equal 50 can be shown. That means that for all those 9 deposit sites (see Table 8 and Figure 6 (b)) "short-, middle- and long-term-measures are necessary. The reported deposit sites are listed in Appendix 1, Table (e).

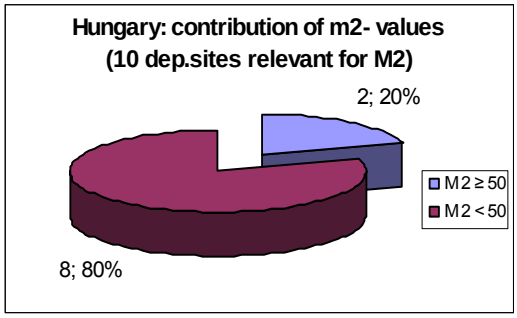
Austria:

Austria reported 5 deposit sites. 3 (out of 5) are relevant for the M2 methodology. But no deposit sites show an M2-value higher or equal 50 (see Table 8 and Figure 6 (c)). The reported deposit sites are listed in Appendix 1, Table (f).

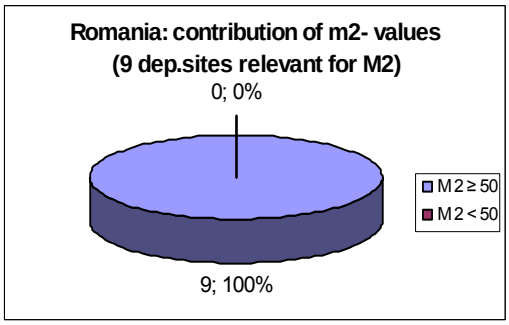
Germany:

From the two reported contaminated deposit sites in Germany only one site is relevant for the M2 methodology. This site shows an M2-value higher 50 (see Table 8 and Figure 6 (d)), that means "short-, middle- and long-term-measures are necessary. The reported deposit sites are listed in Appendix 1, Table (g).

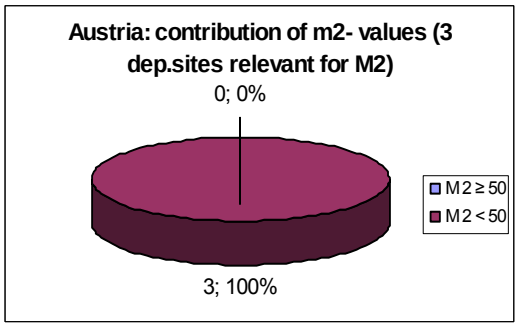
Figure 6 (a, b, c, d) Contribution of the relevant contaminated deposit sites (M2 methodology)



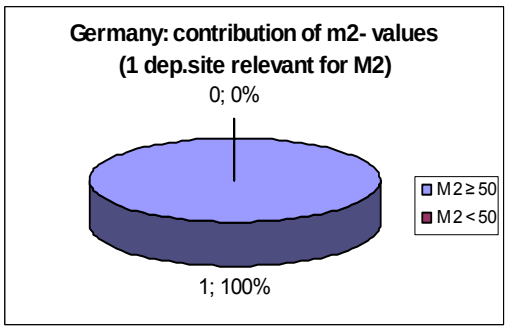
(a)



(b)



(c)



(d)

Slovakia, Ukraine and Czech Republic reported contaminated deposit sites but insufficient or no information about the "flooding potential" (FP) and/or "safety measures" (SM) (see Table 7). The reported deposit sites are listed in Appendix 1, Table (c), (h) and (i).

From Slovenia, Bosnia & Herzegovina, Croatia, Moldova, Bulgaria and Serbia no data sets were reported (see Table 7).

5.2.3 Contaminated industrial and/or abandoned industrial sites:

Only the countries Austria and Germany reported information about industrial and/or abandoned industrial sites within the Danube River Basin. Austria reported 11 contaminated industrial and/or abandoned industrial sites and Germany reported no relevant industrial sites within flood risk areas.

Table 9 Overview of reported information regarding "flooding potential" and "safety measures" and output of M2 methodology for industrial sites

n	country	CS in total	indust. sites	ind.sites ≥ 5.000 m²	ind.sites < 5.000 m²	M1 ≥ 47	M1 < 47	FP available	SM available	M2 ≥ 50	M2 < 50
1	Slovakia	18	no data	no data	no data	no data	no data	no data	no data	no data	no data
2	Hungary	32	no data	no data	no data	no data	no data	no data	no data	no data	no data
3	Romania	25	no data	no data	no data	no data	no data	no data	no data	no data	no data
4	Austria	16	11	11	0	11	0	yes	yes	3	8
5	Germany	2	0	0	0	0	0	-	-	0	0
6	Ukraine	3	no data	no data	no data	no data	no data	no data	no data	no data	no data
7	Czech Republic	1	no data	no data	no data	no data	no data	no data	no data	no data for FP,SM	no data for FP,SM
8	Slovenia	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
9	Bosnia& Herzego-vina	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
10	Croatia	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
11	Moldova	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
12	Bulgaria	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
13	Serbia	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
13	Total	97	11	11	0	11	0	0	0	3	8

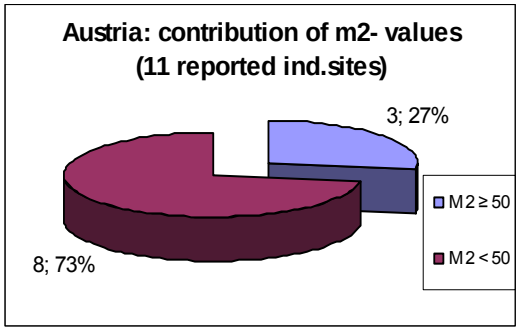
For all reported 11 contaminated industrial sites (Austria 11 ind. sites ≥ 5.000 m²) the m1- and the M2 Methodology could be applied.

After applying the m1- and the M2 methodology (by taking into account the flooding potential (FP) and the safety measures (SM)) three industrial sites show a necessity for further "short-, middle- and long-term-measures". These three industrial sites are shown in Table 10 and Figure 7).

Table 10 Determined contaminated industrial sites with an M2-value ≥ 50

Nr.	Item-Nr.	Country	Name	M2-value	Priority class
1	8	Austria	Lower-Austria, Korneuburg Shpyard, metals, hydrocarbon oil	513	2
2	16	Austria	Carintia, Sankt Veit an der Glan, Brückl, Trichlorethen, Tetrachlorethen, Hexachlorbutadien	112	3
3	29	Austria	Lower-Austria, Korneuburg, Tankfarm Mare, mineral oil depot	306	2

Figure 7 Contribution of the relevant contaminated deposit sites (M2 methodology)



5.3 Summary:

13 countries of the Danube River Basin (Slovakia, Hungary, Romania, Austria, Germany, Ukraine, Czech Republic, Slovenia, Bosnia & Herzegovina, Croatia, Moldova, Bulgaria and Serbia) were ask to report their contaminated sites (deposit sites and industrial and/or abandoned industrial sites) to the APC-EG. 7 countries (Slovakia, Hungary, Romania, Austria, Germany, Ukraine and Czech Republic) reported in total 97 contaminated sites (86 deposit sites, 11 industrial sites and/or abandoned industrial sites).

5.3.1 Deposit sites:

The "Methodology for the Pre-Assessment of Suspected Contaminated Sites in the Danube River Basin (M1 methodology), September 2004" propose a minimum-size for deposit sites to be investigated of 100.000 m³. The consultant however recommends for deposit sites a minimum-volume of 10.000 m³. This was discussed and agreed with UNDP and ICPDR in October 2006.

76 deposit sites (out of reported 86 deposit sites) have a volume higher or equal 10.000 m³ (10 sites are smaller 10.000 m³) (see Table 6*).*

After applying the M1 methodology (by using the evaluation tables) 43 deposit sites show an M1-value higher or equal 47 → that mean, that further investigations (by taking into account the flooding potential (FP) and the safety measures (SM)) are necessary. For one site no information about the type of waste was reported, therefore no evaluation of the M1-value could be made. The remaining 42 of the investigated deposit sites show an M1-value smaller than 47 → this sites can be sorted out and are no longer relevant (unless the suspicion is not totally excluded) for the M2 methodology.

43 contaminated sites show an M1-value ≥ 47, but for only 23 sites sufficient information about the "flooding potential" and "safety measures" is given. After the run of the M2 methodology 12 contaminated deposit sites (out of 23) show an M2-value higher or equal 47. For those contaminated sites further "short-, middle- and long-term-measures" are necessary.

For approximately 50 % (12 contaminated deposit site out of 23 contaminated deposit sites with all relevant information) of the reported contaminated deposit sites "short-, middle- and long-term-measures" are necessary.

5.3.2 Industrial and/or abandoned industrial sites:

Regarding contaminated industrial and/or abandoned industrial sites the information is very poor. Only Austria reported sufficient information (11 contaminated industrial and/or abandoned industrial sites) of the present situation of contaminated industrial sites in their countries. Germany reported no relevant industrial and/or abandoned industrial site within the Danube River Basin.

All reported 11 contaminated industrial sites from Austria deliver an M1-value higher 50. After applying the M2 methodology (by taking into account the "flooding potential" and "safety measures") 3 contaminated industrial sites show an M2-value higher 50. For those 3 sites "short-, middle- and long-term-measures" are necessary.

For approximately 27 % (3 contaminated industrial site out of 11 contaminated industrial sites) of the reported contaminated industrial sites "short-, middle- and long-term-measures" are necessary.

5.4 Solution/recommendations to the ICPDR:

Because of the lack of reported contaminated sites within the Danube River Basin, the Umweltbundesamt Vienna will recommend to the ICPDR for future activities following steps (request from the APC-EG, 32nd APC-EG-meeting):

- statistical extrapolation of the estimated number of contaminated sites in flood risk areas (basis data from Austria) to get an idea how many contaminated sites (deposit sites and industrial sites) can be expected within the Danube River Basin
- support for the Danube-countries in collecting contaminated sites (deposit sites and industrial and/or abandoned industrial sites)
- providing of financial funds for the Danube Countries to built up a national collecting system of contaminated sites for selected countries
- support with technical experts if necessary
- continue of collecting contaminated sites in flood risk areas within the Danube River Basin
- set prevention measures and remediation activities (for contaminated sites with an M2-value ≥ 50).

6 TASK 3: REVISED CHECKLIST FOR SITE INVESTIGATION

A further main task of this contract was to develop a checklist for site inspections of high risk contaminated sites in flood risk areas.

6.1 Checklist for the investigation and risk assessment of contaminated sites in flood risk areas

All necessary information of a contaminated site will be collected by using the proposed checklist. The checklist will also include general information for proposed safety measures, which will allow the competent authorities to reduce the risk at a contaminated site in flood risk areas and to increase public safety and to protect the environment in the Danube River Basin.

This checklist will serve as a hand guide for a desk-study and for a first visit of sites, suspected to be contaminated by substances hazardous to water.

The purpose of this first desk-study and site visit is to find out:

- where highly contaminated zones are suspected and located within flood risk areas
- whether immediate action is needed

The data collected by making use of the checklist deliver the basis to assess if further steps are necessary to enhance the safety level of contaminated sites in flood risk areas.

The checklist includes the following information:

- General data, which providing information about location, extension type, ownership structure of the site and about any precedent investigations
- Hydrological data to estimate whether the contaminated site is endangered by flooding (flooding potential)
- Evaluation of the hazard situation answering the following questions:
    - Is there an indication of potential hazards at the site?
    - Is the site assessment with regard to the site's risk potential completed or is it necessary to record further data?
    - Which additional information is already available and can be used for the assessment?
    - Is an assessment possible or is a further data record or investigation necessary?

The checklist applies to all properties containing suspected contaminated sites in flood risk areas.

The following sites in flood risk areas are covered by the scope of the checklist:

- Sites suspected to have high potential for posing a hazard to water,
- Sites contaminated as a result of former industrial activities and former waste disposal operations, and
- closed-down plants and plant components containing water endangering substances, which are not effectively secured and might present a hazard to water in case of flooding.

Radioactively contaminated sites do not fall within the scope of this checklist, nor do sites presenting a potential hazard due to genetically modified organisms.

Former military sites and former military production sites are usually regarded as former industrial sites.

Only those sites have to be investigated under this checklist, which

- include more than 10.000 m³ of contaminated volume (former waste disposal sites, landfills)
- cover an area larger than 5.000 m² of a contaminated area (former industrial sites, closed-down plants)

In certain cases a further investigation of the property (smaller than 10.000 m³ and/or smaller than 5.000 m²) is still necessary if the suspicion of contamination for contaminated sites cannot be totally excluded.

Facilities covered by this checklist include, for example:

- Former waste disposal sites
- Industrial and/or abandoned industrial sites
- Components of closed-down plants
- Underground installations
- Surface facilities
- Above-ground storage systems within buildings
- Sewage sludge/waste-water treatment facilities

The proposed checklist consists of five parts which include the following templates:

(1) Preliminary investigation (basic study) of contaminated sites in flood risk areas

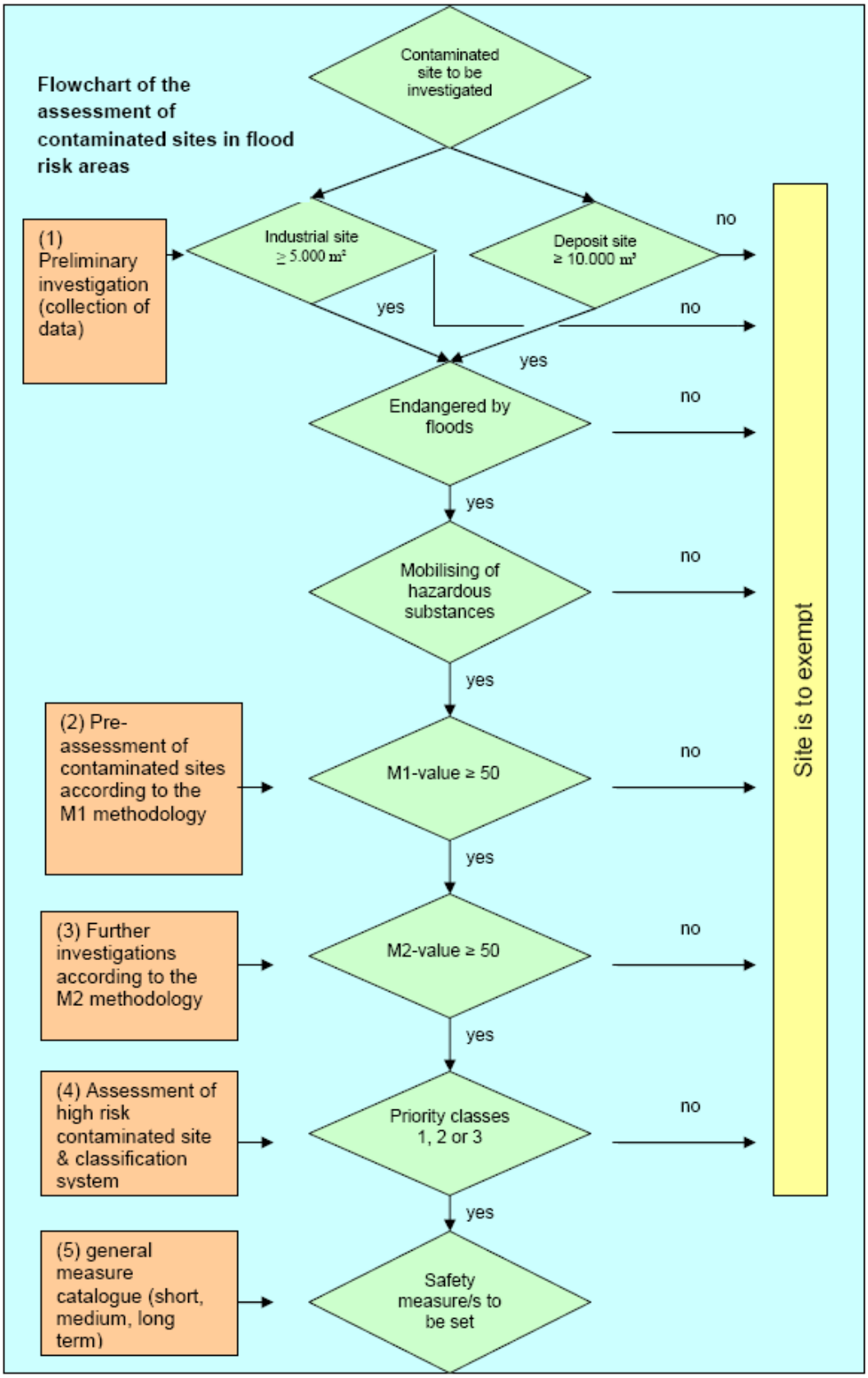
(2) Pre-assessment of contaminated sites in flood risk areas according to the M1 methodology

(3) Further investigations of contaminated sites in flood risk areas according to the M2 methodology

(4) Assessment and classification system – priority classes – of M2-values of high risk contaminated sites in flood risk areas

(5) Measure catalogue (short, medium and long term measures)

Figure 8 Flowchart of the assessment of contaminated sites in flood risk areas



Please find the "Checklist for the Investigation and Risk Assessment of Contaminated Sites in Flood Risk Areas" in Appendix 2.

6.2 Recommendations

The Recommendation applies to all contaminated sites, which are prone to flooding and contaminated by substances hazardous to water. The case of flooding includes, besides flooding,

- backflow from water bodies or sewer systems or
- a rise of the groundwater table as a result of long-term flood events.

The following sites are covered by the scope of the recommendation:

- Sites suspected to have high potential for posing a hazard to water,
- sites contaminated as a result of former industrial activities and former waste disposal operations, and
- closed-down plants and plant components containing water endangering substances, which are not effectively secured and might present a hazard to water in case of flooding.

Radioactively contaminated sites do not fall within the scope of these requirements, nor do sites presenting a potential hazard due to genetically modified organisms.

Facilities covered by this recommendation include, for example:

- Underground installations
- Surface facilities
- Above-ground storage systems within buildings
- Components of closed-down plants
- Former waste disposal sites

Safety requirements:

Administrative requirements:

- Potentially contaminated sites should be recorded in appropriate database (e.g. land registry).
- In general the "Polluter Pays Principle" has to be applied
    - in investigations necessary to determine the contamination situation of sites suspected of being contaminated and further necessary measures and
    - when formulation proposals for remedial actions and in their implementation.
- The financing of investigations and remediation should be ensured, e.g. through national agreements or funds, especially in cases where the polluter cannot be held liable.
- Authorities should be enabled to:
    - carry out the monitoring of contaminated sites and sites suspected of being contaminated
    - order monitoring measures and/or remedial measures

- Enabled authorities are responsible for ensuring that identified suspected sites are investigated and, if necessary, remedial measures are implemented.

Requirements of risk estimation:

- Site identification:
  All abandoned industrial and waste disposal sites located in flood-risk areas are suspected of being hazardous to water bodies in case of flooding. The following measures should be carried out in an initial survey to determine whether suspect sites are hazardous or non hazardous to water in case of flooding:
    - Initial estimation of the risk by classifying the water endangering potential of the former use (type of industrial branch or type of waste disposed of).
    - Priorisation of suspect sites according to the estimated water endangering potential.
    - Estimation of the flood risk at the site.
- Sites for which a safety risk has been identified should be investigated in more detail. A first proposal for immediate measures should be formulated if there are obvious safety risks.
- Further site investigations:
  They serve to generate additional information for a more precise characterisation of the hazard situation of the investigated site.
- This information should cover the following points
    - a description of the contamination situation,
    - the determination of any assets that would be endangered in case of flooding, and
    - a proposal for further measures to enhance the safety of the site, if necessary.
- Detailed investigations
  Based on detailed investigations and the identification of highly contaminated zones a list of measures should be drawn up to serve as a basis for the selection of specific remedial measures.
- Results of each investigation step should be documented in a database.

Technical requirements:

<u>Preventive measures:</u>

Preventive measures include:

- Controlling the stability and necessary static design and capacity of dams,
- Regular supervision and control of sites with a high risk potential,
- Increasing the retention time through:
    - storage basins for heavy rainfall and snowmelt water
    - building of reservoirs
    - renaturation and/or protection of floodplain forests
- Construction of dams at sites with a high flood risk.

Requirements for the remediation of contaminated sites:

Different decontamination methods are available for contaminated sites in flood-risk areas:

- removal of soil and disposal in safe landfills,
- removal of barrels and tanks, or
- decontamination by chemical, physical or biological methods

In addition to conventional decontamination measures, containment measures, designed to permanently prevent the spread of pollutants, can be considered. Such measures include for example:

- Encapsulating of contaminated bodies of soil
- Sealing of surfaces

Investigations should be performed to select the optimal treatment for each site.

If immediate action is necessary because human health is threatened, appropriate protective or restrictive measures should be carried out (e.g. restriction of access).

Advices for utilization of contaminated sites:

In the area of the contaminated site and in its immediate vicinity, at least the following points have to be taken into consideration:

- Possible change of use should neither result in environmental impairment (e.g. additional mobilization of contaminants) nor generate additional potential danger.
- As elevated concentrations of methane and carbon dioxide may occur in the area of deposition, deep construction workings (e.g. subsurface running of pipelines and conduits, construction of cellars) should generally be carried out, taking appropriate safety measures (e.g. use of a gas detector)
- Generally, in the course of construction work, the presence of landfill gas in possibly major concentrations should be considered.
- During the technical design of permanent subsurface installations (e.g. conduits and shafts, cellars) an appropriate gas discharge (e.g. gas drainage) or adequate gas impermeability should be assured.
- Related to possible future construction works and the sealing of surfaces, the mode for run-off of precipitation has to be investigated carefully. An elevated mobilization of contaminants and an elevated entry of contaminants into the groundwater through seepage have to be excluded.
- Waste excavated from deep construction workings has to be treated and deposited according to current legislation.
- Based on investigation results so far, it can be assumed that part of the deposit does not comply with the regulations of the landfill directive for rubble, therefore higher costs have to be anticipated accordingly at the disposal of larger volumes of excavated material.

7 MEETINGS

The Consultant was expected to participate at a site visit by the WGI to test the checklist and to incorporate necessary changes into the checklist, further to attend one WGI meeting and up to two APC EG meetings.

7.1 31st APC-EG meeting in Bratislava (7th and 8th April 2005)

At the 31st APC-EG meeting (7th, 8th April 2005 in Bratislava) all countries were asked to report on the following missing data by the end of May 2005:

- Factor flooding potential (FP);
- Factor safety measures (SM);
- Industrial and abandoned industrial sites

7.2 Meeting in Vienna (29th July 2005)

On the 29th July 2005 a meeting was held in Vienna (UNDP/GEF) with Mr. Peter Whalley, Mr. Aurel Varduca, Mr. Igor Liska, Mr. Gerd Winkelmann-Oei and Mrs. Hermine Weber regarding the next WGI meeting in Romania, to clarify responsibilities.

In this meeting the following points were discussed:

- Next WGI meeting envisaged in Romania
- For the 32nd APC-EG meeting in Berlin (September 2005) the participation of Ms. Hermine Weber is not required.
- Responsibilities WGI meeting (coordinating, organization)

7.3 32nd APC-EG meeting in Berlin (23rd, 24th September 2005)

The 32nd meeting of the APC-Expert Group was held from 23rd to 24th Sept. 2005 in Berlin. The participation of the Umweltbundesamt Vienna was not necessary. A short presentation on the work completed by the Umweltbundesamt Vienna was given by Mr. Peter Whalley (UNDP/GEF).

According to the minutes of the 32nd APC-EG meeting the countries reported problems in collecting the necessary data, the major reason being the missing legislative basis. This "working list" of contaminated sites (deposit sites and industrial and/or abandoned industrial sites) in flood risk areas should continue in its preparation as it will be relevant for the future programme of measures.

The countries Bosnia & Herzegovina, Bulgaria, Moldova and Serbia were asked to send information on plans regarding the collection of data on deposit sites by October 2005.

The Umweltbundesamt Vienna was asked to report on the reasons for missing information on the contaminated sites in flood risk areas and to give an expert judgement and recommendations on future perspectives and activities.

M2 methodology (2nd Progress Report, July 2005) will be discussed at the meeting of the Working Group in Inventories (WGI), which was envisaged February/March 2006.

7.4 Workshop on M2 methodology and refineries pilot project (17. July 2006 and 1st AP Task Group Meeting in Constanta, Rumania (20.-21. July 2006)

From 18. – 21. July 2006 the seminar "Activities for Accident Prevention – Pilot Project – Refineries was held in Constanta, Rumania. During this seminar the workshop "workshop on M2 methodology and refineries pilot project" was implemented. A working group meeting "1st Task Group Meeting" was held afterwards (20. - 21. July 2006, Constanta, Rumania).

Output of the meeting/workshop:

The checklist "Checklist for the Investigation and Risk Assessment of Contaminated Sites in Flood Risk Areas" was tested on a site visit on 20th July 2006. Contaminated deposit site (see Appendix 1, Table 1, item 97): Rompetrol in Navodari, Constanta, Rumania (see Picture 1, Picture 2, Picture 3 and Picture 4).

The checklist was discussed and agreed by the members of the seminar "workshop on M2 methodology and refineries pilot project"(20th, 21st July 2006). Comments on the tested checklist were incorporated into the checklist by the author.

Picture 1 Map from Rompetrol, Navodari, Rumania, 20th July 2006

Picture 2 Participants of the workshop at Rompetrol (in front of the main-entrance of Rompetrol), 20th July 2006

Short description of the contaminated deposit site:

Picture 3 Contaminated deposit site (oil sludge pond), 20th July 2006

- Oil sludge pond, r0 = 5
- Volume: 130.000 m³

} M1-value: 55

- Factor of flooding potential (FP): 3
- Factor of safety measures (SM): 2

} M2-value: 333

See Table 11 evaluation table for deposit sites (see also Appendix 2, Table 4)

Table 11 Evaluation table for deposit sites

M1-values for deposits with regard to hazard potential					
Volume (m³)	Class of hazard, r0 (by type of wastes)				
	1	2	3	4	**5**
5.000-9.999	2	10	23	39	49
10.000-19.999	3	13	27	41	51
20.000-49.999	4	15	31	43	53
50.000-99.999	5	17	34	45	54
100.000-499.999	5	19	37	47	**55**
500.000-999.999	5	20	40	49	56
1.000.000-1.999.999	5	22	42	50	57
≥2.000.000	5	28	45	53	60

(volume of 130.000 m³, r0 = 5 → M1 = 55)

According the M2 methodology further investigations are necessary by taking into account the factor of "flooding potential" (FP) and the factor of "safety measures" (SM).

The M2-value has to be determined as follows:

$$M2 = M1 \times FP \times SM$$

M1 … M1-value, FP … flooding potential, SM … safety measures

➔ M2 = M1 x FP x SM = 55 x 3 x 2 = 333

Assessment and classification system for M2 = 333 ➔ priority class: 2; need for further measures to be established at the site: high

Priority class for remediation	M2-values	Need for further measures to be established at the site
1	≥1000 – 1.800	Very high
2	**≥250 - <1000**	**High**
3	≥50 - <250	Relevant
4	<50	Low

Planned measures at the site within the next 4 years:

- Remove/excavate the hole deposit site and contaminated underground and dispose it secure
- Decontamination of the soil/area
- Decontamination of groundwater

Picture 4 Participants of the "workshop on M2 mehtodology" at Rompetrol, 20th July 2006

8 RECOMMENDED SOLUTIONS

Six countries reported relevant deposit sites in flood risk areas (in total 86 deposit sites within the Danube River Basin). But only four countries submitted additional necessary information about the flooding situation and the safety measures taken at the contaminated site. For 20 contaminated sites (out of 38 reported deposit sites with an M1-value ≥ 47) an M2-value could be calculated.

Regarding contaminated industrial sites and/or abandoned industrial sites the information is limited. Only Austria reported 11 contaminated industrial sites in flood risk areas in their country. Germany reported no relevant industrial and/or abandoned industrial site within the Danube River Basin.

Because of the lack of reported contaminated sites within the Danube River Basin, the Umweltbundesamt Vienna will recommend the following to the ICPDR for future activities (request from the APC-EG, 32nd APC-EG meeting):

- Statistical extrapolation of the estimated number of contaminated sites in flood risk areas (basic data from Austria) to get an idea of how many contaminated sites (deposit sites and industrial sites) can be expected within the Danube River Basin.
- Support for the Danube countries in recording contaminated sites (deposit sites and industrial and/or abandoned industrial sites)
- providing financial funds for the Danube Countries to build up a national recording system of contaminated sites for selected countries;
- support from technical experts, if necessary.
- Continue recording contaminated sites in flood risk areas within the Danube River Basin.
- Take preventative measures and remediation activities (for contaminated sites with an M2-value ≥ 50)

9 LITERATURE

- *ICPDR APC Expert Group*, Recommendation "Safety Requirements for Contaminated Sites in Flood-risk Areas
- *ICPDR*, Methodology for the Pre-Assessment of Suspected Contaminated Sites in the Danube River Basin (M1 methodology), September 2004
- Outputs of the Phase 1 of the DRP are available from the DRP´s web site www.undp-drp.org
- Activities of the APC EG (and the WGE) are available from the ICPDR´s web site www.icpdr.org

APPENDIXES & ANNEXES

APPENDIX 1 **Working list of reported contaminated sites (data set)**

Table (a): All reported deposit and industrial/abandoned sites (97 records)

Table (b): All reported deposit and industrial/abandoned sites (97 records) (colored)

Table (c): Reported deposit sites, Slovakia (18 records)

Table (d): Reported deposit sites, Hungary (32 records)

Table (e): Reported deposit sites, Romania (25 records)

Table (f): Reported deposit and industrial sites, Austria (5 deposit sites, 11 industrial sites)

Table (g): Reported deposit sites, Ukraine (3 records

Table (h): Reported deposit sites, Ukraine (3 records)

Table (i): Reported deposit sites, Czech Republic (1 record)

Table (j): Reported deposit sites (Igor Liska, Version: 13.06.2005) (98 records)

APPENDIX 2 **Checklist for the Investigation and Risk Assessment of Contaminated Sites in Flood Risk Areas**

Annex 1: Questionnaire of Contaminates Sites in Flood Risk Areas

Annex 2: Branch Catalogue of Germany

Annex 3: European Waste Catalogue

APPENDIX 1

WORKING LIST OF REPORTED CONTAMINATED SITES (DATA SET)

Table (a): All reported deposit and industrial/abandoned sites (97 records)

Table (b): All reported deposit and industrial/abandoned sites (97 records) (colored)

Table (c): Reported deposit sites, Slovakia (18 records)

Table (d): Reported deposit sites, Hungary (32 records)

Table (e): Reported deposit sites, Romania (25 records)

Table (f): Reported deposit and industrial sites, Austria (5 deposit sites, 11 industrial sites)

Table (g): Reported deposit sites, Ukraine (3 records

Table (h): Reported deposit sites, Ukraine (3 records)

Table (i): Reported deposit sites, Czech Republic (1 record)

Table (j): Reported deposit sites (Igor Liska, Version: 13.06.2005) (98 records)

Appendix 1, Table (a): All reported deposit and industrial/abandoned sites (97 records) (30.07.2006):

n.d. … not determinable

Item Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	Risk Potential according old m1	Risk Potential according old m2	Risk Potential according old m3	Risk Potential according old m4	Risk Potential according new m1	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value / or comments	classification system 1,2,3,4.
1	Romania		Tulcea		Turcoaia	#WERT!	45_07_18_N 28_11_05_E			5000	Old Danube-Macin Arm				sterile pond				not specified	not specified		440.000			n.e.	#BEZUG!	#BEZUG!		waste not specified	✔	3	3	no data for waste type	n.d.
2	Austria	Wien	22. Donaustadt	Wien	Tankfarm Lobau	W12	M34, x= 5337100, y= 13000	1			Danube	industrial site	Tanklager für Mineralölprodukte			1950-1992	Mineralöl, Kohlenwasserstoffe			100100	1.000.000			5,0	55	#BEZUG!	#BEZUG!		59	**ind.site**	0	1	0	4
3	Austria	Wien	11. Simmering	Wien	Gas works Simmering	W18	M34, x= 5338402, y= 6854	1			Danube	industrial site	Gaswerk			1973 - 1989	PAK, Cyanid, Mineralöl, Phenole,Ammonium, Sulfat				325.000			5,0	55	#BEZUG!	#BEZUG!		58	**ind.site**	0	3	0	4
4	Austria	Wien	11. Simmering	Wien	EBS-BP-TKV	W1	M34, x= 5337400, y= 10000	1			Danube	industrial site	Mineralöllagerung, Tierkörperverwertung	0050		seit 1942	Mineralöl, CKW			070100	200.000			5,0	55	#BEZUG!	#BEZUG!		58	**ind.site**	0	2	0	4
5	Austria	Wien	23. Liesing	Wien	Siebenhirten	W8	M34, x= 5333000, y= 2800	1			Liesing	industrial site	Chemische Grundstoffindustrie			1923-1960/61	Cyanid, Kohlenwasserstoffe, Phenol, Ammonium, Nitrit, Sulfat				150.000			5,0	50	#BEZUG!	#BEZUG!		58	**ind.site**	0	3	0	4
6	Austria	Wien	11. Simmering	Wien	Teerag-Asdag-Simmering	W21	M34, x= 5338000, y= 8600	1			Danube	industrial site	Teerverarbeitung			1926-1981	PAK, Phenole, BTX			170701	130.000			5,0	50	#BEZUG!	#BEZUG!		58	**ind.site**	0	2	0	4
7	Austria	Niederösterreich	Korneuburg	Korneuburg	refinery Tuttendorfer Breite	N16	M34, x= 5355250, y= 250	1			Danube	industrial site	Mineralöl-Raffinerie	0050		seit 1882	Mineralöl, CKW				180.000			4,5	50	#BEZUG!	#BEZUG!		58	**ind.site**	0	3	0	4
8	Austria	Niederösterreich	Korneuburg	Korneuburg	Shipyard Korneuburg	N33	M34, x= 5356050, y= 1100	3			Danube	industrial site	Schiffbau	0420		1920-1960	Metalle, Mineralöl				200.000			4,0	50	#BEZUG!	#BEZUG!		57	**ind.site**	3	3	513	2
9	Hungary	Central Transdanubian Environmental Inspectorates Area		Dunaújváros	Dunaferr Inc.	#WERT!	X=642 735 Y=174 625	2			Danube	industrial deposit			industrial sewage sludge					190200 190804		1.500.000	1.500.000	5	55				57	✔	0	3	0	4
10	Germany		Stadt Straubing	Stadt Straubing	Deponie Peterswöhrd		R: 4543249 H: 5417000	2		200	Danube	old deposit				1946 until 1977			municipal waste, accompanied by construction waste and industrial waste			1.450.000		3,5	46				46	✱ (m1 < 47)	3	1	m1 < 47	n.d.
11	Austria	Niederösterreich	Mödling	Vösendorf	refinery Vösendorf	N20	M34, x= 5331650, y= 1200	1			Petersbach	industrial site	Mineralöl-Raffinerie	0670		1845-1994	Mineralöl, PAK				145.000			4,5	50	#BEZUG!	#BEZUG!		57	**ind.site**	0	3	0	4
12	Austria	Kärnten	Klagenfurt	Klagenfurt	Leather factory Neuner	K22	M31, x= 5166094, y= 75848	1			Glan	industrial site	Lederverarbeitung	2070		1930-1990	Chrom				120.000			4,5	50	#BEZUG!	#BEZUG!		57	**ind.site**	0	3	0	4
13	Romania		Sibiu		Copsa Mica	#WERT!	46_06_35_N 24_14_27_E	0		50 2	Tamava Mare River Visa Brook				industrial waste				slags from primary and secondary melting, (other not specified inorganic wastes other inorganic matters from thermic processes as suspensions or dust, iron and steel)	100501, 060199, 100504, 170405, 170701		1.350.000		5	55				57	✔	1	2	114	3
14	Romania		Hunedoara		Calan	#WERT!		0		3500	Strei River				slag and ash pond				not processed slag, lining and refractory waste materials, furnace slag, foundry shapes containing organic ligands, wastes from mixture preparation previously thermic processing, other tars	100202 100206 100903 101003 050603 100901 101001		1.300.000		5	55				57	✔	1	3	171	3
15	Romania		Hunedoara		Calan	15	45_43_54_N 22_59_35_E	0		3500	Strei River	deposit			slag and ash pond				not processed slag, lining and refractory waste materials, furnace slag, foundry shapes containing organic ligands,wastes from mixture preparation previously thermic processing, other tars	100202, 100206, 100903, 101003, 050603, 100901, 101001		1300000		5	55				57	✔	1	3	171	3

Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	Risk Potential according old m1	Risk Potential according old m2	Risk Potential according old m3	Risk Potential according old m4	Risk Potential according new m1	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value	classification system 1,2,3.
16	Austria	Kärnten	Sankt Veit an der Glan	Brückl	Donau Chemie Brückl	K5	M31, x= 5177850, y= 91450	2			Gurk	industrial site	Chemische Grundstoffindustrie	0050		seit 1909	CKW, Trichlorethen, Tetrachloretheen, Hexachlorbutadien				50.000			5,0	50	#BEZUG!	#BEZUG!		56	**ind.site**	1	2	112	3
17	Slovakia				ZSNP, Ziar n./Hronom			4		Hron 125,3 r.km	Hron	red-sludge bed, danger waste deposit			alkaline water	since 1957				200115		1000000		5	55	#BEZUG!	#BEZUG!		55	✔	0	no data	no data for SM	n.d.
18	Slovakia				A.S.A. Zohor			3		Malina 6,0 r.km	Morava	deposit of danger waste, oil waste			deposit of mixed danger waste	since 1996				130000		350000		5	55	#BEZUG!	#BEZUG!		55	✔	3	no data	no data for SM	n.d.
19	Ukraine				The Odessa area Izmail Cellulose cardboard combine								Storehouse CaCl + Na2O									200.000		5	55				55	✔	no data	no data	no data for FP and SM	n.d.
20	Ukraine				The Odessa area Izmail Cellulose cardboard combine								cleaning contructions									23300 per day		4	55				53	✔	no data	no data	no data for FP and SM	n.d.
21	Austria	Kärnten	Sankt Veit an der Glan	Althofen	Landfill Roßwiese	K7	M31, x= 5192050, y= 85950	1			Gurk	deposit		0840	Industriemüll	seit 1922	Metalle, Mineralisierung					500.000		5,0	50				55	✔	0	2	0	4
22	Austria	Kärnten	Sankt Veit an der Glan	Brückl	lime dump site Brückl I/II	K20	M31, x= 5178385, y= 91658	1			Gurk	deposit		0420	Industrieabfälle, Bauschutt, Aushubmaterial	seit 1930	CKW (Tetrachloretheen, Trichlorethen, Hexachlorbutadien)					250.000		4,5	50	#BEZUG!	#BEZUG!		51	✔	0	3	0	4
23	Austria	Tirol	Schwaz	Pill, Weer	Landfill Pill	T7	M31, x= 5243100, y= 10100	1			Inn	deposit		2070	Hausmüll, Bauschutt, Industrie-/Gewerbemüll		erhöhte Mineralisierung, reduzierende Verhältnisse					1.000.000		4,0	50	#BEZUG!	#BEZUG!		50	✔	0	3	0	4
24	Austria	Niederösterreich	Tulln	Tulln	Landfill Tulln	N49	M34, x= 5356960, y= 20420	3			Danube	deposit		2070	Hausmüll, Bauschutt, Industrie-/Gewerbemüll	seit 1934	reduzierende Verhältnisse, erhöhte Mineralisierung					200.000		3,5	50	#BEZUG!	#BEZUG!		42	✱ (m1 < 47)	3	3	m1 < 47	m1 < 47
25	Hungary	Central Transdanubian Environmental Inspectorates Area		Ajka	Bakonyi Erőmű Inc.	1		0			Torna	industrial deposit			gray sludge					190101		15.000.000	15.000.000	4	49				53	✔	0	1	0	4
26	Romania		Bacau		Letea Veche	2	46_33_12_n 26_56_51_E	0		1,5	Siret River				slag and ash pond				fuel burning	100100		13.150.000		4	49				53	✔	3	2	318	2
27	Hungary	Middle Danube Environmental Inspectorates area		Lőrinci	Fixon Bt.-Humiron Ltd.	3		0			Zagyva	old industrial site	Old mining tailing		slag and dust ash					190101 190103		5.000.000		4	49				53	✔	0	3	0	4
28	Slovakia				BUCINA, Horny Sturec			4		Zolna 1,5 r.km	Hron	deposit of liqued waste,fenole, formaldehyde			industrial liquid waste	since 1950				190106		20000		5	51	#BEZUG!	#BEZUG!		51	✔	0	no data	no data for SM	n.d.
29	Austria	Niederösterreich	Korneuburg	Korneuburg	Tankfarm Mare	N46	M34, x= 5328350, y= 1250	3			Danube	industrial site	Mineralöllager	0010		1900-1975	Mineralöl				10.000			4,0	50	#BEZUG!	#BEZUG!		51	**ind.site**	3	2	306	2
30	Hungary	North Hungarian Environmental Inspectorate Area		Tiszaújváros	AES borsodi Energetikai Ltd Tiszapalkonyai Hőerőmű	1	x=800 150 y=286 711	2			Tisa (483)	old mining tailing							sludgewater and slag-dust-ash	100100		1.400.000	800.000 and 1.400.000	4	49				50	✔	0	2	0	4
31	Hungary	Middle Tisa Environmental Inspectorates Area		Szolnok	Béghin-Say Cukorgyár Inc.(technology waste-water thickerer)	2	X=734 750 Y=200 250	2			Tisa (330)	industrial deposit			waste water sludgein lake		waste water sludge		contaminated surface water			1.300.000		4	49				50	✔	1	1	50	3
32	Romania		Teleorman		Tumu Magurele	1	43_43_50_N 24_52_05_E	0		150	Danube				pyrite ash pond				not specified (wastes containing metals)	060400		1.900.000		4	49				50	✔	1	2	100	3
33	Romania		Sibiu		Copsa Mica	18		0		50; 2	Tarnava Mare River;Visa brook	deposit			industrial wastes				slags from primary and secondary melting, other not specified inorganic wastes, other inorganic matters from thermic processes as susspenssions or dust,iron and steel)	100501, 060199, 100504, 170405, 170701		1350000		4	49				50	✔	1	2	100	3
34	Slovakia				CHEMKO, Strazske			3		Ondava 16,2 rkm	Bodrog	deposit - industrial			leach out during flood	since 1955				190202		800000		4	49	#BEZUG!	#BEZUG!		49	✔	0	no data	no data for SM	n.d.
35	Slovakia				DUSLO, Šala			3		Vah 54 r.km	Vah	DUSLO Sala			sludge bed	since 1980				190804		750000		4	49	#BEZUG!	#BEZUG!		49	✔	0	no data	no data for SM	n.d.
36	Slovakia				CHEMKO, Strazske			3		Ondava 43,2 rkm	Bodrog	sludge deposit - sludge reservoir			leach out during flood	since 1959				190202		600000		4	49	#BEZUG!	#BEZUG!		49	✔	0	no data	no data for SM	n.d.
37	Romania		Dolj		Calafat	1		0		3000	Danube				slag and ash pond				Slag and ashes from coal burning	100100		655.000		4	49				49	✔	1	2	98	3

Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	Risk Potential according old m1	Risk Potential according old m2	Risk Potential according old m3	Risk Potential according old m4	Risk Potential according new m1	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value	classification system 1,2,3.
38	Hungary	Middle Tisa Environmental Inspectorates Area		Heves	BERVA Inc.(chemical pollution)	#WERT!	X=744 160 Y=251 350	0			Forrós-belwatercanal (8) Hanyi-ér (16) Tisa (388)	industrial deposit			polluted earth		hydrocarbon		contaminated soil and groundwater			10.500 and 5.000		5	51,0	#WERT!	#WERT!		51	✓	0	3	0	4
39	Romania		Dambovita		Targoviste	23		0		200	Ialomita River	deposit			slag and ash pond				not specified (wastes from ferrous pieces foundry, some of them might be dangerous)	100900		12000		5	51				51	✓	0	no data	no data for SM	n.d.
40	Slovakia			Bucina, Horny Sturec	deposit of liqued waste.fenole, formaldehyde						Zolna 1,5 r.km	industrial deposit								190106		20.000		5	51	#BEZUG!	#BEZUG!		51	✓	0	no data	no data for SM	n.d.
41	Czech Republic			Sumperk				0			Desna river (river km 6)	industrial deposit			Sludge lagoons in the waste water treatment plant		heavy metals		sludge			6.000		5	49	#BEZUG!	#BEZUG!		49	✱ (m³ too small)	0	no data	m³ too small, no data for SM	n.d.
42	Slovakia				PETROCHEMA, Predajna			4		Hron 208 r.km	Hron	deposit of gudrons PETROCHEMA			overspill by heavy raining	since 1964				190202		120000		4	47	#BEZUG!	#BEZUG!		47	✓	0	no data	no data for SM	n.d.
43	Slovakia				ENO, Zemianske Kostolany			3		Nitra 128 r.km	Nitra	ENO Zemianske Kostolany			deposit of fly-ash	since 1965				190103		300000		4	47	#BEZUG!	#BEZUG!		47	✓	0	no data	no data for SM	n.d.
44	Slovakia				KOVOHUTY, Krompachy			3		Hornad 186,0 rkm	Hornad	sludge deposit			leach out during flood	since 1967				190202		285000		4	47	#BEZUG!	#BEZUG!		47	✓	10	no data	no data for SM	n.d.
45	Slovakia				BUKOCEL, Vranov n.Toplou			3		Ondava 48,7 rkm	Bodrog	sludge deposit - links bank meander			leach out during flood	since 1983				190202		153000		4	47	#BEZUG!	#BEZUG!		47	✓	1	no data	no data for SM	n.d.
46	Germany		Dillingen	Dillingen	Hühnerwörth		R: 4390858 H: 5382545	2		200	Danube	old deposit				1960 until 1977			municipal waste			470.000		4,0	47				47	✓	3	1	141	3
47	Hungary	Central Transdanubian Environmental Iinspectorates Area		Dunaújváros	Dunapack Inc.	1	X=642 735 Y=174 625	2			Danube (1573)	industrial deposit			mix sludge					190100		212.000	212.000	4	47				47	✓	0	3	0	4
48	Hungary	North Hungarian Environmental Inspectorate Area		Tiszaújváros	Tisa Chemical Self-contained plant	2	x=798 042 Y=287 515	2			Tisa (484)	industrial deposit							industry sewage –earth dam	190100		211.000		4	47				47	✓	0	2	0	4
49	Slovakia				Skladka TKO, Turzovka			2		Semetes /in tube/	Vah	deposit of common and industrial waste			leaking tube line	1968-2000				190202		105000		4	47	#BEZUG!	#BEZUG!		47	✓	3	no data	no data for SM	4
50	Romania		Dolj		Calafat		43_59_20_N 22_56_30_E	0		250	Danube				industrial waste				Wastes from sugar beet processing	020400		435.000		4	47				47	✓	1	3	141	3
51	Hungary	North Hungarian Environmental Inspectorate Area		Mezőkövesd Airport	Mezőkövesd – „B" area Old Fuel depot	1	x=768 200 Y=274 000	0			Hór Brook (2) Kánya Brook (14) Rima Brook (8) Tisa (434)	old militiary site							hydrocarbon polluted soil and groundwater			300.000 and 60.000	?	4	47	#WERT!	#WERT!		47	✓	0	3	0	4
52	Hungary	Middle Danube Environmental Inspectorates area			Budapest, Csepel-island Nord	2		0			Danube	deposit			Abandon sewage sludge depots		heavy metal and hydrocarbon (CH) polluted organic compounds			060405		300.000	300.000	4	47				47	✓	1	3	141	3
53	Romania		Dambovita		Targoviste	3		0		1500	Ilfov Brook				hazardous waste				not specified (waste solutions and muds containing chromium but without cyanides	110103		3.028		5	47	#BEZUG!	#BEZUG!	100	47	✱ (m³ too small)	0	no data	m³ too small	m³ too small
54	Romania		Giurgiu		Giurgiu	3		0		3000	Danube	deposit			industrial wastes				organic solvents, washing liquids and mother solutions	070104		3000		5	47	#BEZUG!	#BEZUG!		47	✱ (m³ too small)	0	no data	m³ too small	m³ too small
55	Slovakia			A.S.A. Zohor	deposit of danger waste, oil waste						Malina 6,0 r.km	industrial deposit							premixed waste	190202		350.000	cca 350000	4	47	#BEZUG!	#BEZUG!		47	✓	3	no data	no data for SM	n.d.
56	Slovakia			Predajna	deposit of gudrons PETROCHEMA						Hron 208 r.km	industrial deposit							overspill by heavy raining	050100		120.000		4	47	#BEZUG!	#BEZUG!		47	✓	0	no data	no data for SM	n.d.
57	Austria	Kärnten	Villach Land	Ferndorf	Industrial deposit Heraklithwerke Ferndorf	K21	M31, x= 5177019, y= 22827	1			Drau	deposit		1030	Industrieabfälle	seit 1914	Magnesium, Sulfat					500.000		3,5	42	#BEZUG!	#BEZUG!		42	✱ (m1 < 47)	0	3	m1 < 47	m1 < 47
58	Slovakia				NCHZ, Novaky			4		Nitra 123 r.km	Nitra	NCHZ Novaky			deposit of calc-sludge	since 1968				20402		12000000		3	40	#BEZUG!	#BEZUG!		45	✱ (m1 < 47)	0	no data	m1 < 47, no data for SM	m1 < 47
59	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 03/29,30,31	1	X=592 500 Y=265 000	2				industrial site	Old mining tailing		VII. Reservoir for red-dross				red dross	010303		3.250.000		3	40				45	✱ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
60	Romania		Dambovita		Gaesti	6		0		1100	Arges River	deposit			hazardous wastes				not specified (muds from industrial waste water treatment)	190804		30.6		5	45	#BEZUG!	#BEZUG!		45	✱ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small

Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	Risk Potential according old m1	Risk Potential according old m2	Risk Potential according old m3	Risk Potential according old m4	Risk Potential according new m1	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value	classification system 1,2,3.
61	Romania		Dambovita		Targoviste	4		0		not specified		deposit			hazardous wastes				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals others than chromium, wastes solutions and muds containing chromium but without cyanides)	110101, 110103		10.5		5	45	#BEZUG!	#BEZUG!		45	✱ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
62	Hungary	Central Transdanubian Environmental Iinspectorates Area		Ajka	MAL Inc. I-VIII. store, reclaimed	5	x=534 000 y=194 000	0			Torna (52) Marcal (97,8) Rába (204,6)	industrial deposit			red dross settlements					010303		29.000.000	29.000.000	3	40				45	✱ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
63	Romania		Hunedoara		Mintia	13	45_53_47_N 22_53_28_E	0		500	Mures River	deposit			slag and ash pond				fireplace ash	100101		9700000		3	40	#BEZUG!	#BEZUG!		45	✱ (m1 < 47)	1	3	m1 < 47	m1 < 47
64	Romania		Iasi		Blagesti	14	47_15_10_N 26_45_32_E	0		500	Siret River				industrial waste				Wastes from sugar processing	020400		100.000		4	45	#BEZUG!	#BEZUG!		45	✱ (m1 < 47)	1	2	m1 < 47	m1 < 47
65	Romania		Dambovita		Fieni	15		0		180	Lalomita River				hazardous waste				not specified (waste solutions and muds containing chromium but without cyanides	110103		20		5	45	#BEZUG!	#BEZUG!		45	✱ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
66	Romania		Dambovita		Targoviste			0		not specified					hazardous waste				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals other than chromium, waste solutions and muds containing chromium but without cyanides)	110101 110103		11		5	45	#BEZUG!	#BEZUG!		45	✱ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
67	Romania		Dambovita		Targoviste			0		800	Ilfov Brook				hazardous waste				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals others than chromium)	110101		6		5	45	#BEZUG!	#BEZUG!		45	✱ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
68	Romania		Dambovita		Targoviste	1		0		800	Ilfov brook	deposit			hazardous wastes				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals others than chromium)	110101		6		5	45	#BEZUG!	#BEZUG!		45	✱ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
69	Romania		Bacau		Bacau	17		0		3000	Bistrita River	deposit			industrial wastes				wood processing	not specified		40000		4	43	#BEZUG!	#BEZUG!		43	✱ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
70	Ukraine		village of town type Perechin	the forest "Zatova", str/ Budivelnikov, 1				0		600	Uzh	industrial deposit			wastes				Solid wastes	**1.48.21**		**30.000**		4	43	#BEZUG!	#BEZUG!		43	✱ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
71	Slovakia			PETROCHEMA area	deposit of gudrons						Hron 206 r.km	industrial deposit							washed up during flood	050100		50.000		4	43	#BEZUG!	#BEZUG!		43	✱ (m1 < 47)	0	no data	m1 < 47, no data SM	m1 < 47
72	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 06/8	#WERT!		2				industrial site	Old mining tailing		VI. Reservoir for red-dross				red dross	010303		1.800.000		3	40				42	✱ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
73	Hungary	Middle Tisa Environmental Inspectorates Area		Kunmadaras	Military Airport	#WERT!	X=781 755 Y=232 001	0			Üllő-Laposi (7) Német-éri (13) Hortobágy-Berettyó (82) Hármas-Körös (61) Tisa (243)	old military site	Old Soviet Military Airport		polluted earth		hydrocarbon		contaminated soil			14.500	?	4	41	#BEZUG!	#BEZUG!		41	✱ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
74	Hungary	Middle Danube Environmental Inspectorates area			Kiskunlacháza	#WERT!		0			Danube	old military site	Former Soviet military airport						hydrocarbon (CH) aviation kerosine pollution			9.000	?	4	41	#BEZUG!	#BEZUG!		41	✱ (m1 < 47) volume too small	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
75	Hungary	Upper Danube Environmental Inspectorates area			Neszmély 0125	#WERT!	X= 600 871 Y=264 058	2				industrial site	Old mining tailing		VIII. Reservoir for red-dross				red dross	010303		5.000.000		3	40				40	✱ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47

Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	Risk Potential according old m1	Risk Potential according old m2	Risk Potential according old m3	Risk Potential according old m4	Risk Potential according new m1	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value	classification system 1,2,3.
76	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 118	#WERT!	x=590 300 y=265 600	2				industrial site	Old mining tailing		III. Reservoir for red-dross				red dross	010303		1.000.000		3	40				40	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
77	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 06/10	#WERT!		2				industrial site	Old mining tailing		V. Reservoir for red-dross				red dross	010303		800.000		3	40				40	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
78	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 06/12	#WERT!		2				industrial site	Old mining tailing		IV. Reservoir for red-dross				red dross	010303		600.000		3	40				40	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
79	Hungary	Middle Tisa Environmental Inspectorates Area		Szolnok	TVM Inc. (waste of chemical industry)	#WERT!	X=732 950 Y=199 716	2			Tisa (332)	industrial deposit			polluted earth				contaminated soil	200202		600.000		3	40,0				40	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
80	Hungary	Körös Environmental Inspectorates Area		Békéscsaba	Establishment organic waste	#WERT!	X=806 600 Y=148 550	0			Nádas canal	communal waste storage			reclaimed waste storage							780.000		3	40	#BEZUG!	#BEZUG!		40	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
81	Hungary	Middle Danube Environmental Inspectorates area		Budapest, XXII. Harangozó u.	Metallochemia	#WERT!		0			Danube (1479,4)	old industrial site	Old mining tailing		metalslag		Pb, Zn, Cu, Cd			010400		650.000	650.000	3	40				40	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
82	Slovakia				DROTOVNE, Hlohovec			3		Vah 97 r.km	Vah	Drotovna Hlohovec			Fe- sludge bed	since 1962				190102		160000		3	37	#BEZUG!	#BEZUG!		37	✖ (m1 < 47)	0	no data	m1 < 47, no data for FP and SM	m1 < 47
83	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 119/11 Hrsz	1	x=590 327 y=265 665	2			Danube 1749-1761 km	industrial site	Old mining tailing		I-II Reservoir for red-dross				red dross	010303		450.000		3	37				37	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
84	Slovakia				TKO, Kysucke Nove Mesto			2		Kysuca	Vah	deposit of common and industrial waste			closed deposit of fouling industrial sludge	1960-1998				190601		150000		3	37	#WERT!	#WERT!	100	37	✖ (m1 < 47)	0	no data	m1 < 47, no data for SM	m1 < 47
85	Hungary	North Hungarian Environmental Inspectorate Area		Tarnaszentmária	MH – Tarnaszentmária Fuel depot	1	x=736 250 Y=281 850	0			Tarna (49) Zagyva (58) Tisa (335	old military site							hydrocarbon polluted soil and groundwater			69.000 and 69.000	?	4	37	#WERT!	#WERT!		37	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
86	Hungary	North Hungarian Environmental Inspectorate Area		Mezőkövesd Hrsz: 0456/2	MH – Mezőkövesd Fuel depot „K" area	2	x=762 425 Y=272 900	0			Kánya Brook (14) Rima Brook (8) Tisa (434)	old military site							hydrocarbon polluted soil and groundwater			52.500 and 67.500	?	4	37	#WERT!	#WERT!		37	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
87	Hungary	Middle Danube Environmental Inspectorates area			Tökö1	3		0			Danube	old military site	Former military airport						hydrocarbon (CH) polluted soil and groundwater			308000 and 209.900	?	3	37				37	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
88	Romania		Dambovita		Doicesti	4	44_59_15_N 25_24_02_E	0		50	Lalomita River				slag and ash pond				not specified (fireplace ash)	100101		500.000		3	37	#BEZUG!	#BEZUG!		37	✖ (m1 < 47)	1	3	m1 < 47	m1 < 47
89	Romania		Tulcea		Turcoaia	20		0		5000	Old Danube-Macin Arm	deposit			sterile pond				not specified	not specified		440000		3	37	#BEZUG!	#BEZUG!		37	✖ (m1 < 47)	3	3	m1 < 47	m1 < 47
90	Romania		Dolj		Calafat	11		0		250	Danube	deposit			industrial wastes				Wastes from sugar beet processing			435000		3	37	#BEZUG!	#BEZUG!		37	✖ (m1 < 47)	1	3	m1 < 47	m1 < 47
91	Hungary	South Transdanubian Environmental Inspectorates Area		Mohács		12	X=622 150 Y= 74 880	0			Danube (1445)	Communal organic dump			settlement waste				Communal organic dump	200301		370.000		3	37				37	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
92	Hungary	South Transdanubian Environmental Inspectorates Area		Barcs		13	X=529 650 Y= 70 890	0			Drava (153)	Communal organic dump			settlement waste				Communal organic dump			300.000		3	37	#BEZUG!	#BEZUG!		37	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
93	Hungary	Körös Environmental Inspectorates Area		Gyula	Establishment organic waste	14	X=818 000 Y=146 100	0			White Körös	communal waste storage								200301		273.773	273.773	3	37				37	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
94	Hungary	Middle Tisa Environmental Inspectorates Area		Jászberény	ELEKTROLUX - LEHEL Ltd WDS-1 (waste of chemical industry)	15	X=711 216 Y=237 746	0			Zagyva (67) Tisa (336)	industrial deposit			polluted earth				contaminated soil	200202		155.000		3	37,0				37	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
95	Hungary	South Transdanubian Environmental Inspectorates Area		Harkány		16	X=585 860 Y= 56 330	0			Drava (72)	Communal organic dump			settlement waste				Communal organic dump			114.000		3	37	#BEZUG!	#BEZUG!		37	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
96	Hungary	South Transdanubian Environmental Inspectorates Area		Siklós		16	X=590 640 Y= 53 770	0			Drava (65)	Communal organic dump			settlement waste				Communal organic dump			112.000		3	37	#BEZUG!	#BEZUG!		37	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
97	Romania	Navodari		Constanta	Rompetrol in Navodari						Danube, black sea	industrial deposit			oil sludge pond				industrial deposit			130.000							55	✔	3	2	330	2

Appendix 1, Table (b): All reported deposit and industrial/abandoned sites (97 records) (coloured) (30.07.2006):

deposit sites
industrial sites

n.d. … not determinable

Item Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	m1-value	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value / or comments	classification system 1,2,3,4.
1	Romania		Tulcea		Turcoaia	#WERT!	45_07_18_N 28_11_05_E			5000	Old Danube-Macin Arm				sterile pond				not specified	not specified		440.000			waste not specified	✔	3	3	no data for waste type	n.d.
2	Austria	Wien	22. Donaustadt	Wien	Tankfarm Lobau	W12	M34, x= 5337100, y= 13000	1			Danube	industrial site	Tanklager für Mineralölprodukte			1950-1992	Mineralöl, Kohlenwasserstoffe			100100	1.000.000			5,0	59	**ind.site**	0	1	0	4
3	Austria	Wien	11. Simmering	Wien	Gas works Simmering	W18	M34, x= 5338402, y= 6854	1			Danube	industrial site	Gaswerk			1973 - 1989	PAK, Cyanid, Mineralöl, Phenole,Ammonium, Sulfat				325.000			5,0	58	**ind.site**	0	3	0	4
4	Austria	Wien	11. Simmering	Wien	EBS-BP-TKV	W1	M34, x= 5337400, y= 10000	1			Danube	industrial site	Mineralöllagerung, Tierkörperverwertung	0050		seit 1942	Mineralöl, CKW			070100	200.000			5,0	58	**ind.site**	0	2	0	4
5	Austria	Wien	23. Liesing	Wien	Siebenhirten	W8	M34, x= 5333000, y= -2800	1			Liesing	industrial site	Chemische Grundstoffindustrie			1923-1960/61	Cyanid, Kohlenwasserstoffe, Phenol, Ammonium, Nitrit, Sulfat				150.000			5,0	58	**ind.site**	0	3	0	4
6	Austria	Wien	11. Simmering	Wien	Teerag-Asdag-Simmering	W21	M34, x= 5338000, y= 8600	1			Danube	industrial site	Teerverarbeitung			1926-1981	PAK, Phenole, BTX			170701	130.000			5,0	58	**ind.site**	0	2	0	4
7	Austria	Niederösterreich	Korneuburg	Korneuburg	refinery Tuttendorfer Breite	N16	M34, x= 5355250, y= 250	1			Danube	industrial site	Mineralöl-Raffinerie	0050		seit 1882	Mineralöl, CKW				180.000			4,5	58	**ind.site**	0	3	0	4
8	Austria	Niederösterreich	Korneuburg	Korneuburg	Shipyard Korneuburg	N33	M34, x= 5356050, y= -1100	3			Danube	industrial site	Schiffbau	0420		1920-1960	Metalle, Mineralöl				200.000			4,0	57	**ind.site**	3	3	513	2
9	Hungary	Central Transdanubian Environmental Iinspectorates Area		Dunaújváros	Dunaferr Inc.	#WERT!	X=642 735 Y=174 625	2			Danube	industrial deposit			industrial sewage sludge					190200 190804		1.500.000	1.500.000	5	57	✔	0	3	0	4
10	Germany		Stadt Straubing	Stadt Straubing	Deponie Peterswöhrd		R: 4543249 H: 5417000	2		200	Danube	old deposit				1946 until 1977			municipal waste, accompanied by construction waste and industrial waste			1.450.000		3,5	46	✱ (m1 < 47)	3	1	m1 < 47	n.d.
11	Austria	Niederösterreich	Mödling	Vösendorf	refinery Vösendorf	N20	M34, x= 5331650, y= -1200	1			Petersbach	industrial site	Mineralöl-Raffinerie	0670		1845-1994	Mineralöl, PAK				145.000			4,5	57	**ind.site**	0	3	0	4
12	Austria	Kärnten	Klagenfurt	Klagenfurt	Leather factory Neuner	K22	M31, x= 5166094, y= 75848	1			Glan	industrial site	Lederverarbeitung	2070		1930-1990	Chrom				120.000			4,5	57	**ind.site**	0	3	0	4
13	Romania		Sibiu		Copsa Mica	#WERT!	46_06_35_N 24_14_27_E	0		50 2	Tamava Mare River Visa Brook				industrial waste				slags from primary and secondary melting, (other not specified inorganic wastes other inorganic matters from thermic processes as suspensions or dust, iron and steel)	100501, 060199, 100504, 170405, 170701		1.350.000		5	57	✔	1	2	114	3
14	Romania		Hunedoara		Calan	#WERT!		0		3500	Strei River				slag and ash pond				not processed slag, lining and refractory waste materials, furnace slag, foundry shapes containing organic ligands, wastes from mixture preparation previously thermic processing, other tars	100202 100206 100903 101003 050603 100901 101001		1.300.000		5	57	✔	1	3	171	3
15	Romania		Hunedoara		Calan	15	45_43_54_N 22_59_35_E	0		3500	Strei River	deposit			slag and ash pond				not processed slag, lining and refractory waste materials, furnace slag, foundry shapes containing organic ligands,wastes from mixture preparation previously thermic processing, other tars	100202, 100206, 100903, 101003, 050603, 100901, 101001		1300000		5	57	✔	1	3	171	3

Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	m1-value	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value	classification system 1,2,3.
16	Austria	Kärnten	Sankt Veit an der Glan	Brückl	Donau Chemie Brückl	K5	M31, x= 5177850, y= 91450	2			Gurk	industrial site	Chemische Grundstoffindustrie	0050		seit 1909	CKW, Trichlorethen, Tetrachloreth en, Hexachlorbut adien				50.000			5,0	56	ind.site	1	2	112	3
17	Slovakia				ZSNP, Ziar n./Hronom			4		Hron 125,3 r.km	Hron	red-sludge bed, danger waste deposit			alkaline water	since 1957				200115		1000000		5	55	✔	0	no data	no data for SM	n.d.
18	Slovakia				A.S.A. Zohor			3		Malina 6,0 r.km	Morava	deposit of danger waste, oil waste			deposit of mixed danger waste	since 1996				130000		350000		5	55	✔	3	no data	no data for SM	n.d.
19	Ukraine				The Odessa area Izmail Cellulose cardboard combine								Storehouse CaCl + Na2O									200.000		5	55	✔	no data	no data	no data for FP and SM	n.d.
20	Ukraine				The Odessa area Izmail Cellulose cardboard combine								cleaning contructions									23300 per day		4	53	✔	no data	no data	no data for FP and SM	n.d.
21	Austria	Kärnten	Sankt Veit an der Glan	Althofen	Landfill Roßwiese	K7	M31, x= 5192050, y= 85950	1			Gurk	deposit		0840	Industriemüll	seit 1922	Metalle, Mineralisierung					500.000		5,0	55	✔	0	2	0	4
22	Austria	Kärnten	Sankt Veit an der Glan	Brückl	lime dump site Brückl I/II	K20	M31, x= 5178385, y= 91658	1			Gurk	deposit		0420	Industrieabfälle, Bauschutt, Aushubmaterial	seit 1930	CKW (Tetrachlorethen, Trichlorethen, Hexachlorbutadien)					250.000		4,5	51	✔	0	3	0	4
23	Austria	Tirol	Schwaz	Pill, Weer	Landfill Pill	T7	M31, x= 5243100, y= 10100	1			Inn	deposit		2070	Hausmüll, Bauschutt, Industrie-/Gewerbemüll		erhöhte Mineralisierung, reduzierende Verhältnisse					1.000.000		4,0	50	✔	0	3	0	4
24	Austria	Niederösterreich	Tulln	Tulln	Landfill Tulln	N49	M34, x= 5356960, y= -20420	3			Danube	deposit		2070	Hausmüll, Bauschutt, Industrie-/Gewerbemüll	seit 1934	reduzierende Verhältnisse, erhöhte Mineralisierung					200.000		3,5	42	✘ (m1 < 47)	3	3	m1 < 47	m1 < 47
25	Hungary	Central Transdanubian Environmental Inspectorates Area		Ajka	Bakonyi Erőmű Inc.	1		0			Torna	industrial deposit			gray sludge					190101		15.000.000	15.000.000	4	53	✔	0	1	0	4
26	Romania		Bacau		Letea Veche	2	46_33_12_n 26_56_51_E	0		1,5	Siret River				slag and ash pond				fuel burning	100100		13.150.000		4	53	✔	3	2	318	2
27	Hungary	Middle Danube Environmental Inspectorates area		Lőrinci	Fixon Bt.- Humiron Ltd.	3		0			Zagyva	old industrial site	Old mining tailing		slag and dust ash					190101 190103		5.000.000		4	53	✔	0	3	0	4
28	Slovakia				BUCINA, Horny Sturec			4		Zolna 1,5 r.km	Hron	deposit of liqued waste,fenole, formaldehyde			industrial liquid waste	since 1950				190106		20000		5	51	✔	0	no data	no data for SM	n.d.
29	Austria	Niederösterreich	Korneuburg	Korneuburg	Tankfarm Mare	N46	M34, x= 5328350, y= -1250	3			Danube	industrial site	Mineralöllager	0010		1900-1975	Mineralöl				10.000			4,0	51	ind.site	3	2	306	2
30	Hungary	North Hungarian Environmental Inspectorate Area		Tiszaújváros	AES borsodi Energetikai Ltd Tiszapalkonyai Hőerőmű	1	x=800 150 y=286 711	2			Tisa (483)	old mining tailing							sludgewater and slag-dust-ash	100100		1.400.000	800.000 and 1.400.000	4	50	✔	0	2	0	4
31	Hungary	Middle Tisa Environmental Inspectorates Area		Szolnok	Béghin-Say Cukorgyár Inc.(technology waste-water thickerer)	2	X=734 750 Y=200 250	2			Tisa (330)	industrial deposit			waste water sludgein lake		waste water sludge		contaminated surface water			1.300.000		4	50	✔	1	1	50	3
32	Romania		Teleorman		Tumu Magurele	1	43_43_50_N 24_52_05_E	0		150	Danube				pyrite ash pond				not specified (wastes containing metals)	060400		1.900.000		4	50	✔	1	2	100	3
33	Romania		Sibiu		Copsa Mica	18		0		50; 2	Tarnava Mare River;Visa brook	deposit			industrial wastes				slags from primary and secondary melting, other not specified inorganic wastes, other inorganic matters from thermic processes as susspenssions or dust,iron and steel)	100501, 060199, 100504, 170405, 170701		1350000		4	50	✔	1	2	100	3
34	Slovakia				CHEMKO, Strazske			3		Ondava 16,2 rkm	Bodrog	deposit - industrial			leach out during flood	since 1955				190202		800000		4	49	✔	0	no data	no data for SM	n.d.
35	Slovakia				DUSLO, Šala			3		Vah 54 r.km	Vah	DUSLO Sala			sludge bed	since 1980				190804		750000		4	49	✔	0	no data	no data for SM	n.d.
36	Slovakia				CHEMKO, Strazske			3		Ondava 43,2 rkm	Bodrog	sludge deposit - sludge reservoir			leach out during flood	since 1959				190202		600000		4	49	✔	0	no data	no data for SM	n.d.
37	Romania		Dolj		Calafat	1		0		3000	Danube				slag and ash pond				Slag and ashes from coal burning	100100		655.000		4	49	✔	1	2	98	3

Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	m1-value	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value	classification system 1,2,3.
38	Hungary	Middle Tisa Environmental Inspectorates Area		Heves	BERVA Inc.(chemical pollution)	#WERT!	X=744 160 Y=251 350	0			Forrós-belwatercanal (8) Hanyi-ér (16) Tisa (388)	industrial deposit			polluted earth		hydrocarbon		contaminated soil and groundwater			10.500 and 5.000		5	51	✔	0	3	0	4
39	Romania		Dambovita		Targoviste	23		0		200	Ialomita River	deposit			slag and ash pond				not specified (wastes from ferrous pieces foundry, some of them might be dangerous)	100900		12000		5	51	✔	0	no data	no data for SM	n.d.
40	Slovakia			Bucina, Horny Sturec	deposit of liqued waste,fenole, formaldehyde						Zolna 1,5 r.km	industrial deposit								190106		20.000		5	51	✔	0	no data	no data for SM	n.d.
41	Czech Republic			Sumperk				0			Desna river (river km 6)	industrial deposit			Sludge lagoons in the waste water treatment plant		heavy metals		sludge			6.000		5	49	✘ (m³ too small)	0	no data	m³ too small, no data for SM	n.d.
42	Slovakia				PETROCHEMA, Predajna			4		Hron 208 r.km	Hron	deposit of gudrons PETROCHEMA			overspill by heavy raining	since 1964				190202		120000		4	47	✔	0	no data	no data for SM	n.d.
43	Slovakia				ENO, Zemianske Kostolany			3		Nitra 128 r.km	Nitra	ENO Zemianske Kostolany			deposit of fly-ash	since 1965				190103		300000		4	47	✔	0	no data	no data for SM	n.d.
44	Slovakia				KOVOHUTY, Krompachy			3		Hornad 186,0 rkm	Hornad	sludge deposit			leach out during flood	since 1967				190202		285000		4	47	✔	10	no data	no data for SM	n.d.
45	Slovakia				BUKOCEL, Vranov n.Toplou			3		Ondava 48,7 rkm	Bodrog	sludge deposit - links bank meander			leach out during flood	since 1983				190202		153000		4	47	✔	1	no data	no data for SM	n.d.
46	Germany		Dillingen	Dillingen	Hühnerwörth		R: 4390858 H: 5382545	2		200	Danube	old deposit				1960 until 1977			municipal waste			470.000		4,0	47	✔	3	1	141	3
47	Hungary	Central Transdanubian Environmental Iinspectorates Area		Dunaújváros	Dunapack Inc.	1	X=642 735 Y=174 625	2			Danube (1573)	industrial deposit			mix sludge					190100		212.000	212.000	4	47	✔	0	3	0	4
48	Hungary	North Hungarian Environmental Inspectorate Area		Tiszaújváros	Tisa Chemical Self-contained plant	2	x=798 042 Y=287 515	2			Tisa (484)	industrial deposit							industry sewage –earth dam	190100		211.000		4	47	✔	0	2	0	4
49	Slovakia				Skladka TKO, Turzovka			2		Semetes /in tube/	Vah	deposit of common and industrial waste			leaking tube line	1968-2000				190202		105000		4	47	✔	3	no data	no data for SM	4
50	Romania		Dolj		Calafat		43_59_20_N 22_56_30_E	0		250	Danube				industrial waste				Wastes from sugar beet processing	020400		435.000		4	47	✔	1	3	141	3
51	Hungary	North Hungarian Environmental Inspectorate Area		Mezőkövesd Airport	Mezőkövesd – „B" area Old Fuel depot	1	x=768 200 Y=274 000	0			Hór Brook (2) Kánya Brook (14) Rima Brook (8) Tisa (434)	old military site							hydrocarbon polluted soil and groundwater			300.000 and 60.000	?	4	47	✔	0	3	0	4
52	Hungary	Middle Danube Environmental Inspectorates area			Budapest, Csepel-island Nord	2		0			Danube	deposit			Abandon sewage sludge depots		heavy metal and hydrocarbon (CH) polluted organic compounds			060405		300.000	300.000	4	47	✔	1	3	141	3
53	Romania		Dambovita		Targoviste	3		0		1500	Ilfov Brook				hazardous waste				not specified (waste solutions and muds containing chromium but without cyanides	110103		3.028		5	47	✘ (m³ too small)	0	no data	m³ too small	m³ too small
54	Romania		Giurgiu		Giurgiu	3		0		3000	Danube	deposit			industrial wastes				organic solvents, washing liquids and mother solutions	070104		3000		5	47	✘ (m³ too small)	0	no data	m³ too small	m³ too small
55	Slovakia			A.S.A. Zohor	deposit of danger waste, oil waste						Malina 6,0 r.km	industrial deposit							premixed waste	190202		350.000	cca 350000	4	47	✔	3	no data	no data for SM	n.d.
56	Slovakia			Predajna	deposit of gudrons PETROCHEMA						Hron 208 r.km	industrial deposit							overspill by heavy raining	050100		120.000		4	47	✔	0	no data	no data for SM	n.d.
57	Austria	Kärnten	Villach Land	Ferndorf	Industrial deposit Heraklithwerke Ferndorf	K21	M31, x= 5177019, y= 22827	1			Drau	deposit		1030	Industrieabfalle	seit 1914	Magnesium, Sulfat					500.000		3,5	42	✘ (m1 < 47)	0	3	m1 < 47	m1 < 47
58	Slovakia				NCHZ, Novaky			4		Nitra 123 r.km	Nitra	NCHZ Novaky			deposit of calc-sludge	since 1968				20402		12000000		3	45	✘ (m1 < 47)	0	no data	m1 < 47, no data for SM	m1 < 47
59	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 03/29,30,31	1	X=592 500 Y=265 000	2				industrial site	Old mining tailing		VII. Reservoir for red-dross				red dross	010303		3.250.000		3	45	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
60	Romania		Dambovita		Gaesti	6		0		1100	Arges River	deposit			hazardous wastes				not specified (muds from industrial waste water treatment)	190804		30.6		5	45	✘ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small

Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	m1-value	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value	classification system 1,2,3.
61	Romania		Dambovita		Targoviste	4		0		not specified		deposit			hazardous wastes				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals others than chromium, wastes solutions and muds containing chromium but without cyanides)	110101, 110103		10.5		5	45	✘ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
62	Hungary	Central Transdanubian Environmental Inspectorates Area		Ajka	MAL Inc. I-VIII. store, reclaimed	5	x=534 000 y=194 000	0			Torna (52) Marcal (97,8) Rába (204,6)	industrial deposit			red dross settlements					010303		29.000.000	29.000.000	3	45	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
63	Romania		Hunedoara		Mintia	13	45_53_47_N 22_53_28_E	0		500	Mures River	deposit			slag and ash pond				fireplace ash	100101		9700000		3	45	✘ (m1 < 47)	1	3	m1 < 47	m1 < 47
64	Romania		Iasi		Blagesti	14	47_15_10_N 26_45_32_E	0		500	Siret River				industrial waste				Wastes from sugar processing	020400		100.000		4	45	✘ (m1 < 47)	1	2	m1 < 47	m1 < 47
65	Romania		Dambovita		Fieni	15		0		180	Lalomita River				hazardous waste				not specified (waste solutions and muds containing chromium but without cyanides	110103		20		5	45	✘ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
66	Romania		Dambovita		Targoviste			0		not specified					hazardous waste				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals other than chromium, waste solutions and muds containing chromium but without cyanides)	110101 110103		11		5	45	✘ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
67	Romania		Dambovita		Targoviste			0		800	Ilfov Brook				hazardous waste				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals others than chromium)	110101		6		5	45	✘ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
68	Romania		Dambovita		Targoviste	1		0		800	Ilfov brook	deposit			hazardous wastes				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals others than chromium)	110101		6		5	45	✘ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
69	Romania		Bacau		Bacau	17		0		3000	Bistrita River	deposit			industrial wastes				wood processing	not specified		40000		4	43	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
70	Ukraine		village of town type Perechin	the forest "Zatova", str/ Budivelnikov, 1				0		600	Uzh	industrial deposit			wastes				Solid wastes	1.48.21		30.000		4	43	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
71	Slovakia			PETROCHEMA area	deposit of gudrons						Hron 206 r.km	industrial deposit							washed up during flood	050100		50.000		4	43	✘ (m1 < 47)	0	no data	m1 < 47, no data SM	m1 < 47
72	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 06/8	#WERT!		2				industrial site	Old mining tailing		VI. Reservoir for red-dross				red dross	010303		1.800.000		3	42	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
73	Hungary	Middle Tisa Environmental Inspectorates Area		Kunmadaras	Military Airport	#WERT!	X=781 755 Y=232 001	0			Üllő-Laposi (7) Német-éri (13) Hortobágy-Berettyó (82) Hármas-Körös (61) Tisa (243)	old military site	Old Soviet Military Airport		polluted earth		hydrocarbon		contaminated soil			14.500	?	4	41	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
74	Hungary	Middle Danube Environmental Inspectorates area			Kiskunlacháza	#WERT!		0			Danube	old military site	Former Soviet military airport						hydrocarbon (CH) aviation kerosine pollution			9.000	?	4	41	✘ (m1 < 47) volume too small	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
75	Hungary	Upper Danube Environmental Inspectorates area			Neszmély 0125	#WERT!	X= 600 871 Y=264 058	2				industrial site	Old mining tailing		VIII. Reservoir for red-dross				red dross	010303		5.000.000		3	40	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
76	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 118	#WERT!	x=590 300 y=265 600	2				industrial site	Old mining tailing		III. Reservoir for red-dross				red dross	010303		1.000.000		3	40	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47

Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	m1-value	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value	classification system 1,2,3.
77	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 06/10	#WERT!		2				industrial site	Old mining tailing		V. Reservoir for red-dross				red dross	010303		800.000		3	40	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
78	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 06/12	#WERT!		2				industrial site	Old mining tailing		IV. Reservoir for red-dross				red dross	010303		600.000		3	40	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
79	Hungary	Middle Tisa Environmental Inspectorates Area		Szolnok	TVM Inc. (waste of chemical industry)	#WERT!	X=732 950 Y=199 716	2			Tisa (332)	industrial deposit			polluted earth				contaminated soil	200202		600.000		3	40	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
80	Hungary	Körös Environmental Inspectorates Area		Békéscsaba	Establishmen organic waste	#WERT!	X=806 600 Y=148 550	0			Nádas canal	communal waste storage			reclaimed waste storage							780.000		3	40	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
81	Hungary	Middle Danube Environmental Inspectorates area		Budapest, XXII. Harangozó u.	Metallochemia	#WERT!		0			Danube (1479,4)	old industrial site	Old mining tailing		metalslag		Pb, Zn, Cu, Cd			010400		650.000	650.000	3	40	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
82	Slovakia				DROTOVNE, Hlohovec			3		Vah 97 r.km	Vah	Drotovna Hlohovec			Fe- sludge bed	since 1962				190102		160000		3	37	✘ (m1 < 47)	0	no data	m1 < 47, no data for FP and SM	m1 < 47
83	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 119/11 Hrsz	1	x=590 327 y=265 665	2			Danube 1749 1761 km	industrial site	Old mining tailing		I-II Reservoir for red-dross				red dross	010303		450.000		3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
84	Slovakia				TKO, Kysucke Nove Mesto			2		Kysuca	Vah	deposit of common and industrial waste			closed deposit of fouling industrial sludge	1960-1998				190601		150000		3	37	✘ (m1 < 47)	0	no data	m1 < 47, no data for SM	m1 < 47
85	Hungary	North Hungarian Environmental Inspectorate Area		Tarnaszentmária	MH – Tarnaszentmária Fuel depot	1	x=736 250 Y=281 850	0			Tarna (49) Zagyva (58) Tisa (335	old military site							hydrocarbon polluted soil and groundwater			69.000 and 69.000	?	4	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
86	Hungary	North Hungarian Environmental Inspectorate Area		Mezökövesd Hrsz: 0456/2	MH – Mezökövesd Fuel depot „K" area	2	x=762 425 Y=272 900	0			Kánya Brook (14) Rima Brook (8) Tisa (434)	old military site							hydrocarbon polluted soil and groundwater			52.500 and 67.500	?	4	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
87	Hungary	Middle Danube Environmental Inspectorates area			Tökö1	3		0			Danube	old military site	Former military airport						hydrocarbon (CH) polluted soil and groundwater			308000 and 209.900	?	3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
88	Romania		Dambovita		Doicesti	4	44_59_15_N 25_24_02_E	0		50	Lalomila River				slag and ash pond				not specified (fireplace ash)	100101		500.000		3	37	✘ (m1 < 47)	1	3	m1 < 47	m1 < 47
89	Romania		Tulcea		Turcoaia	20		0		5000	Old Danube-Macin Arm	deposit			sterile pond				not specified	not specified		440000		3	37	✘ (m1 < 47)	3	3	m1 < 47	m1 < 47
90	Romania		Dolj		Calafat	11		0		250	Danube	deposit			industrial wastes				Wastes from sugar beet processing			435000		3	37	✘ (m1 < 47)	1	3	m1 < 47	m1 < 47
91	Hungary	South Transdanubian Environmental Inspectorates Area		Mohács		12	X=622 150 Y= 74 880	0			Danube (1445)	Communal organic dump			settlement waste				Communal organic dump	200301		370.000		3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
92	Hungary	South Transdanubian Environmental Inspectorates Area		Barcs		13	X=529 650 Y= 70 890	0			Drava (153)	Communal organic dump			settlement waste				Communal organic dump			300.000		3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
93	Hungary	Körös Environmental Inspectorates Area		Gyula	Establishmen organic waste	14	X=818 000 Y=146 100	0			White Körös	communal waste storage								200301		273.773	273.773	3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
94	Hungary	Middle Tisa Environmental Inspectorates Area		Jászberény	ELEKTROLUX - LEHEL Ltd WDS-1 (waste of chemical industry)	15	X=711 216 Y=237 746	0			Zagyva (67) Tisa (336)	industrial deposit			polluted earth				contaminated soil	200202		155.000		3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
95	Hungary	South Transdanubian Environmental Inspectorates Area		Harkány		16	X=585 860 Y= 56 330	0			Drava (72)	Communal organic dump			settlement waste				Communal organic dump			114.000		3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
96	Hungary	South Transdanubian Environmental Inspectorates Area		Siklós		16	X=590 640 Y= 53 770	0			Drava (65)	Communal organic dump			settlement waste				Communal organic dump			112.000		3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
97	Romania	Navodari		Constanta	Rompetrol in Navodari						Danube, black sea	industrial deposit			oil sludge pond				industrial deposit			130.000			55	✔	3	2	330	2

Appendix 1, Table (c): Reported deposit sites, Slovakia (18 records) (30.07.2006):

n.d. … not determinable

	Item Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood fre-quency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	m1-value	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value / or comments	classification system 1,2,3,4.
1	17	Slovakia				ZSNP, Ziar n./Hronom			4		Hron 125,3 r.km	Hron	red-sludge bed, danger waste deposit			alkaline water	since 1957				200115		1000000		5	55	✓	0	no data	no data for SM	n.d.
2	18	Slovakia				A.S.A. Zohor			3		Malina 6,0 r.km	Morava	deposit of danger waste, oil waste			deposit of mixed danger waste	since 1996				130000		350000		5	55	✓	3	no data	no data for SM	n.d.
3	28	Slovakia				BUCINA, Horny Sturec			4		Zolna 1,5 r.km	Hron	deposit of liqued waste,fenole, formaldehyde			industrial liquid waste	since 1950				190106		20000		5	51	✓	0	no data	no data for SM	n.d.
4	34	Slovakia				CHEMKO, Strazske			3		Ondava 16,2 rkm	Bodrog	deposit - industrial			leach out during flood	since 1955				190202		800000		4	49	✓	0	no data	no data for SM	n.d.
5	35	Slovakia				DUSLO, Šala			3		Vah 54 r.km	Vah	DUSLO Sala			sludge bed	since 1980				190804		750000		4	49	✓	0	no data	no data for SM	n.d.
6	36	Slovakia				CHEMKO, Strazske			3		Ondava 43,2 rkm	Bodrog	sludge deposit - sludge reservoir			leach out during flood	since 1959				190202		600000		4	49	✓	0	no data	no data for SM	n.d.
7	40	Slovakia			Bucina, Horny Sturec	deposit of liqued waste,fenole, formaldehyde						Zolna 1,5 r.km	industrial deposit								190106		20.000		5	51	✓	0	no data	no data for SM	n.d.
8	42	Slovakia				PETROCHEMA, Predajna			4		Hron 208 r.km	Hron	deposit of gudrons PETROCHEMA			overspill by heavy raining	since 1964				190202		120000		4	47	✓	0	no data	no data for SM	n.d.
9	43	Slovakia				ENO, Zemianske Kostolany			3		Nitra 128 r.km	Nitra	ENO Zemianske Kostolany			deposit of fly-ash	since 1965				190103		300000		4	47	✓	0	no data	no data for SM	n.d.
10	44	Slovakia				KOVOHUTY, Krompachy			3		Hornad 186,0 rkm	Hornad	sludge deposit			leach out during flood	since 1967				190202		285000		4	47	✓	10	no data	no data for SM	n.d.
11	45	Slovakia				BUKOCEL, Vranov n.Toplou			3		Ondava 48,7 rkm	Bodrog	sludge deposit - links bank meander			leach out during flood	since 1983				190202		153000		4	47	✓	1	no data	no data for SM	n.d.
12	49	Slovakia				Skladka TKO, Turzovka			2		Semetes /in tube/	Vah	deposit of common and industrial waste			leaking tube line	1968-2000				190202		105000		4	47	✓	3	no data	no data for SM	4
13	55	Slovakia			A.S.A. Zohor	deposit of danger waste, oil waste						Malina 6,0 r.km	industrial deposit							premixed waste	190202		350.000	cca 350000	4	47	✓	3	no data	no data for SM	n.d.
14	56	Slovakia			Predajna	deposit of gudrons PETROCHEMA						Hron 208 r.km	industrial deposit							overspill by heavy raining	050100		120.000		4	47	✓	0	no data	no data for SM	n.d.
15	58	Slovakia				NCHZ, Novaky			4		Nitra 123 r.km	Nitra	NCHZ Novaky			deposit of calc-sludge	since 1968				20402		12000000		3	45	✗ (m1 < 47)	0	no data	m1 < 47, no data for SM	m1 < 47
16	71	Slovakia			PETROCHEMA area	deposit of gudrons						Hron 206 r.km	industrial deposit							washed up during flood	050100		50.000		4	43	✗ (m1 < 47)	0	no data	m1 < 47, no data SM	m1 < 47
17	82	Slovakia				DROTOVNE, Hlohovec			3		Vah 97 r.km	Vah	Drotovna Hlohovec			Fe- sludge bed	since 1962				190102		160000		3	37	✗ (m1 < 47)	0	no data	m1 < 47, no data for FP and SM	m1 < 47
18	84	Slovakia				TKO, Kysucke Nove Mesto			2		Kysuca	Vah	deposit of common and industrial waste			closed deposit of fouling industrial sludge	1960-1998				190601		150000		3	37	✗ (m1 < 47)	0	no data	m1 < 47, no data for SM	m1 < 47

Appendix 1, Table (d): Reported deposit sites, Hungary (32 records) (30.07.2006):

n.d. … not determinable

	Item Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	m1-value	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value / or comments	classification system 1,2,3,4.
1	9	Hungary	Central Transdanubian Environmental Iinspectorates Area		Dunaújváros	Dunaferr Inc.	#WERT!	X=642 735 Y=174 625	2			Danube	industrial deposit			industrial sewage sludge					190200 190804		1.500.000	1.500.000	5	57	✓	0	3	0	4
2	25	Hungary	Central Transdanubian Environmental Iinspectorates Area		Ajka	Bakonyi Erőmű Inc.	1		0			Torna	industrial deposit			gray sludge					190101		15.000.000	15.000.000	4	53	✓	0	1	0	4
3	27	Hungary	Middle Danube Environmental Inspectorates area		Lőrinci	Fixon Bt.- Humiron Ltd.	3		0			Zagyva	old industrial site	Old mining tailing		slag and dust ash					190101 190103		5.000.000		4	53	✓	0	3	0	4
4	30	Hungary	North Hungarian Environmental Inspectorate Area		Tiszaújváros	AES borsodi Energetikai Ltd Tiszapalkonyai Hőerőmű	1	x=800 150 y=286 711	2			Tisa (483)	old mining tailing							sludgewater and slag-dust ash	100100		1.400.000	800.000 and 1.400.000	4	50	✓	0	2	0	4
5	31	Hungary	Middle Tisa Environmental Inspectorates Area		Szolnok	Béghin-Say Cukorgyár Inc.(technology waste-water thickerer)	2	X=734 750 Y=200 250	2			Tisa (330)	industrial deposit			waste water sludgein lake		waste water sludge		contaminated surface water			1.300.000		4	50	✓	1	1	50	3
6	38	Hungary	Middle Tisa Environmental Inspectorates Area		Heves	BERVA Inc.(chemical pollution)	#WERT!	X=744 160 Y=251 350	0			Forrós-belwatercana (8) Hanyi-ér (16) Tisa (388)	industrial deposit			polluted earth		hydrocarbon		contaminated soil and groundwater			10.500 and 5.000		5	51	✓	0	3	0	4
7	47	Hungary	Central Transdanubian Environmental Iinspectorates Area		Dunaújváros	Dunapack Inc.	1	X=642 735 Y=174 625	2			Danube (1573)	industrial deposit			mix sludge					190100		212.000	212.000	4	47	✓	0	3	0	4
8	48	Hungary	North Hungarian Environmental Inspectorate Area		Tiszaújváros	Tisa Chemical Self-contained plant	2	x=798 042 Y=287 515	2			Tisa (484)	industrial deposit							industry sewage –earth dam	190100		211.000		4	47	✓	0	2	0	4
9	51	Hungary	North Hungarian Environmental Inspectorate Area		Mezőkövesd Airport	Mezőkövesd – „B" area Old Fuel depot	1	x=768 200 Y=274 000	0			Hór Brook (2) Kánya Brook (14) Rima Brook (8) Tisa (434)	old military site							hydrocarbon polluted soil and groundwater			300.000 and 60.000	?	4	47	✓	0	3	0	4
10	52	Hungary	Middle Danube Environmental Inspectorates area			Budapest, Csepel-island Nord	2		0			Danube	deposit			Abandon sewage sludge depots		heavy metal and hydrocarbon (CH) polluted organic compounds			060405		300.000	300.000	4	47	✓	1	3	141	3
11	59	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 03/29,30,31	1	X=592 500 Y=265 000	2				industrial site	Old mining tailing		VII. Reservoir for red-dross				red dross	010303		3.250.000		3	45	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
12	62	Hungary	Central Transdanubian Environmental Iinspectorates Area		Ajka	MAL Inc. I-VIII. store, reclaimed	5	x=534 000 y=194 000	0			Torna (52) Marcal (97,8) Rába (204,6)	industrial deposit			red dross settlements					010303		29.000.000	29.000.000	3	45	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
13	72	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 06/8	#WERT!		2				industrial site	Old mining tailing		VI. Reservoir for red-dross				red dross	010303		1.800.000		3	42	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
14	73	Hungary	Middle Tisa Environmental Inspectorates Area		Kunmadaras	Military Airport	#WERT!	X=781 755 Y=232 001	0			Üllő-Laposi (7) Német-éri (13) Hortobágy-Berettyó (82) Hármas-Körös (61) Tisa (243)	old military site	Old Soviet Military Airport		polluted earth		hydrocarbon		contaminated soil			14.500	?	4	41	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
15	74	Hungary	Middle Danube Environmental Inspectorates area			Kiskunlacháza	#WERT!		0			Danube	old military site	Former Soviet military airport						hydrocarbon (CH) aviation kerosine pollution			9.000	?	4	41	✘ (m1 < 47) volume too small	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small

	Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood fre-quency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	m1-value	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value	classification system 1,2,3.
16	75	Hungary	Upper Danube Environmental Inspectorates area			Neszmély 0125	#WERT!	X= 600 871 Y=264 058	2				industrial site	Old mining tailing		VIII. Reservoir for red-dross				red dross	010303		5.000.000		3	40	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
17	76	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 118	#WERT!	x=590 300 y=265 600	2				industrial site	Old mining tailing		III. Reservoir for red-dross				red dross	010303		1.000.000		3	40	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
18	77	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 06/10	#WERT!		2				industrial site	Old mining tailing		V. Reservoir for red-dross				red dross	010303		800.000		3	40	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
19	78	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 06/12	#WERT!		2				industrial site	Old mining tailing		IV. Reservoir for red-dross				red dross	010303		600.000		3	40	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
20	79	Hungary	Middle Tisa Environmental Inspectorates Area		Szolnok	TVM Inc. (waste of chemical industry)	#WERT!	X=732 950 Y=199 716	2			Tisa (332)	industrial deposit			polluted earth				contaminated soil	200202		600.000		3	40	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
21	80	Hungary	Körös Environmental Inspectorates Area		Békéscsaba	Establishmen organic waste	#WERT!	X=806 600 Y=148 550	0			Nádas canal	communal waste storage			reclaimed waste storage							780.000		3	40	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
22	81	Hungary	Middle Danube Environmental Inspectorates area		Budapest, XXII. Harangozó u.	Metallochemia	#WERT!		0			Danube (1479,4)	old industrial site	Old mining tailing		metalslag		Pb, Zn, Cu, Cd			010400		650.000	650.000	3	40	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
23	83	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 119/11 Hrsz	1	x=590 327 y=265 665	2			Danube 1749 1761 km	industrial site	Old mining tailing		I-II Reservoir for red-dross				red dross	010303		450.000		3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
24	85	Hungary	North Hungarian Environmental Inspectorate Area		Tarnaszentmária	MH – Tarnaszentmária Fuel depot	1	x=736 250 Y=281 850	0			Tarna (49) Zagyva (58) Tisa (335	old military site							hydrocarbon polluted soil and groundwater			69.000 and 69.000	?	4	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
25	86	Hungary	North Hungarian Environmental Inspectorate Area		Mezőkövesd Hrsz: 0456/2	MH – Mezőkövesd Fuel depot „K" area	2	x=762 425 Y=272 900	0			Kánya Brook (14) Rima Brook (8) Tisa (434)	old military site							hydrocarbon polluted soil and groundwater			52.500 and 67.500	?	4	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
26	87	Hungary	Middle Danube Environmental Inspectorates area			Tököl	3		0			Danube	old military site	Former military airport						hydrocarbon (CH) polluted soil and groundwater			308000 and 209.900	?	3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
27	91	Hungary	South Transdanubian Environmental Inspectorates Area		Mohács		12	X=622 150 Y= 74 880	0			Danube (1445)	Communal organic dump			settlement waste				Communal organic dump	200301		370.000		3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
28	92	Hungary	South Transdanubian Environmental Inspectorates Area		Barcs		13	X=529 650 Y= 70 890	0			Drava (153)	Communal organic dump			settlement waste				Communal organic dump			300.000		3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
29	93	Hungary	Körös Environmental Inspectorates Area		Gyula	Establishmen organic waste	14	X=818 000 Y=146 100	0			White Körös	communal waste storage								200301		273.773	273.773	3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
30	94	Hungary	Middle Tisa Environmental Inspectorates Area		Jászberény	ELEKTROLUX - LEHEL Ltd WDS-1 (waste of chemical industry)	15	X=711 216 Y=237 746	0			Zagyva (67) Tisa (336)	industrial deposit			polluted earth				contaminated soil	200202		155.000		3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
31	95	Hungary	South Transdanubian Environmental Inspectorates Area		Harkány		16	X=585 860 Y= 56 330	0			Drava (72)	Communal organic dump			settlement waste				Communal organic dump			114.000		3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
32	96	Hungary	South Transdanubian Environmental Inspectorates Area		Siklós		16	X=590 640 Y= 53 770	0			Drava (65)	Communal organic dump			settlement waste				Communal organic dump			112.000		3	37	✘ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47

Appendix 1, Table (e): Reported deposit sites, Romania (25 records) (30.07.2006):

n.d. … not determinable

	Item Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood fre-quency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	m1-value	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value / or comments	classification system 1,2,3,4.
1	1	Romania		Tulcea		Turcoaia	#WERT!	45_07_18_N 28_11_05_E			5000	Old Danube-Macin Arm				sterile pond				not specified	not specified		440.000			waste not specified	✔	3	3	no data for waste type	n.d.
2	13	Romania		Sibiu		Copsa Mica	#WERT!	46_06_35_N 24_14_27_E	0		50 2	Tamava Mare River Visa Brook				industrial waste				slags from primary and secondary melting, (other not specified inorganic wastes other inorganic matters from thermic processes as suspensions or dust, iron and steel)	100501, 060199, 100504, 170405, 170701		1.350.000		5	57	✔	1	2	114	3
3	14	Romania		Hunedoara		Calan	#WERT!		0		3500	Strei River				slag and ash pond				not processed slag, lining and refractory waste materials, furnace slag, foundry shapes containing organic ligands, wastes from mixture preparation previously thermic processing, other tars	100202 100206 100903 101003 050603 100901 101001		1.300.000		5	57	✔	1	3	171	3
4	15	Romania		Hunedoara		Calan	15	45_43_54_N 22_59_35_E	0		3500	Strei River	deposit			slag and ash pond				not processed slag, lining and refractory waste materials, furnace slag, foundry shapes containing organic ligands,wastes from mixture preparation previously thermic processing, other tars	100202, 100206, 100903, 101003, 050603, 100901, 101001		1300000		5	57	✔	1	3	171	3
5	26	Romania		Bacau		Letea Veche	2	46_33_12_n 26_56_51_E	0		1,5	Siret River				slag and ash pond				fuel burning	100100		13.150.000		4	53	✔	3	2	318	2
6	32	Romania		Teleorman		Tumu Magurele	1	43_43_50_N 24_52_05_E	0		150	Danube				pyrite ash pond				not specified (wastes containing metals)	060400		1.900.000		4	50	✔	1	2	100	3
7	33	Romania		Sibiu		Copsa Mica	18		0		50; 2	Tarnava Mare River;Visa brook	deposit			industrial wastes				slags from primary and secondary melting, other not specified inorganic wastes, other inorganic matters from thermic processes as susspenssions or dust,iron and steel)	100501, 060199, 100504, 170405, 170701		1350000		4	50	✔	1	2	100	3
8	37	Romania		Dolj		Calafat	1		0		3000	Danube				slag and ash pond				Slag and ashes from coal burning	100100		655.000		4	49	✔	1	2	98	3
9	39	Romania		Dambovita		Targoviste	23		0		200	Ialomita River	deposit			slag and ash pond				not specified (wastes from ferrous pieces foundry, some of them might be dangerous)	100900		12000		5	51	✔	0	no data	no data for SM	n.d.
10	50	Romania		Dolj		Calafat		43_59_20_N 22_56_30_E	0		250	Danube				industrial waste				Wastes from sugar beet processing	020400		435.000		4	47	✔	1	3	141	3
	Nr.	**Country**	**Region**	**county**	**community**	**location/ name**	**Registry No**	**Grid system**	**Endangered by Floods, Flood fre-quency**	**height difference to water level**	**distance in m**	**river**	**old deposit or old industrial site**	**branch**	**branch No.**	**deposit type**	**in use since/ in the timeframe**	**hazardous substances**	**mass of hazardous substance in kg**	**waste**	**waste code**	**area in sqm**	**capacity in m³**	**mass of wastes in t**	**Risk value r0**	**m1-value**	**relevant for m2**	**factor flood potential (FP)**	**factor safety measures (SM)**	**m2-value**	**classification system 1,2,3.**
11	53	Romania		Dambovita		Targoviste	3		0		1500	Ilfov Brook				hazardous waste				not specified (waste solutions and muds containing chromium but without cyanides	110103		3.028		5	47	✘ (m³ too small)	0	no data	m³ too small	m³ too small
12	54	Romania		Giurgiu		Giurgiu	3		0		3000	Danube	deposit			industrial wastes				organic solvents, washing liquids and mother solutions	070104		3000		5	47	✘ (m³ too small)	0	no data	m³ too small	m³ too small
13	60	Romania		Dambovita		Gaesti	6		0		1100	Arges River	deposit			hazardous wastes				not specified (muds from industrial waste water treatment)	190804		30.6		5	45	✘ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small

14	61	Romania		Dambovita		Targoviste	4		0		not specified		deposit			hazardous wastes				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals others than chromium, wastes solutions and muds containing chromium but without cyanides)	110101, 110103		10.5		5	45	✗ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
15	63	Romania		Hunedoara		Mintia	13	45_53_47_N 22_53_28_E	0		500	Mures River	deposit			slag and ash pond				fireplace ash	100101		9700000		3	45	✗ (m1 < 47)	1	3	m1 < 47	m1 < 47
16	64	Romania		Iasi		Blagesti	14	47_15_10_N 26_45_32_E	0		500	Siret River				industrial waste				Wastes from sugar processing	020400		100.000		4	45	✗ (m1 < 47)	1	2	m1 < 47	m1 < 47
17	65	Romania		Dambovita		Fieni	15		0		180	Lalomita River				hazardous waste				not specified (waste solutions and muds containing chromium but without cyanides	110103		20		5	45	✗ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
18	66	Romania		Dambovita		Targoviste			0		not specified					hazardous waste				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals other than chromium, waste solutions and muds containing chromium but without cyanides)	110101 110103		11		5	45	✗ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
19	67	Romania		Dambovita		Targoviste			0		800	Ilfov Brook				hazardous waste				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals others than chromium)	110101		6		5	45	✗ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
20	68	Romania		Dambovita		Targoviste	1		0		800	Ilfov brook	deposit			hazardous wastes				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals others than chromium)	110101		6		5	45	✗ (m1 < 47)	no data	no data	m³ too small, m1 < 47, no data for FP and SM	m³ too small
21	69	Romania		Bacau		Bacau	17		0		3000	Bistrita River	deposit			industrial wastes				wood processing	not specified		40000		4	43	✗ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47
22	88	Romania		Dambovita		Doicesti	4	44_59_15_N 25_24_02_E	0		50	Lalomita River				slag and ash pond				not specified (fireplace ash)	100101		500.000		3	37	✗ (m1 < 47)	1	3	m1 < 47	m1 < 47
23	89	Romania		Tulcea		Turcoaia	20		0		5000	Old Danube-Macin Arm	deposit			sterile pond				not specified	not specified		440000		3	37	✗ (m1 < 47)	3	3	m1 < 47	m1 < 47
24	90	Romania		Dolj		Calafat	11		0		250	Danube	deposit			industrial wastes				Wastes from sugar beet processing			435000		3	37	✗ (m1 < 47)	1	3	m1 < 47	m1 < 47
25	97	Romania	Navodari		Constanta	Rompetrol in Navodari						Danube, black sea	industrial deposit			oil sludge pond				industrial deposit			130.000			55	✓	3	2	330	2

Appendix 1, Table (f): Reported deposit and industrial sites, Austria (5 deposit sites, 11 industrial sites) (30.07.2006):

n.d. … not determinable

deposit sites:

	Item Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	m1-value	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value / or comments	classification system 1,2,3,4.
1	21	Austria	Kärnten	Sankt Veit an der Glan	Althofen	Landfill Roßwiese	K7	M31, x= 5192050, y= 85950	1			Gurk	deposit		0840	Industriemüll	seit 1922	Metalle, Mineralisierung					500.000		5,0	55	✓	0	2	0	4
2	22	Austria	Kärnten	Sankt Veit an der Glan	Brückl	lime dump site Brückl I/II	K20	M31, x= 5178385, y= 91658	1			Gurk	deposit		0420	Industrieabfälle, Bauschutt, Aushubmaterial	seit 1930	CKW (Tetrachlorethen, Trichlorethen, Hexachlorbutadien)					250.000		4,5	51	✓	0	3	0	4
3	23	Austria	Tirol	Schwaz	Pill, Weer	Landfill Pill	T7	M31, x= 5243100, y= 10100	1			Inn	deposit		2070	Hausmüll, Bauschutt, Industrie-/Gewerbemüll		erhöhte Mineralisierung, reduzierende Verhältnisse					1.000.000		4,0	50	✓	0	3	0	4
4	24	Austria	Niederösterreich	Tulln	Tulln	Landfill Tulln	N49	M34, x= 5356960, y= 20420	3			Danube	deposit		2070	Hausmüll, Bauschutt, Industrie-/Gewerbemüll	seit 1934	reduzierende Verhältnisse, erhöhte Mineralisierung					200.000		3,5	42	✗ (m1 < 47)	3	3	m1 < 47	m1 < 47
5	57	Austria	Kärnten	Villach Land	Ferndorf	Industrial deposit Heraklithwerke Ferndorf	K21	M31, x= 5177019, y= 22827	1			Drau	deposit		1030	Industrieabfälle	seit 1914	Magnesium, Sulfat					500.000		3,5	42	✗ (m1 < 47)	0	3	m1 < 47	m1 < 47

industrial sites:

	Item Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	m1-value	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value / or comments	classification system 1,2,3,4.
1	2	Austria	Wien	22. Donaustadt	Wien	Tankfarm Lobau	W12	M34, x= 5337100, y= 13000	1			Danube	industrial site	Tanklager für Mineralölprodukte			1950-1992	Mineralöl, Kohlenwasserstoffe			100100	1.000.000			5,0	59	**ind.site**	0	1	0	4
2	3	Austria	Wien	11. Simmering	Wien	Gas works Simmering	W18	M34, x= 5338402, y= 6854	1			Danube	industrial site	Gaswerk			1973 - 1989	PAK, Cyanid, Mineralöl, Phenole,Ammonium, Sulfat				325.000			5,0	58	**ind.site**	0	3	0	4
3	4	Austria	Wien	11. Simmering	Wien	EBS-BP-TKV	W1	M34, x= 5337400, y= 10000	1			Danube	industrial site	Mineralöllagerung, Tierkörperverwertung	0050		seit 1942	Mineralöl, CKW			070100	200.000			5,0	58	**ind.site**	0	2	0	4
4	5	Austria	Wien	23. Liesing	Wien	Siebenhirten	W8	M34, x= 5333000, y= 2800	1			Liesing	industrial site	Chemische Grundstoffindustrie			1923-1960/61	Cyanid, Kohlenwasserstoffe, Phenol, Ammonium, Nitrit, Sulfat				150.000			5,0	58	**ind.site**	0	3	0	4
5	6	Austria	Wien	11. Simmering	Wien	Teerag-Asdag-Simmering	W21	M34, x= 5338000, y= 8600	1			Danube	industrial site	Teerverarbeitung			1926-1981	PAK, Phenole, BTX			170701	130.000			5,0	58	**ind.site**	0	2	0	4
6	7	Austria	Niederösterreich	Korneuburg	Korneuburg	refinery Tuttendorfer Breite	N16	M34, x= 5355250, y= 250	1			Danube	industrial site	Mineralöl-Raffinerie	0050		seit 1882	Mineralöl, CKW				180.000			4,5	58	**ind.site**	0	3	0	4
7	8	Austria	Niederösterreich	Korneuburg	Korneuburg	Shipyard Korneuburg	N33	M34, x= 5356050, y= 1100	3			Danube	industrial site	Schiffbau	0420		1920-1960	Metalle, Mineralöl				200.000			4,0	57	**ind.site**	3	3	513	2
8	11	Austria	Niederösterreich	Mödling	Vösendorf	refinery Vösendorf	N20	M34, x= 5331650, y= 1200	1			Petersbach	industrial site	Mineralöl-Raffinerie	0670		1845-1994	Mineralöl, PAK				145.000			4,5	57	**ind.site**	0	3	0	4
9	12	Austria	Kärnten	Klagenfurt	Klagenfurt	Leather factory Neuner	K22	M31, x= 5166094, y= 75848	1			Glan	industrial site	Lederverarbeitung	2070		1930-1990	Chrom				120.000			4,5	57	**ind.site**	0	3	0	4
10	16	Austria	Kärnten	Sankt Veit an der Glan	Brückl	Donau Chemie Brückl	K5	M31, x= 5177850, y= 91450	2			Gurk	industrial site	Chemische Grundstoffindustrie	0050		seit 1909	CKW, Trichlorethen, Tetrachlorethen, Hexachlorbutadien				50.000			5,0	56	**ind.site**	1	2	112	3
11	29	Austria	Niederösterreich	Korneuburg	Korneuburg	Tankfarm Mare	N46	M34, x= 5328350, y= 1250	3			Danube	industrial site	Mineralöllager	0010		1900-1975	Mineralöl				10.000			4,0	51	**ind.site**	3	2	306	2

Appendix 1, Table (g): Reported deposit sites, Germany (2 records) (30.07.2006):

n.d. … not determinable

	Item Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood fre-quency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	m1-value	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value / or comments	classification system 1,2,3,4.
1	10	Germany		Stadt Straubing	Stadt Straubing	Deponie Peterswöhrd		R: 4543249 H: 5417000	2		200	Danube	old deposit				1946 until 1977			municipal waste, accompanied by construction waste and industrial waste			1.450.000		3,5	46	✘ (m1 < 47)	3	1	m1 < 47	n.d.
2	46	Germany		Dillingen	Dillingen	Hühnerwörth		R: 4390858 H: 5382545	2		200	Danube	old deposit				1960 until 1977			municipal waste			470.000		4,0	47	✓	3	1	141	3

Appendix 1, Table (h): Reported deposit sites, Ukraine (3 records) (30.07.2006):

n.d. … not determinable

	Item Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood fre-quency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	m1-value	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value / or comments	classification system 1,2,3,4.
1	19	Ukraine				The Odessa area Izmail Cellulose cardboard combine								Storehouse CaCl + Na2O									200.000		5	55	✔	no data	no data	no data for FP and SM	n.d.
2	20	Ukraine				The Odessa area Izmail Cellulose cardboard combine								cleaning contructions									23300 per day		4	53	✔	no data	no data	no data for FP and SM	n.d.
3	70	Ukraine		village of town type Perechin	the forest "Zatova", str/ Budivelnikov, 1				0		600	Uzh	industrial deposit			wastes				Solid wastes	1.48.21		30.000		4	43	✖ (m1 < 47)	no data	no data	m1 < 47, no data for FP and SM	m1 < 47

Appendix 1, Table (i): Reported deposit sites, Czech Republic (1 record) (30.07.2006):

n.d. … not determinable

	Item Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood fre-quency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	m1-value	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	m2-value / or comments	classification system 1,2,3,4.
1	41	Czech Republic			Sumperk				0			Desna river (river km 6)	industrial deposit			Sludge lagoons in the waste water treatment plant		heavy metals		sludge			6.000		5	49	✖ (m³ too small)	0	no data	m³ too small, no data for SM	n.d.

Appendix 1, Table (j): Reported deposit sites (Igor Liska, Version: 13.06.2005):

Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	Risk Potential according old m1	Risk Potential according old m2	Risk Potential according old m3	Risk Potential according old m4	Risk Potential according new m1	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	Risk Potential according m2
1	Romania		Tulcea		Turcoaia	#WERT!	45_07_18_N 28_11_05_E			5000	Old Danube-Macin Arm				sterile pond				not specified	not specified		440.000			n.e.	#BEZUG!	#BEZUG!		waste not specified	✔	3	3	no data
2	Austria	Wien	22. Donaustadt	Wien	Tankfarm Lobau	W12	M34, x= 5337100, y= 13000	1			Danube	industrial site	Tanklager für Mineralölprodukte			1950-1992	Mineralöl, Kohlenwasserstoffe			100100	1.000.000			5,0	55	#BEZUG!	#BEZUG!		59,00	**ind.site**	0	1	0
3	Austria	Wien	11. Simmering	Wien	Gas works Simmering	W18	M34, x= 5338402, y= 6854	1			Danube	industrial site	Gaswerk			1973 - 1989	PAK, Cyanid, Mineralöl, Phenole,Ammonium, Sulfat				325.000			5,0	55	#BEZUG!	#BEZUG!		58,00	**ind.site**	0	3	0
4	Austria	Wien	11. Simmering	Wien	EBS-BP-TKV	W1	M34, x= 5337400, y= 10000	1			Danube	industrial site	Mineralöllagerung, Tierkörperverwertung	0050		seit 1942	Mineralöl, CKW			070100	200.000			5,0	55	#BEZUG!	#BEZUG!		58,00	**ind.site**	0	2	0
5	Austria	Wien	23. Liesing	Wien	Siebenhirten	W8	M34, x= 5333000, y= 2800	1			Liesing	industrial site	Chemische Grundstoffindustrie			1923-1960/61	Cyanid, Kohlenwasserstoffe, Phenol, Ammonium, Nitrit, Sulfat				150.000			5,0	50	#BEZUG!	#BEZUG!		58,00	**ind.site**	0	3	0
6	Austria	Wien	11. Simmering	Wien	Teerag-Asdag-Simmering	W21	M34, x= 5338000, y= 8600	1			Danube	industrial site	Teerverarbeitung			1926-1981	PAK, Phenole, BTX			170701	130.000			5,0	50	#BEZUG!	#BEZUG!		58,00	**ind.site**	0	2	0
7	Austria	Niederösterreich	Korneuburg	Korneuburg	refinery Tuttendorfer Breite	N16	M34, x= 5355250, y= 250	1			Danube	industrial site	Mineralöl-Raffinerie	0050		seit 1882	Mineralöl, CKW				180.000			4,5	50	#BEZUG!	#BEZUG!		58,00	**ind.site**	0	3	0
8	Austria	Niederösterreich	Korneuburg	Korneuburg	Shipyard Korneuburg	N33	M34, x= 5356050, y= 1100	3			Danube	industrial site	Schiffbau	0420		1920-1960	Metalle, Mineralöl				200.000			4,0	50	#BEZUG!	#BEZUG!		57,00	**ind.site**	3	3	513
9	Hungary	Central Transdanubian Environmental Inspectorates Area		Dunaújváros	Dunaferr Inc.	#WERT!	X=642 735 Y=174 625	2			Danube	industrial deposit			industrial sewage sludge					190200 190804		1.500.000	1.500.000	5	55				57	✔	0	3	0
10	Germany		Stadt Straubing	Stadt Straubing	Deponie Peterswöhrd		R: 4543249 H: 5417000	2		200	Danube	old deposit			1946 until 1977				municipal waste, accompanied by construction waste and industrial waste			1.450.000		5,0	55				57	✔	3	1	171
11	Austria	Niederösterreich	Mödling	Vösendorf	refinery Vösendorf	N20	M34, x= 5331650, y= 1200	1			Petersbach	industrial site	Mineralöl-Raffinerie	0670		1845-1994	Mineralöl, PAK				145.000			4,5	50	#BEZUG!	#BEZUG!		57	**ind.site**	0	3	0
12	Austria	Kärnten	Klagenfurt	Klagenfurt	Leather factory Neuner	K22	M31, x= 5166094, y= 75848	1			Glan	industrial site	Lederverarbeitung	2070		1930-1990	Chrom				120.000			4,5	50	#BEZUG!	#BEZUG!		57	**ind.site**	0	3	0
13	Romania		Sibiu		Copsa Mica	#WERT!	46_06_35_N 24_14_27_E	0		50 2	Tamava Mare River Visa Brook				industrial waste				slags from primary and secondary melting, (other not specified inorganic wastes other inorganic matters from thermic processes as suspensions or dust, iron and steel)	100501, 060199, 100504, 170405, 170701		1.350.000		5	55				57	✔	1	2	114
14	Romania		Hunedoara		Calan	#WERT!		0		3500	Strei River				slag and ash pond				not processed slag, lining and refractory waste materials, furnace slag, foundry shapes containing organic ligands, wastes from mixture preparation previously thermic processing, other tars	100202 100206 100903 101003 050603 100901 101001		1.300.000		5	55				57	✔	1	3	171
15	Romania		Hunedoara		Calan	15	45_43_54_N 22_59_35_E	0		3500	Strei River	deposit			slag and ash pond				not processed slag, lining and refractory waste materials, furnace slag, foundry shapes containing organic ligands,wastes from mixture preparation previously thermic processing, other tars	100202, 100206, 100903, 101003, 050603, 100901, 101001		1300000		5	55				57	✔	1	3	171
16	Austria	Kärnten	Sankt Veit an der Glan	Brückl	Donau Chemie Brückl	K5	M31, x= 5177850, y= 91450	2			Gurk	industrial site	Chemische Grundstoffindustrie	0050		seit 1909	CKW, Trichlorethen Tetrachloretheen, Hexachlorbutadien				50.000			5,0	50	#BEZUG!	#BEZUG!		56	**ind.site**	1	2	112

Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	Risk Potential according old m1	Risk Potential according old m2	Risk Potential according old m3	Risk Potential according old m4	Risk Potential according new m1	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	Risk Potential according m2
17	Slovakia				ZSNP, Ziar n./Hronom			4		Hron 125,3 r.km	Hron	red-sludge bed, danger waste deposit			alkaline water	since 1957				200115		1000000		5	55	#BEZUG!	#BEZUG!		55	✔	0	no data	no data
18	Slovakia				A.S.A. Zohor			3		Malina 6,0 r.km	Morava	deposit of danger wasle, oil waste			deposit of mixed danger waste	since 1996				130000		350000		5	55	#BEZUG!	#BEZUG!		55	✔	3	no data	no data
19	Slovakia				Skladka odpadov OFZ, Siroka			1		Bezmenny creek	Vah	industrial waste deposit			deposit of industrial arsenical waste	since 1965				60403		600000		5	55	#BEZUG!	#BEZUG!		55	✔	0	no data	no data
20	Ukraine				The Odessa area Izmail Cellulose cardboard combine								Storehouse CaCl + Na2O									200.000		5	55				55	✔	no data	no data	no data
21	Ukraine				The Odessa area Izmail Cellulose cardboard combine								cleaning contructions									23300 per day		4	55				53	✔	no data	no data	no data
22	Austria	Kärnten	Sankt Veit an der Glan	Althofen	Landfill Roßwiese	K7	M31, x= 5192050, y= 85950	1			Gurk	deposit		0840	Industriemüll	seit 1922	Metalle, Mineralisierung					500.000		5,0	50				55	✔	0	2	0
23	Austria	Kärnten	Sankt Veit an der Glan	Brückl	lime dump site Brückl I/II	K20	M31, x= 5178385, y= 91658	1			Gurk	deposit		0420	Industrieabfälle, Bauschutt, Aushubmaterial	seit 1930	CKW (Tetrachloretheh, Trichlorethen Hexachlorbutadien)					250.000		4,5	50	#BEZUG!	#BEZUG!		51	✔	0	3	0
24	Austria	Tirol	Schwaz	Pill, Weer	Landfill Pill	T7	M31, x= 5243100, y= 10100	1			Inn	deposit		2070	Hausmüll, Bauschutt, Industrie-/Gewerbemüll		erhöhte Mineralisierung, reduzierende Verhältnisse					1.000.000		4,0	50	#BEZUG!	#BEZUG!		50	✔	0	3	0
25	Austria	Niederöstereich	Tulln	Tulln	Landfill Tulln	N49	M34, x= 5356960, y= -20420	3			Danube	deposit		2070	Hausmüll, Bauschutt, Industrie-/Gewerbemüll	seit 1934	reduzierende Verhältnisse, erhöhte Mineralisierung					200.000		3,5	50	#BEZUG!	#BEZUG!		42	✘ (m1 < 47)	3	3	378
26	Hungary	Central Transdanubian Environmental Iinspectorates Area		Ajka	Bakonyi Erőmű Inc.	1		0			Torna	industrial deposit			gray sludge					190101		15.000.000	15.000.000	4	49				53	✔	0	1	0
27	Romania		Bacau		Letea Veche	2	46_33_12_n 26_56_51_E	0		1,5	Siret River				slag and ash pond				fuel burning	100100		13.150.000		4	49				53	✔	3	2	318
28	Hungary	Middle Danube Environmental Inspectorates area		Lőrinci	Fixon Bt.-Humiron Ltd.	3		0			Zagyva	old industrial site	Old mining tailing		slag and dust ash					190101 190103		5.000.000		4	49				53	✔	0	3	0
29	Slovakia				BUCINA, Horny Sturec			4		Zolna 1,5 r.km	Hron	deposit of liqued waste,fenole, formaldehyde			industrial liquid waste	since 1950				190106		20000		5	51	#BEZUG!	#BEZUG!		51	✘ (m³ too small)	0	no data	no data
30	Austria	Niederöstereich	Korneuburg	Korneuburg	Tankfarm Mare	N46	M34, x= 5328350, y= -1250	3			Danube	industrial site	Mineralöllager	0010		1900-1975	Mineralöl				10.000			4,0	50	#BEZUG!	#BEZUG!		51	**ind.site**	3	2	306
31	Hungary	North Hungarian Environmental Inspectorate Area		Tiszaújváros	AES borsodi Energetikai Ltd Tiszapalkonyai Hőerőmű	1	x=800 150 y=286 711	2			Tisa (483)	old mining tailing							sludgewater and slag-dust-ash	100100		1.400.000	800.000 and 1.400.000	4	49				50	✔	0	2	0
32	Hungary	Middle Tisa Environmental Inspectorates Area		Szolnok	Béghin-Say Cukorgyár Inc.(technology waste-water thickerer)	2	X=734 750 Y=200 250	2			Tisa (330)	industrial deposit			waste water sludgein lake		waste water sludge		contaminated surface water			1.300.000		4	49				50	✔	1	1	50
33	Romania		Teleorman		Tumu Magurele	1	43_43_50_N 24_52_05_E	0		150	Danube				pyrite ash pond				not specified (wastes containing metals)	060400		1.900.000		4	49				50	✔	1	2	100
34	Romania		Sibiu		Copsa Mica	18		0		50; 2	Tarnava Mare River;Visa brook	deposit			industrial wastes				slags from primary and secondary melting, other not specified inorganic wastes, other inorganic matters from thermic processes as suspenssions or dust,iron and steel)	100501, 060199, 100504, 170405, 170701		1350000		4	49				50	✔	1	2	100
35	Slovakia				CHEMKO, Strazske			3		Ondava 16,2 rkm	Bodrog	deposit - industrial			leach out during flood	since 1955				190202		800000		4	49	#BEZUG!	#BEZUG!		49	✔	0	no data	no data
36	Slovakia				DUSLO, Šala			3		Vah 54 r.km	Vah	DUSLO Sala			sludge bed	since 1980				190804		750000		4	49	#BEZUG!	#BEZUG!		49	✔	0	no data	no data
37	Slovakia				CHEMKO, Strazske			3		Ondava 43,2 rkm	Bodrog	sludge deposit - sludge reservoir			leach out during flood	since 1959				190202		600000		4	49	#BEZUG!	#BEZUG!		49	✔	0	no data	no data
38	Romania		Dolj		Calafat	1		0		3000	Danube				slag and ash pond				Slag and ashes from coal burning	100100		655.000		4	49				49	✔	1	2	98
39	Hungary	Middle Tisa Environmental Inspectorates Area		Heves	BERVA Inc.(chemical pollution)	#WERT!	X=744 160 Y=251 350	0			Forrós-belwatercanal (8) Hanyi-ér (16) Tisa (388)	industrial deposit			polluted earth		hydrocarbon		contaminated soil and groundwater			10.500 and 5.000		5	51,0	#WERT!	#WERT!		51	✘ (m³ too small)	0	3	0

Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	Risk Potential according old m1	Risk Potential according old m2	Risk Potential according old m3	Risk Potential according old m4	Risk Potential according new m1	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	Risk Potential according m2
40	Romania		Dambovita		Targoviste	23		0		200	Ialomita River	deposit			slag and ash pond				not specified (wastes from ferrous pieces foundry, some of them might be dangerous)	100900		12000		5	51				51	✱ (m³ too small)	0	no data	no data
41	Slovakia			Bucina, Horny Sturec	deposit of liqued waste,fenole, formaldehyde						Zolna 1,5 r.km	industrial deposit								190106		20.000		5	51	#BEZUG!	#BEZUG!		51	✱ (m³ too small)	0	no data	no data
42	Czech Republic			Sumperk				0			Desna river (river km 6)	industrial deposit			Sludge lagoons in the waste water treatment plant		heavy metals		sludge			6.000		5	49	#BEZUG!	#BEZUG!		49	✱ (m³ too small)	0	no data	no data
43	Slovakia				PETROCHEMA, Predajna			4		Hron 208 r.km	Hron	deposit of gudrons PETROCHEMA			overspill by heavy raining	since 1964				190202		120000		4	47	#BEZUG!	#BEZUG!		47	✔	0	no data	no data
44	Slovakia				ENO, Zemianske Kostolany			3		Nitra 128 r.km	Nitra	ENO Zemianske Kostolany			deposit of fly-ash	since 1965				190103		300000		4	47	#BEZUG!	#BEZUG!		47	✔	0	no data	no data
45	Slovakia				KOVOHUTY, Krompachy			3		Hornad 186,0 rkm	Hornad	sludge deposit			leach out during flood	since 1967				190202		285000		4	47	#BEZUG!	#BEZUG!		47	✔	10	no data	no data
46	Slovakia				BUKOCEL, Vranov n.Toplou			3		Ondava 48,7 rkm	Bodrog	sludge deposit - links bank meander			leach out during flood	since 1983				190202		153000		4	47	#BEZUG!	#BEZUG!		47	✔	1	no data	no data
47	Germany		Dillingen	Dillingen	Hühnerwörth		R: 4390858 H: 5382545	2		200	Danube	old deposit			1960 until 1977				municipal waste			470.000		4,0	47				47	✔	3	1	141
48	Hungary	Central Transdanubian Environmental Iinspectorates Area		Dunaújváros	Dunapack Inc.	1	X=642 735 Y=174 625	2			Danube (1573)	industrial deposit			mix sludge					190100		212.000	212.000	4	47				47	✔	0	3	0
49	Hungary	North Hungarian Environmental Inspectorate Area		Tiszaújváros	Tisa Chemical Self-contained plant	2	x=798 042 Y=287 515	2			Tisa (484)	industrial deposit							industry sewage –earth dam	190100		211.000		4	47				47	✔	0	2	0
50	Slovakia				Skladka TKO, Turzovka			2		Semetes /in tube/	Vah	deposit of common and industrial waste			leaking tube line	1968-2000				190202		105000		4	47	#BEZUG!	#BEZUG!		47	✔	3	no data	no data
51	Slovakia				Teplaren, Povazska Bystrica			1		Ziar /in tube/	Vah	industrial waste deposit			closed deposit of fly-ash of refuse inicinerating plant	1978-2000				190103		345000		4	47	#BEZUG!	#BEZUG!		47	✔	0	no data	no data
52	Romania		Dolj		Calafat	#BEZUG!	43_59_20_N 22_56_30_E	0		250	Danube				industrial waste				Wastes from sugar beet processing	020400		435.000		4	47				47	✔	1	3	141
53	Hungary	North Hungarian Environmental Inspectorate Area		Mezőkövesd – „B" area Old Fuel depot		#BEZUG!	x=768 200 Y=274 000	0			Hór Brook (2) Kánya Brook (14) Rima Brook (8) Tisa (434)	old militay site							hydrocarbon polluted soil and groundwater			300.000 and 60.000		4	47	#WERT!	#WERT!		47	✔	0	3	0
54	Hungary	Middle Danube Environmental Inspectorates area			Budapest, Csepel-island Nord	#BEZUG!		0			Danube	deposit			Abandon sewage sludge depots		heavy metal and hydrocarbon (CH) polluted organic compounds			060405		300.000	300.000	4	47				47	✔	1	3	141
55	Romania		Dambovita		Targoviste	#BEZUG!		0		1500	Ilfov Brook				hazardous waste				not specified (waste solutions and muds containing chromium but without cyanides	110103		3.028		5	47	#BEZUG!	#BEZUG!	100	47	✱ (m³ too small)	0	no data	no data
56	Romania		Giurgiu		Giurgiu	3		0		3000	Danube	deposit			industrial wastes				organic solvents, washing liquids and mother solutions	070104		3000		5	47	#BEZUG!	#BEZUG!		47	✱ (m³ too small)	0	no data	no data
57	Slovakia			A.S.A. Zohor	deposit of danger waste, oil waste						Malina 6,0 r.km	industrial deposit							premixed waste	190202		350.000	cca 350000	4	47	#BEZUG!	#BEZUG!		47	✔	3	no data	no data
58	Slovakia			Predajna	deposit of gudrons PETROCHEMA						Hron 208 r.km	industrial deposit							overspill by heavy raining	050100		120.000		4	47	#BEZUG!	#BEZUG!		47	✔	0	no data	no data
59	Austria	Kärnten	Villach Land	Ferndorf	Industrial deposit Heraklithwerke Ferndorf	K21	M31, x= 5177019, y= 22827	1			Drau	deposit		1030	Industrieabfalle	seit 1914	Magnesium, Sulfat					500.000		3,5	42	#BEZUG!	#BEZUG!		42	✱ (m1 < 47)	0	3	0
60	Slovakia				NCHZ, Novaky			4		Nitra 123 r.km	Nitra	NCHZ Novaky			deposit of calc-sludge	since 1968				20402		12000000		3	40	#BEZUG!	#BEZUG!		45	✱ (m1 < 47)	0	no data	no data
61	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 03/29,30,31	1	X=592 500 Y=265 000	2				industrial site	Old mining tailing		VII. Reservoir for red-dross				red dross	010303		3.250.000		3	40				45	✱ (m1 < 47)	no data	no data	no data
62	Romania		Dambovita		Gaesti	6		0		1100	Arges River	deposit			hazardous wastes				not specified (muds from industrial waste water treatment)	190804		30.6		5	45	#BEZUG!	#BEZUG!		45	✱ (m1 < 47)	no data	no data	no data

Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	Risk Potential according old m1	Risk Potential according old m2	Risk Potential according old m3	Risk Potential according old m4	Risk Potential according new m1	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	Risk Potential according m2
63	Romania		Dambovita		Targoviste	4		0		not specified		deposit			hazardous wastes				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals others than chromium, wastes solutions and muds containing chromium but without cyanides)	110101, 110103		10.5		5	45	#BEZUG!	#BEZUG!		45	☘ (m1 < 47)	no data	no data	no data
64	Hungary	Central Transdanubian Environmental Iinspectorates Area		Ajka	MAL Inc. I-VIII. store, reclaimed	5	x=534 000 y=194 000	0			Torna (52) Marcal (97,8) Rába (204,6)	industrial deposit			red dross settlements					010303		29.000.000	29.000.000	3	40				45	☘ (m1 < 47)	no data	no data	no data
65	Romania		Hunedoara		Mintia	13	45_53_47_N 22_53_28_E	0		500	Mures River	deposit			slag and ash pond				fireplace ash	100101		9700000		3	40	#BEZUG!	#BEZUG!		45	☘ (m1 < 47)	1	3	135
66	Romania		Iasi		Blagesti	14	47_15_10_N 26_45_32_E	0		500	Siret River				industrial waste				Wastes from sugar processing	020400		100.000		4	45	#BEZUG!	#BEZUG!		45	☘ (m1 < 47)	1	2	90
67	Romania		Dambovita		Fieni	15		0		180	Lalomita River				hazardous waste				not specified (waste solutions and muds containing chromium but without cyanides	110103		20		5	45	#BEZUG!	#BEZUG!		45	☘ (m1 < 47)	no data	no data	no data
68	Romania		Dambovita		Targoviste			0		not specified					hazardous waste				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals other than chromium, waste solutions and muds containing chromium but without cyanides)	110101 110103		11		5	45	#BEZUG!	#BEZUG!		45	☘ (m1 < 47)	no data	no data	no data
69	Romania		Dambovita		Targoviste			0		800	Ilfov Brook				hazardous waste				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals others than chromium)	110101		6		5	45	#BEZUG!	#BEZUG!		45	☘ (m1 < 47)	no data	no data	no data
70	Romania		Dambovita		Targoviste	1		0		800	Ilfov brook	deposit			hazardous wastes				not specified (waste solutions and cyanuric muds (alkalines) with heavy metals others than chromium)	110101		6		5	45	#BEZUG!	#BEZUG!		45	☘ (m1 < 47)	no data	no data	no data
71	Romania		Bacau		Bacau	17		0		3000	Bistrita River	deposit			industrial wastes				wood processing	not specified		40000		4	43	#BEZUG!	#BEZUG!		43	☘ (m1 < 47)	no data	no data	no data
72	Ukraine		village of town type Perechin	the forest "Zatova", str/ Budivelnikov, 1				0		600	Uzh	industrial deposit			wastes				Solid wastes	**1.48.21**		**30.000**		4	43	#BEZUG!	#BEZUG!		43	☘ (m1 < 47)	no data	no data	no data
73	Slovakia			PETROCHEMA area	deposit of gudrons						Hron 206 r.km	industrial deposit							washed up during	050100		50.000		4	43	#BEZUG!	#BEZUG!		43	☘ (m1 < 47)	0	no data	no data
74	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 06/8	#WERT!		2				industrial site	Old mining tailing		VI. Reservoir for red-dross				red dross	010303		1.800.000		3	40				42	☘ (m1 < 47)	no data	no data	no data
75	Hungary	Middle Tisa Environmental Inspectorates Area		Kunmadaras	Military Airport	#WERT!	X=781 755 Y=232 001	0			Üllő-Laposi (7) Német-éri (13) Hortobágy-Berettyó (82) Hármas-Körös (61) Tisa (243)	old military site	Old Soviet Military Airport		polluted earth		hydrocarbon		contaminated soil			14.500		4	41	#BEZUG!	#BEZUG!		41	☘ (m1 < 47)	no data	no data	no data
76	Hungary	Middle Danube Environmental Inspectorates area			Kiskunlacháza	#WERT!		0			Danube	old military site	Former Soviet military airport						hydrocarbon (CH) aviation kerosine pollution			9.000		4	41	#BEZUG!	#BEZUG!		41	☘ (m1 < 47)	no data	no data	no data
77	Hungary	Upper Danube Environmental Inspectorates area			Neszmély 0125	#WERT!	X= 600 871 Y=264 058	2				industrial site	Old mining tailing		VIII. Reservoir for red-dross				red dross	010303		5.000.000		3	40				40	☘ (m1 < 47)	no data	no data	no data
78	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 118	#WERT!	x=590 300 y=265 600	2				industrial site	Old mining tailing		III. Reservoir for red-dross				red dross	010303		1.000.000		3	40				40	☘ (m1 < 47)	no data	no data	no data

Nr.	Country	Region	county	community	location/ name	Registry No	Grid system	Endangered by Floods, Flood frequency	height difference to water level	distance in m	river	old deposit or old industrial site	branch	branch No.	deposit type	in use since/ in the timeframe	hazardous substances	mass of hazardous substance in kg	waste	waste code	area in sqm	capacity in m³	mass of wastes in t	Risk value r0	Risk Potential according old m1	Risk Potential according old m2	Risk Potential according old m3	Risk Potential according old m4	Risk Potential according new m1	relevant for m2	factor flood potential (FP)	factor safety measures (SM)	Risk Potential according m2
79	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 06/10	#WERT!		2				industrial site	Old mining tailing		V. Reservoir for red-dross				red dross	010303		800.000		3	40				40	☘ (m1 < 47)	no data	no data	no data
80	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 06/12	#WERT!		2				industrial site	Old mining tailing		IV. Reservoir for red-dross				red dross	010303		600.000		3	40				40	☘ (m1 < 47)	no data	no data	no data
81	Hungary	Middle Tisa Environmental Inspectorates Area		Szolnok	TVM Inc. (waste of chemical industry)	#WERT!	X=732 950 Y=199 716	2			Tisa (332)	industrial deposit			polluted earth				contaminated soil	200202		600.000		3	40,0				40	☘ (m1 < 47)	no data	no data	no data
82	Hungary	Körös Environmental Inspectorates Area		Békéscsaba	Establishmen organic waste	#WERT!	X=806 600 Y=148 550	0			Nádas canal	communal waste storage			reclaimed waste storage							780.000		3	40	#BEZUG!	#BEZUG!		40	☘ (m1 < 47)	no data	no data	no data
83	Hungary	Middle Danube Environmental Inspectorates area		Budapest, XXII. Harangozó u.	Metallochemia	#WERT!		0			Danube (1479,4)	old industrial site	Old mining tailing		metalslag		Pb, Zn, Cu, Cd			010400		650.000	650.000	3	40				40	☘ (m1 < 47)	no data	no data	no data
84	Slovakia				DROTOVNE, Hlohovec			3		Vah 97 r.km	Vah	Drotovna Hlohovec			Fe- sludge bed	since 1962				190102		160000		3	37	#BEZUG!	#BEZUG!		37	☘ (m1 < 47)	0	no data	no data
85	Hungary	Upper Danube Environmental Inspectorates area			Almásfüzitő 119/11 Hrsz	1	x=590 327 y=265 665	2			Danube 1749-1761 km	industrial site	Old mining tailing		I-II Reservoir for red-dross				red dross	010303		450.000		3	37				37	☘ (m1 < 47)	no data	no data	no data
86	Slovakia				TKO, Kysucke Nove Mesto			2		Kysuca	Vah	deposit of common and industrial waste			closed deposit of fouling industrial sludge	1960-1998				**190601**		150000		3	37	#BEZUG!	#BEZUG!	100	37	☘ (m1 < 47)	0		
87	Hungary	North Hungarian Environmental Inspectorate Area		Tarnaszentmária	MH – Tarnaszentmária Fuel depot	1	x=736 250 Y=281 850	0			Tarna (49) Zagyva (58) Tisa (335	old military site							hydrocarbon polluted soil and groundwater			69.000 and 69.000		4	37	#WERT!	#WERT!		37	☘ (m1 < 47)	no data	no data	no data
88	Hungary	North Hungarian Environmental Inspectorate Area		Mezőkövesd Hrsz: 0456/2	MH – Mezőkövesd Fuel depot „K" area	2	x=762 425 Y=272 900	0			Kánya Brook (14) Rima Brook (8) Tisa (434)	old military site							hydrocarbon polluted soil and groundwater			52.500 and 67.500		4	37	#WERT!	#WERT!		37	☘ (m1 < 47)	no data	no data	no data
89	Hungary	Middle Danube Environmental Inspectorates area			Tököl	3		0			Danube	old military site	Former military airport						hydrocarbon (CH) polluted soil and groundwater			308000 and 209.900		3	37				37	☘ (m1 < 47)	no data	no data	no data
90	Romania		Dambovita		Doicesti	4	44_59_15_N 25_24_02_E	0		50	Lalomita River				slag and ash pond				not specified (fireplace ash)	100101		500.000		3	37	#BEZUG!	#BEZUG!		37	☘ (m1 < 47)	1	3	111
91	Romania		Tulcea		Turcoaia	20		0		5000	Old Danube-Macin Arm	deposit			sterile pond				not specified	not specified		440000		3	37	#BEZUG!	#BEZUG!		37	☘ (m1 < 47)	3	3	333
92	Romania		Dolj		Calafat	11		0		250	Danube	deposit			industrial wastes				Wastes from sugar beet processing			435000		3	37	#BEZUG!	#BEZUG!		37	☘ (m1 < 47)	1	3	111
93	Hungary	South Transdanubian Environmental Inspectorates Area		Mohács		12	X=622 150 Y= 74 880	0			Danube (1445)	Communal organic dump			settlement waste				Communal organic dump	200301		370.000		3	37				37	☘ (m1 < 47)	no data	no data	no data
94	Hungary	South Transdanubian Environmental Inspectorates Area		Barcs		13	X=529 650 Y= 70 890	0			Drava (153)	Communal organic dump			settlement waste				Communal organic dump			300.000		3	37	#BEZUG!	#BEZUG!		37	☘ (m1 < 47)	no data	no data	no data
95	Hungary	Körös Environmental Inspectorates Area		Gyula	Establishmen organic waste	14	X=818 000 Y=146 100	0			White Körös	communal waste storage								200301		273.773	273.773	3	37				37	☘ (m1 < 47)	no data	no data	no data
96	Hungary	Middle Tisa Environmental Inspectorates Area		Jászberény	ELEKTROLUX - LEHEL Ltd WDS-1 (waste of chemical industry)	15	X=711 216 Y=237 746	0			Zagyva (67) Tisa (336)	industrial deposit			polluted earth				contaminated soil	200202		155.000		3	37,0				37	☘ (m1 < 47)	no data	no data	no data
97	Hungary	South Transdanubian Environmental Inspectorates Area		Harkány		16	X=585 860 Y= 56 330	0			Drava (72)	Communal organic dump			settlement waste				Communal organic dump			114.000		3	37	#BEZUG!	#BEZUG!		37	☘ (m1 < 47)	no data	no data	no data
98	Hungary	South Transdanubian Environmental Inspectorates Area		Siklós		17	X=590 640 Y= 53 770	0			Drava (65)	Communal organic dump			settlement waste				Communal organic dump			112.000		3	37	#BEZUG!	#BEZUG!		37	☘ (m1 < 47)	no data	no data	no data

APPENDIX 2

CHECKLIST FOR THE INVESTIGATION AND RISK ASSESSMENT OF CONTAMINATED SITES IN FLOOD RISK AREAS

Annex 1: Questionnaire of Contaminates Sites in Flood Risk Areas

Annex 2: Branch Catalogue of Germany

Annex 3: European Waste Catalogue

APPENDIX 2

CHECKLIST FOR THE INVESTIGATION AND RISK ASSESSMENT OF CONTAMINATED SITES IN FLOOD RISK AREAS

ANNEX 1: QUESTIONNAIRE OF CONTAMINATED SITES IN FLOOD RISK AREAS

Questionnaire of General Information about Contaminated Sites in Flood Risk Areas

The collection of general information is aimed to be a basic study (desk study), which provides information about the investigated property in flood risk areas which may consist of several items given below:

- General data
- Hydro-geological situation
- Location of the site and land-use
- Source of contamination
- History of the property use
- Status of the property
- Information about flooding potential
- Information about remediation and/or preventive measures
- Mobility and solubility of hazard contaminant
- Former investigations of the property

1 General data of the suspected contaminated site in flood risk areas

Name of the property: _____

Address: _____

_____

_____

Coordinates (centre of the site) _____

Source of information has to be listed according to table 1:

Table 1: List of sources of information (fill in if information is known)

Source	Contact person	Address/ Telephone/Telefax/E-mail
Present site owner		
Responsible polluter		
Local authorities		
Contemporary Witness		
Further		

2 Description of hydro-geological situation at the site

- Geological setting

_____

_____

_____

- Hydrological setting (e.g. aquifer type, flow regime, groundwater table, aquifer thickness, hydraulic conductivity, direction of groundwater flow…)

_____

_____

_____

_____

- Comments

_____

_____

3 Description of the location and land-use

Table 2: Compilation of sensitive bordering areas (multiple ticks possible)

Area	Bordering the area	Inside the area
Industrial area	❒	❒
Residential area	❒	❒
Hospital area	❒	❒
Nature protection area	❒	❒
Agricultural area	❒	❒
Forest area	❒	❒
Drinking water protection zone	❒	❒
Standing water body	❒	❒
Body of flowing water	❒	❒
Further	❒	❒

Additional information (special remarks to the site condition):

_____

_____

4 General information about the source of contamination

Is the contamination caused by:

- Waste disposal (deposit site) : ❒ Yes (if yes, go to 4.1) ❒ No
- Industrial activities
  ❒ Yes (if yes, go to 4.2) ❒ No
- Other sources of contamination, e.g. incidents, leakages, operational losses:
  ❒ Yes (if yes, go to 4.2) ❒ No
- Sewage sludge and/or waste-water treatment:
  ❒ Yes (if yes, go to 4.3) ❒ No
- Other sources, such as: ……
  ❒ Yes ❒ No

4.1 General information for deposit site

Disposal was: ❒ Regular ❒ Irregular

Waste was disposed in (multiple ticks possible):

Landfills ❒
Disordered deposit ❒
Combustion residues ❒
Communal deposits ❒
Filling of pits ❒
Filling of depressions ❒
Combination ❒
Others ❒ _____

Other relevant information: _____

_____

_____

_____

4.2 General information for industrial site and/or abandoned industrial site or other sources of contamination, e.g. incidents, leakages, operational losses

Short description of surface and subsurface installations (e.g. pipes, vessels, tanks), which can cause a hazard potential for the environment:

_____

_____

_____

Please list the installations in the following tab. 3:

Table 3: List of installations

Installation	Volume in m³ (if known)	Installation is built			Installation is			
		Above ground	Under-ground	On water surface	Emptied	saved against up-drift	saved against leakage	sealed
		❒	❒	❒	❒	❒	❒	❒
		❒	❒	❒	❒	❒	❒	❒
		❒	❒	❒	❒	❒	❒	❒
		❒	❒	❒	❒	❒	❒	❒

Is the subsurface of the installation affected by pollution? (proof according to organoleptic test)

❒ Yes ❒ No ❒ not sure

Did incidents occur? ❒ Yes ❒ No

Year of incident(s): _____

Type of substances/chemicals set free: _____

Amount of substances/chemicals set free: _____

Other relevant information: _____

_____

_____

4.3 General information for sewage sludge and/or waste-water treatment

Type of treatment: _____

The treatment plant was constructed in the year: _____

Capacity of the treatment plant: _____

Condition of the sewerage system is:

❒ Good ❒ Insufficient ❒ Unpredictable

Condition of the sewage system is:

❒ Good ❒ Insufficient ❒ Unpredictable

Sewage sludge is/ was disposed/treated

❒ On-site ❒ Off-site

Other relevant information: _____

_____

_____

5 History of the property use

The information about former land-use of the property indicates possible contamination at the site. The former land-use has to be filled in chronological order in table 4.

Table 4: List of former use of the site

Time frame	Former use	Confirmed	Not confirmed	Probable contamination
		❒	❒	
		❒	❒	
		❒	❒	
		❒	❒	
		❒	❒	
		❒	❒	
		❒	❒	
		❒	❒	

6 Status of the property

The table 5 refers to information about the present situation of the property and the present activities at a site.

Table 5: Status of activities at the property

Status	Yes	No
Closed-down	❒	❒
Closed-down with official consent	❒	❒
Operating	❒	❒
Operating with permit	❒	❒
Listed for control	❒	❒
Others:	❒	❒

7 General information about the flooding potential

Is the contaminated site safe against flood events?

❒ Yes ❒ No ❒ Unpredictable

Is the whole contaminated site endangered by flooding or only parts?

❒ Whole site ❒ Parts

Reasons for flooding:

- Rain event ❒ Yes ❒ No
- By back pressure from water bodies or canals: ❒ Yes ❒ No
- By rising groundwater levels as a result of extended periods of high water ❒ Yes ❒ No

Which data confirmed the danger of flooding?

- Monitoring data ❒ Yes ❒ No
- Hydrological surveys ❒ Yes ❒ No
- Contemporary witness ❒ Yes ❒ Yes
- Others: Specify: _____

8 General information about remediation measures and/or preventive measures set at a contaminated site

Are remediation measures and/or preventive measures already implemented to lower the risk of flooding at a contaminated site?

❒ Yes ❒ No

If yes which measures are set?

❒ Excavation of contaminated soil
❒ Appropriate relocation and disposal of waste
❒ Relocation and intermediate storage of waste
❒ Drainage and intermediate storage of leachates
❒ Technical measures against flooding

❒ Others _____

Remediation/decontamination of contaminated sectors

❒ Bioremediation
❒ Soil washing
❒ Thermal treatment
❒ Leachates drainage and treatment

❒ Others _____

Protective and restrictive measures

- ❒ Sealing of surface
- ❒ Encapsulation of contaminated volume
- ❒ Encapsulation of tanks and vessels
- ❒ Building of retention basin
- ❒ Restoration of retention basin
- ❒ Building of safety dams
- ❒ Restoration of safety dams
- ❒ Leachate collector system
- ❒ Leachate treated
- ❒ Cover system
- ❒ Liner system
- ❒ Monitoring and control of the landfill body
- ❒ Monitoring and control of safety systems
- ❒ Restricted use of the property
- ❒ Prohibition to access
- ❒ Closure of the property
- ❒ Others _____

9 General information about the mobility of hazard contaminants

Danger arising from the emission of contaminants hazardous to water in case of flooding depends on the mobility of the contaminant and the solubility of the harmful substance.

This chapter gives information whether the contaminants are mobile in case of flooding or not.

The mobility of hazard substances is caused by:

Human error	❒ Yes	❒ No
Shockwave	❒ Yes	❒ No
Heavy rain events	❒ Yes	❒ No
High water	❒ Yes	❒ No

- Human error is mainly characterized through activities which lead to contaminants loss caused by improper locking or fixing of installations (e.g. if a sludge treatment facility is not locked early enough since the flood occurs).
- Shockwave could cause significant destruction on dams, retention basins and installations or even a flush away of deposits or dumps, which will lead to a contaminant discharge if they are insufficiently saved. Shockwave appear predominantly in narrow valleys.
- Heavy rain events could cause an instability of constructions, which lead to a less function ability of safety installations (e.g. safety dams, groundings or retention basins).
- High water could cause a raising and destruction of underground storage facilities, an instability of constructions and a mobilizing of contaminants in unsaturated contaminated volume.

Hazard substances (please fill in table 6):

Table 6: Estimation of the mobility of hazard substances

Hazard substance	Mobility is			
	High	Medium	Low	Unpredictable
	❒	❒	❒	❒
	❒	❒	❒	❒
	❒	❒	❒	❒
	❒	❒	❒	❒
	❒	❒	❒	❒

10 Former Investigations of the property

Has the property already been investigated with regard to the hazard potential?

❒ Yes ❒ No

If yes, which investigation:

❒ Historical investigation
❒ Preliminary investigation
❒ Detailed investigation

Description of the investigation:

_____
_____
_____
_____

Source of information of the investigation:

_____
_____
_____

Were contaminated area(s) identified?

❒ Yes ❒ No

If no, a detailed investigation has to be started if the suspicion of contamination cannot be excluded.

If yes, were remedy measures already taken to prevent hazards in case of flooding?

❒ Yes

❒ No → If no, plan for remedy action needs to be be started

If yes, which measures?

Description of the remediation measurements (see also chapter 3.2.):

_____
_____
_____
_____

Short-term measures:

- Is no conclusive data available, data research has to be started. Contact to meteorological network agencies is necessary
- If no data is available about the mobility potential of contaminants in case of flooding, a hydro-geological investigation has to be started.
- To avoid impacts on the environment abandoned installations have to be cleared and/or removed
- Prove the stability of dams and the dimension of retention basins (whether they are sufficiently dimensioned and constructed for shock wave events or heavy rain events).
- Prove if mobilising of contaminants caused by high water could be avoided by sealing of contaminated volume or locking of installations

Medium and long term measures

- To avoid impacts on the environment abandoned installations have to be sealed**.**
- Build sufficiently dimensioned dams and retention basins to mitigate the impact of shockwave and heavy rain events.
- To avoid the impact of shockwave remove installations and contaminated volume from the flood risk area
- If the investigation does not affirm an adequate dimensioning start to reconstruct old safety installations or build new safety installations

APPENDIX 2

CHECKLIST FOR THE INVESTIGATION AND RISK ASSESSMENT OF CONTAMINATED SITES IN FLOOD RISK AREAS

ANNEX 2: BRANCH CATALOGUE OF GERMANY

BRANCH CATALOGUE

(MAJOR GROUPS AND SUBGROUPS)

BRANCH No.	BRANCH NAME	CLASS OF HAZARD, r_0 Min and Max
	MANUFACTURING AND PROCESSING INDUSTRIES	
0005	**Gas, mining, related products**	2-5
0010	Gas production (town gas)	4-5
0020	Coal mining	3-4
0021	Brown coal mining and briquette production	3-4
0022	Ferrous ores mining	2-5
0023	Production of non-ferrous metals	3-5
0024	Potassium and rock salt mining	2-2
0025	Petroleum and natural gas extraction	3-4
0030	Cocking	4-5
0040	Briquettes coal production	3-4
0045	**Chemistry**	2-5
0050	Production of basic chemicals	2-5
0060	Production of inorganic basic chemicals	2-5
0070	Production of commercial fertilisers	2-5
0080	Production of organic basic chemicals	2-5
0090	Production of plastics and synthetic rubber	2-5
0100	Production of chemical articles	2-5
0110	Production of dyestuffs, printing inks and bleaching agents	3-5
0120	Special chemical products	2-5
0130	Construction-sealing agents	4-5
0140	Galvanic materials	3-5
0150	Tanning substances, tanning materials extracts	3-4
0160	Hardeners	4-5
0170	Hardeners for plastics and plastic-based products	4-5
0180	Protective coating for wood	2-5
0190	Industrial detergents	3-5
0200	Insulating materials	3-5
0210	Cooling agents	4-5
0220	Adhesives	4-5
0230	Conservatives (including for preservation of foodstuffs)	2-4
0240	Anti-corrosion agents	4-5
0250	Mineral oil additives	4-5
0260	Hydraulic fluid	4-5
0270	Pesticides and insecticides	5-5
0280	Plastic and plastic-based stabilisers	3-4
0290	Anti-rust agents	3-4
0300	Lubricants	3-4
0310	Raw materials for detergents	3-4
0320	Softeners	3-5
0330	Explosives	4-5

BRANCH No.	BRANCH NAME	CLASS OF HAZARD, r_0 Min and Max
0340	Disinfectants	4-5
0350	Scenting agents	3-4
0360	Antioxidants	3-4
0370	Ground coat removal	3-5
0380	Production of pharmaceuticals	3-5
0390	Production of soaps, washing agents and body cosmetics	2-4
0400	Production of photo-chemicals	3-5
0410	Production of chemical fibres	4-5
0420	Mineral oils processing	4-5
0430	Production of plastics	3-5
0440	Rubber products manufacturing	3-5
0445	**Stones, gravel, sands, cement, asbestos, ceramics, glass**	1-4
0450	Extraction of stones, gravel and sands	1-2
0460	Production of cement/ concrete	2-3
0470	Production of limestone, construction solutions, burnt gypsum	2-2
0480	Production of asbestos cement products	2-3
0490	Asbestos processing	2-3
0500	Industrial ceramics	2-4
0510	Bricks manufacturing	2-3
0520	Fine ceramics	2-4
0530	Glass production and processing	2-4
0535	**High furnaces, metallurgical plants, foundries**	2-5
0540	High furnaces, steel production and hot rolling plants	2-5
0550	Forging, pressing and forging-pressing plants	2-4
0560	Lighter non-ferrous metals metallurgical plants	3-4
0570	Heavier non-ferrous metallurgical plants	3-5
0580	Non-ferrous metals melting plants	3-5
0590	Iron, steel foundries and tempering	3-5
0600	Ferrous metals foundries	3-5
0605	**Metal processing and machine building**	2-5
0610	Drawing-, cool rolling plants	2-4
0620	Moulding of steel / metal constructions / steel constructions / metal processing	2-4
0630	Metal surface treatment, hardening	3-5
0640	Machine building / production of tools	2-3
0650	Production of office equipment and data-processing machines	2-3
0660	Manufacture of trucks and spare parts	2-4
0670	Ship-building, manufacture of aircrafts and spacecrafts	2-3
0680	Steelwork products	2-3
0685	**Electrical, optical, iron and metal products**	2-5
0690	Electrical engineering, electronics	2-5
0700	Manufacture of batteries and accumulators	2-4
0710	Fine mechanics and optics	2-4
0720	Manufacture of ironwork, steel sheets, metalwork / wire products	2-4
0730	Manufacture of musical instruments, toys, etc.	2-4
0735	**Wood processing and treatment**	2-5
0740	Wood processing / raw wood treatment	2-2
0750	Timber impregnation plants	3-5
0760	Veneer plants	3-4

BRANCH No.	BRANCH NAME	CLASS OF HAZARD, r_0 Min and Max
0770	Plywood plants	3-4
0780	Wood fibre tile plants	3-4
0790	Wood-tile panel plants	3-4
0800	Wood processing, manufacture of natural wood furniture	2-4
0805	**Paper, printing houses**	2-5
0810	Manufacture of cellulose	3-5
0820	Manufacture of paper, cardboard	2-5
0830	Printing houses and copiers	3-5
0835	**Leather, shoes**	2-5
0840	Leather processing	3-5
0850	Leather treatment	2-4
0860	Shoes manufacture	2-4
0865	**Textile processing**	2-5
0870	Textile pre-treatment	3-5
0880	Textile dyeing	3-5
0890	Textile printing	3-5
0900	Textile finishing	2-5
0910	Apparel industry	2-3
0915	**Food processing, forage, miscellaneous**	2-5
0920	Food processing industry	2-5
0930	Forage	2-4
0940	Breweries	2-3
0950	**Reuse of by-products**	3-5
0960	Carbon enamelling	3-4
0970	Manufacture of resins/floor wax/ candles	4-5
0980	Manufacture of slag blocks, slag processing	3-4
0990	Manufacture of fire extinguishers, gas-masks	4-5
1000	Shoes wax / shoes care products	4-5
1010	Manufacture and processing of neon pipes	3-5
1020	Paper processing and use	2-3
1030	Tar processing	4-5
1040	Manufacture of mattresses	2-3
1050	Acetylene production	4-5
1900	**Manufacturing and processing industry – general**	1-5
	WHOLESALE, SERVICES AND SUPPLY	
2000	Meat processing factories	2-5
2010	Freight facilities / automobile trade / motorcycle trade	2-4
2020	Slaughter houses	2-4
2030	Railways, freight railway stations	3-4
2040	Airports	3-5
2050	Electric power plants and thermal power plants	2-4
2060	Transformers, electric power substations	3-5
2070	Trade in and storing of mineral oil products and waste machine oils	3-5
2080	Service stations	4-5
2090	Dismantling of vehicles	3-5
2100	Storage and wholesale of animal fats and plant oils	2-3
2110	Liquefied gas storage	2-3

BRANCH No.	BRANCH NAME	CLASS OF HAZARD, r_0 Min and Max
2120	Forwarding	2-3
2130	Weapons, ammunition and explosives warehouses	2-4
2140	Shooting galleries	2-4
2150	Automobile maintenance	2-4
2160	Automobile painting houses	4-5
2170	Dry cleaners	4-5
2180	Textile use	2-3
2190	Industrial painting, highway marking and protective covering of buildings	3-5
2200	Varnish houses, trade in and warehousing of varnish	3-5
2210	Warehousing of timber and wood products	2-3
2220	Vulcanisers	3-5
2230	Anodising (aluminising) houses	3-4
2240	Electroplating, electroplating installations	4-5
2250	Repair shops, enterprises	2-5
2260	Anti-corrosive protection enterprises	4-5
2270	Manufacture of heating systems / whiteware – fitter shops	2-4
2280	Zinc-coating shops	2-5
2290	Municipal waste transport and transfer, waste management	2-4
2300	Construction enterprises, trade in construction materials, construction sites	2-3
2310	Warehousing and wholesale of impregnating materials	3-5
2320	Wholesale and warehousing of plastics	2-3
2330	Warehousing and wholesale of iron-, metal- and steelwork	2-3
2340	Water treatment stations	2-3
2350	Warehousing of loose salt	2-2
2360	Machine-repair shops	2-5
2370	Stone processing	2-3
2380	Warehousing / wholesale of fertilisers	3-4
2390	Coal trade	2-3
2400	Automobile tyres trade and repair	2-3
2410	Production of roof covering materials / asphalt cardboard processing / bitumen processing	3-4
2420	Trade and warehousing of wallpaper/ painting tools	2-5
2430	Turnery / Polishing	2-4
2440	Hydraulic oils warehousing and trade	4-5
2450	Materials testing enterprises	2-5
2460	Warehousing of and trade in non-ferrous metals	2-3
2470	Wholesale and warehousing of packaging	2-3
2480	Plastic products processing	3-5
2490	Wholesale/ warehousing of chemical products	2-5
2500	Wholesale/ warehousing of pharmaceutical products	2-4
2510	Wholesale/ warehousing of ironware	2-3
2520	Cemeteries	2-3
2530	Engravers	3-5
2540	Wholesale/ warehousing of automobile spare parts / accessories	2-3
2550	Wholesale / warehousing of mining products	2-3
2560	Windows and buildings cleaners	2-4
2570	Repair of refrigeration systems	3-5
2580	Laundries	2-4
2900	Wholesale and services not otherwise specified	1-5

BRANCH No.	BRANCH NAME	CLASS OF HAZARD, r_0 Min and Max
	AGRICULTURE	
4000	Agrochemical centre	3-5
4010	Agricultural airports	3-4
4020	Agricultural machines	2-5
4030	Silos and storage facilities	2-4
4040	Livestock farming (cattle, pigs, sheep)	2-4
4050	Areas with high concentration of liquid fertilisers/ liquid fertiliser warehouses	3-4
4060	Pesticide warehouses	3-5
4070	Hops growing	2-4
4080	Drying facilities	2-3
4090	Poultry farming	3-4
4100	Horticulture	2-5
4110	Growing of flowers and ornamental plants	2-5
4120	Growing of wine grapes	2-4
4900	Agricultural branches not otherwise specified	1-5
	WEAPONS-RELATED, MILITARY AND WAR-TIME PAST CONTAMINATION	
5010	Manufacture of propellants and explosives	4-5
5020	Special chemical warfare agents and agent-containing ammunition factories	3-5
5030	Chemical warfare agents and agent-containing ammunition factories	4-5
5040	Ammunition enterprises	3-5
5050	Ammunition warehouses	2-4
5060	Shooting galleries and army training grounds	2-5
5080	Airports	3-5
5090	Liquid fuel storage facilities (military)	3-5
5100	Ammunition sites (not specified)	2-4
5110	Burial of ammunition (without chemical warfare agents)	2-4
5120	Burial of chemical warfare agents (or ammunitions and chemical warfare agents)	2-4
5130	Burial of chemical warfare agents and warfare agent-containing ammunition	4-5
5140	Ammunition factories	2-4
5200	Firing grounds and dismantling facilities, ammunition deactivation and recycling	3-5
5300	Installations for collection and treatment of waste and waste waters from warfare factories	2-5
5900	Past contamination from weapons and military activities – general	2-5
	TRANSPORTATION PIPELINES AND UNDERGROUND DEPOSITORIES	
7000	Gas pipelines	3-4
7010	Underground depositories	2-5
7020	Salty solution pipelines	2-2
7030	Oil pipelines	4-5
7040	Waste water pipelines	3-5
7900	Other pipelines and harmful substances not otherwise specified	2-5

APPENDIX 2

CHECKLIST FOR THE INVESTIGATION AND RISK ASSESSMENT OF CONTAMINATED SITES IN FLOOD RISK AREAS

ANNEX 3: EUROPEAN WASTE CATALOGUE

LIST OF WASTES AND CORRESPONDING RISK VALUES (r_0)

List of wastes pursuant to Article 1 (a) of Council Directive 75/442/EEC on waste (EUROPEAN WASTE CATALOGUE).

1. Article 1 (a) of Directive 75/442/EEC defines the term 'waste' as: 'any substance or object in the categories set out in Annex I which the holder discards or intends or is required to discard'.
2. The second indent of Article 1 (a) requires the Commission, acting in accordance with the procedure laid down in Article 18, to draw up a list of waste belonging to the categories listed in Annex I. This list is commonly referred to as the European Waste Catalogue (EWC), and applies to all wastes, irrespective of whether they are destined for disposal or for recovery operations.
3. The EWC is an harmonised, non-exhaustive list of wastes, that is to say, a list which will be periodically reviewed and if necessary revised in accordance with the committee procedure.
However, the inclusion of a material in the EWC does not mean that the material is a waste in all circumstances. The entry is only relevant when the definition of waste has been satisfied.
4. The waste featuring in the EWC is subject to the provisions of the Directive unless Article 2 (1) (b) of this Directive applies.
5. The EWC is to be a reference nomenclature providing a common terminology throughout the Community with the purpose to improve the efficiency of waste management activities. In this respect the European Waste Catalogue should constitute the basic reference for the Community Programme on waste statistics launched pursuant to the Council resolution of 7 May 1990 on waste management policy (1).
6. The EWC will be subject to adaptation to scientific and technical progress in accordance with the procedure laid down in Article 18 of the Directive.
7. The reading of an individual code of waste in the EWC should not be isolated from its heading.
8. The EWC does not prejudge the list of 'hazardous wastes' as required by Article 1 (4) of Council Directive 91/689/EEC of 12 December 1991 on hazardous waste (2).

In this edition the list has been enhanced with the r_0 values, calculated by a method published in:
Dr. G. Möschwitzer: „Grobabschätzung der r_0-Werte als Maß für die Stoffgefährlichkeit zur Erstbewertung von Altlasten gemäß Katalog der besonders überwachungsbedürftigen Abfälle nach TA Abfall“ (Februar 1993)

CODE	WASTE TYPE	r_0 VALUE	
		Average	(Min,Max)
010000	WASTE RESULTING FROM EXPLORATION, MINING, DRESSING AND FURTHER TREATMENT OF MINERALS AND QUARRY		
010100	Waste from mineral excavation	3.5	(1.0 6.0)
010101	Waste from mineral metalliferous excavation	5.0	(4.0 6.0)
010102	Waste from mineral non-metalliferous excavation	2.5	(2.0 3.0)
010200	Waste from mineral dressing	3.5	(1.0 6.0)
010201	Waste from the dressing of metalliferous minerals	5.0	(4.0 6.0)
010202	Waste from the dressing of non-metalliferous minerals	2.5	(2.0 3.0)
010300	Waste from further physical and chemical processing of metalliferous minerals	4.0	(3.0 5.0)
010301	Tailings	3.0	(2.0 4.0)
010302	Dusty and powdery waste	4.5	(3.0 6.0)
010303	Red mud from the alumina production	3.0	(3.0 3.0)
010399	Wastes not otherwise specified	4.0	(3.0 5.0)
010400	Waste from further physical and chemical processing of non metalliferous minerals	3.0	(2.0 4.0)
010401	Waste gravel and crushed rocks	3.0	(2.0 4.0)
010402	Waste sand and clays	3.0	(2.0 4.0)
010403	Dusty and powdery waste	3.0	(2.0 4.0)
010404	Waste from potash and rock salt processing	4.5	(4.5 4.5)
010405	Waste from washing and cleaning of minerals	3.0	(2.0 4.0)
010406	Waste from stone cutting and sawing	2.0	(2.0 2.0)
010499	Wastes not otherwise specified	3.0	(2.0 4.0)
010500	Drilling muds and other drilling wastes	3.0	(3.0 3.0)
010501	Oil-containing drilling muds and wastes	3.0	(3.0 3.0)
010502	Barite-containing drilling muds and wastes	3.0	(3.0 3.0)
010503	Chloride-containing drilling muds and wastes	3.0	(3.0 3.0)

CODE	WASTE TYPE	m VALUE	
		Average	(Min,Max)
010504	Fresh-water drilling muds and wastes	3.0	(3.0 3.0)
010599	Wastes not otherwise specified	3.0	(3.0 3.0)
020000	WASTE FROM AGRICULTURAL, HORTICULTURAL, HUNTING, FISHING AND AQUACULTURE PRIMARY PRODUCTION, FOOD PREPARATION AND PROCESSING		
020100	Primary production waste	3.5	(3.0 4.0)
020101	Sludges from washing and cleaning	3.0	(3.0 3.0)
020102	Animal tissue waste	3.0	(3.0 3.0)
020103	Plant tissue waste	3.0	(3.0 3.0)
020104	Waste plastics (excluding packaging)	3.5	(3.0 4.0)
020105	Agrochemical wastes	6.0	(6.0 6.0)
020106	Animal feces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site	4.0	(4.0 4.0)
020107	Waste from forestry exploitation	4.0	(2.0 6.0)
020199	Wastes not otherwise specified	4.0	(2.0 6.0)
020200	Wastes from the preparation and processing of meat, fish and other foods of animal origin	3.0	(3.0 3.0)
020201	Sludges from washing and cleaning	3.0	(3.0 3.0)
020202	Animal tissue waste	3.0	(3.0 3.0)
020203	Materials unsuitable for consumption or processing	3.0	(3.0 3.0)
020204	Sludges from on-site effluent treatment	4.0	(4.0 4.0)
020299	Wastes not otherwise specified	3.0	(3.0 3.0)
020300	Wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee and tobacco preparation, processing; conserve production; tobacco processing	3.5	(3.0 4.0)
020301	Sludges from washing, cleaning, peeling, centrifuging and separation	3.5	(3.0 4.0)
020302	Wastes from preserving agents	4.0	(2.0 6.0)
020303	Wastes from solvent extraction	4.0	(4.0 4.0)
020304	Materials unsuitable for consumption or processing	3.0	(3.0 3.0)
020305	Sludges from on-site effluent treatment	4.0	(4.0 4.0)
020399	Wastes not otherwise specified	3.5	(3.0 4.0)
020400	Wastes from sugar processing	4.0	(4.0 4.0)
020401	Soil from cleaning and washing beet	4.0	(4.0 4.0)
020402	Off specification calcium carbonate	3.0	(3.0 3.0)
020403	Sludges from on-site effluent treatment	4.0	(4.0 4.0)
020499	Wastes not otherwise specified	3.5	(3.0 4.0)
020500	Wastes from the dairy products industry	3.5	(3.0 4.0)
020501	Materials unsuitable for consumption or processing	3.0	(3.0 3.0)
020502	Sludges from on-site effluent treatment	4.0	(4.0 4.0)
020599	Wastes not otherwise specified	3.5	(3.0 4.0)
020600	Wastes from the baking and confectionery industry	3.5	(3.0 4.0)
020601	Materials unsuitable for consumption or processing	3.0	(3.0 3.0)
020602	Wastes from preserving agents	4.0	(2.0 6.0)
020603	Sludges from on-site effluent treatment	4.0	(4.0 4.0)
020699	Wastes not otherwise specified	3.5	(3.0 4.0)
020700	Wastes from the production of alcoholic and non-alcoholic beverages (excluding coffee, tea and co-coa)	3.0	(3.0 3.0)
020701	Wastes from washing, cleaning and mechanical reduction of the raw material	3.0	(3.0 3.0)
020702	Wastes from spirits distillation	3.0	(3.0 3.0)
020703	Waste from chemical treatment	3.0	(3.0 3.0)
020704	Materials unsuitable for consumption or processing	3.0	(3.0 3.0)
020705	Sludges from on-site effluent treatment	4.0	(4.0 4.0)
020799	Wastes not otherwise specified	3.0	(3.0 3.0)
030000	WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PAPER, CARDBOARD, PULP, PANELS AND FURNITURE		
030100	Wastes from wood processing and the production of panels and furniture	4.0	(2.0 6.0)

CODE	WASTE TYPE	*n* VALUE	
		Average	(Min,Max)
030101	Waste bark and cork	2.5	(2.0 3.0)
030102	Sawdust	2.5	(2.0 3.0)
030103	Shavings, cuttings, spoiled timber/particle board/veneer	2.5	(2.0 3.0)
030199	Wastes not otherwise specified	2.5	(2.0 3.0)
030200	Wood preservation waste	6.0	(6.0 6.0)
030201	Non-halogenated organic wood preservatives	5.0	(4.0 6.0)
030202	Organochlorinated wood preservatives	5.0	(5.0 5.0)
030203	Organometallic wood preservatives	6.0	(6.0 6.0)
030204	Inorganic wood preservatives	6.0	(6.0 6.0)
030299	Wastes not otherwise specified		
030300	Wastes from pulp, paper and cardboard production and processing	4.0	(4.0 4.0)
030301	Bark	2.5	(2.0 3.0)
030302	Dregs and green liquor sludge (from black liquor treatment)	4.0	(4.0 4.0)
030303	Bleaching sludges from hypochlorite and chlorine processes	3.0	(3.0 3.0)
030304	Bleaching sludges from other bleaching processes	3.0	(3.0 3.0)
030305	De-inking sludges from paper recycling	4.0	(4.0 4.0)
030306	Fibre and paper sludge	3.0	(3.0 3.0)
030307	Rejects from paper and cardboard recycling	3.0	(3.0 3.0)
030399	Wastes not otherwise specified	3.5	(3.0 4.0)
040000	Wastes from the leather and textile industries		
040100	Wastes from the leather industry	4.0	(3.0 5.0)
040101	Fleshings and lime split waste	3.0	(3.0 3.0)
040102	Liming waste	5.0	(5.0 5.0)
040103	Degreasing wastes containing solvents without a liquid phase	5.0	(5.0 5.0)
040104	Tanning liquor containing chromium	4.0	(4.0 4.0)
040105	Tanning liquor free of chromium	4.0	(4.0 4.0)
040106	Sludges containing chromium	5.0	(5.0 5.0)
040107	Sludges free of chromium	5.0	(5.0 5.0)
040108	Waste tanned leather (blue sheetings, shavings, cuttings, buffing dust) containing chromium	5.0	(5.0 5.0)
040109	Wastes from dressing and finishing	3.0	(3.0 3.0)
040199	Wastes not otherwise specified	4.0	(3.0 5.0)
040200	Wastes from textile industry	4.0	(3.0 5.0)
040201	Wastes from unprocessed textile fibres and other natural fibrous substances mainly of vegetable origin	3.0	(3.0 3.0)
040202	Wastes from unprocessed textile fibres mainly of animal origin	3.0	(3.0 3.0)
040203	Wastes from unprocessed textile fibres mainly artificial or synthetic	4.0	(4.0 4.0)
040204	Wastes from unprocessed mixed textile fibres before spinning and weaving	3.5	(3.0 4.0)
040205	Wastes from processed textile fibres mainly of vegetable origin	3.0	(3.0 3.0)
040206	Wastes from processed textile fibres mainly of animal origin	3.0	(3.0 3.0)
040207	Wastes from processed textile fibres mainly of artificial or synthetic origin	4.0	(4.0 4.0)
040208	Wastes from processed mixed textile fibres	3.5	(3.0 4.0)
040209	Wastes from composite materials (impregnated textile, elastomer, plastomer)	4.0	(4.0 4.0)
040210	Organic matter from natural products (e.g. grease, wax)	4.0	(4.0 4.0)
040211	Halogenated wastes from dressing and finishing	5.5	(5.0 6.0)
040212	Non-halogenated wastes from dressing and finishing	5.0	(4.0 6.0)
040213	Dye stuffs and pigments	5.0	(4.0 6.0)
040299	Wastes not otherwise specified	4.0	(3.0 6.0)
050000	WASTES FROM PETROLEUM REFINING, NATURAL GAS PURIFICATION AND PYROLYTIC TREATMENT OF COAL		
050100	Oily sludges and solid wastes	4.0	(4.0 4.0)
050101	Sludges from on-site effluent treatment	4.0	(4.0 4.0)
050102	Desalter sludges	5.5	(5.0 6.0)

CODE	WASTE TYPE	n_0 VALUE	
		Average	(Min,Max)
050103	Tank bottom sludges	4.0	(4.0 4.0)
050104	Acid alkyl sludges	5.5	(5.0 6.0)
050105	Oil spills	4.5	(4.0 5.0)
050106	Sludges from plant, equipment and maintenance operations	5.5	(5.0 6.0)
050107	Acid tars	5.0	(5.0 5.0)
050108	Other tars	4.5	(4.0 5.0)
050199	Wastes not otherwise specified	5.0	(5.0 6.0)
050200	Non oily sludges and solid wastes	3.0	(3.0 3.0)
050201	Boiler feedwater sludges	3.0	(3.0 3.0)
050202	Waste from cooling columns	4.0	(4.0 4.0)
050299	Wastes not otherwise specified	3.5	(3.0 4.0)
050300	Spent catalysts	4.0	(4.0 4.0)
050301	Spent catalysts containing precious metals	4.0	(4.0 4.0)
050302	Other spent catalysts	4.0	(4.0 4.0)
050400	Spent filter clays	4.0	(4.0 4.0)
050401	Spent filter clays	4.0	(4.0 4.0)
050500	Oil desulphurisation waste	4.0	(4.0 4.0)
050501	Waste containing sulphur	4.0	(4.0 4.0)
050599	Wastes not otherwise specified	4.0	(4.0 4.0)
050600	Waste from the pyrolytic treatment of coal	4.5	(4.0 5.0)
050601	Acid tars	5.0	(5.0 5.0)
050602	Asphalt	4.0	(4.0 4.0)
050603	Other tars	4.5	(4.0 5.0)
050604	Waste from cooling columns	4.0	(4.0 4.0)
050699	Wastes not otherwise specified	4.5	(4.0 5.0)
050700	Wastes from natural gas purification	5.0	(4.0 6.0)
050701	Sludges containing mercury	4.0	(4.0 4.0)
050702	Wastes containing sulphur	4.0	(4.0 4.0)
050799	Wastes not otherwise specified	4.5	(4.0 5.0)
050800	Wastes from oil regeneration	4.5	(4.0 5.0)
050801	Spent filter clays	4.0	(4.0 4.0)
050802	Acid tars	5.0	(5.0 5.0)
050803	Other tars	4.5	(4.0 5.0)
050804	Aqueous liquid waste from oil regeneration	4.0	(4.0 4.0)
050899	Wastes not otherwise specified	4.5	(4.0 5.0)
060000	WASTES FROM INORGANIC CHEMICAL PROCESSES		
060100	Waste acidic solutions	5.5	(5.0 6.0)
060101	Sulphuric acid and sulphurous acid	5.0	(5.0 5.0)
060102	Hydrochloric acid	5.5	(5.0 6.0)
060103	Hydrofluoric acid	5.5	(5.0 6.0)
060104	Phosphoric and phosphorous acid	5.5	(5.0 6.0)
060105	Nitric acid and nitrous acid	5.5	(5.0 6.0)
060199	Waste not otherwise specified	5.5	(5.0 6.0)
060200	Waste alkaline solutions	5.0	(5.0 5.0)
060201	Calcium hydroxide	5.0	(5.0 5.0)
060202	Soda	5.0	(5.0 5.0)
060203	Ammonia	5.0	(5.0 5.0)
060299	Wastes not otherwise specified	5.0	(5.0 5.0)
060300	Waste salts and their solutions	4.0	(2.0 6.0)
060301	Carbonates (except 02 04 02 and 19 10 03)	3.5	(2.0 5.0)
060302	Saline solutions containing sulphates, sulphites or sulphides	4.0	(3.0 5.0)
060303	Solid salts containing sulphates, sulphites or sulphides	4.0	(3.0 5.0)

CODE	WASTE TYPE	*n* VALUE	
		Average	(Min,Max)
060304	Saline solutions containing chlorides, fluorides and halides	3.5	(3.0 4.0)
060305	Solid salts containing chlorides, fluorides and other halogenated solid salts	3.5	(3.0 4.0)
060306	Saline solutions containing phosphates and related solid salts	4.5	(4.0 5.0)
060307	Phosphates and related solid salts	4.5	(4.0 5.0)
060308	Saline solutions containing nitrates and related compounds	5.5	(5.0 6.0)
060309	Solid salts containing nitrides (nitrometallic)	5.5	(5.0 6.0)
060310	Solid salts containing ammonium	4.0	(4.0 4.0)
060311	Salts and solutions containing cyanides	6.0	(6.0 6.0)
060312	Salts and solutions containing organic compounds	4.0	(2.0 6.0)
060399	Wastes not otherwise specified	3.5	(2.0 5.0)
060400	Metal-containing wastes	4.0	(3.0 6.0)
060401	Metallic oxides	4.5	(3.0 6.0)
060402	Metallic salts (except 06 03 00)	4.0	(2.0 6.0)
060403	Wastes containing arsenic	5.0	(5.0 5.0)
060404	Wastes containing mercury	4.0	(4.0 4.0)
060405	Wastes containing other heavy metals	4.5	(3.0 6.0)
060499	Wastes not otherwise specified	4.5	(3.0 6.0)
060500	Sludges from on-site effluent treatment	3.5	(3.0 4.0)
060501	Sludges from on-site effluent treatment	3.5	(3.0 4.0)
060600	Wastes from sulphur chemical processes (production and transformation) and desulphurisation processes	4.0	(4.0 4.0)
060601	Waste containing sulphur	4.0	(4.0 4.0)
060699	Wastes not otherwise specified	4.0	(4.0 4.0)
060700	Wastes from halogen chemical processes	4.0	(4.0 4.0)
060701	Wastes containing asbestos from electrolysis	4.0	(4.0 4.0)
060702	Activated carbon from chlorine production	2.0	(2.0 2.0)
060799	Wastes not otherwise specified	3.0	(2.0 4.0)
060800	Wastes from production of silicon and silicon derivatives	3.5	(1.0 6.0)
060801	Wastes from production of silicon and silicon derivatives	4.5	(1.0 6.0)
060900	Wastes from phosphorus chemical processes	4.0	(3.0 5.0)
060901	Phosphogypsum	4.0	(4.0 4.0)
060902	Phosphorous slag	5.0	(4.0 6.0)
060999	Wastes not otherwise specified	4.5	(4.0 5.0)
061000	Wastes from nitrogen chemical processes and fertiliser manufacture	4.5	(4.0 5.0)
061001	Waste from nitrogen chemical processes and fertiliser manufacture	4.5	(4.0 5.0)
061100	Wastes from the manufacturing of inorganic pigments and opacificiers	4.0	(4.0 4.0)
061101	Gypsum from titanium dioxide production	4.0	(4.0 4.0)
061199	Wastes not otherwise specified	4.0	(4.0 4.0)
061200	Wastes from production, use and regeneration of catalysts	4.0	(4.0 4.0)
061201	Spent catalysts containing precious metals	4.0	(4.0 4.0)
061202	Other spent catalysts	4.0	(4.0 4.0)
061300	Wastes from other inorganic chemical processes	4.0	(3.0 5.0)
061301	Inorganic pesticides, biocides and wood preserving agents	6.0	(6.0 6.0)
061302	Spent activated carbon (except 06 07 02)	2.0	(2.0 2.0)
061303	Carbon black	4.0	(4.0 4.0)
061399	Wastes not otherwise specified	4.0	(2.0 6.0)
070000	WASTES FROM ORGANIC CHEMICAL PROCESSES		
070100	Waste from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals	5.0	(5.0 6.0)
070101	Aqueous washing liquids and mother liquors	5.0	(4.0 6.0)
070102	Sludges from on-site effluent treatment	4.0	(4.0 4.0)
070103	Organic halogenated solvents, washing liquids and mother liquors	5.0	(4.0 6.0)
070104	Other organic solvents, washing liquids and mother liquors	5.0	(4.0 6.0)

CODE	WASTE TYPE	*n* VALUE	
		Average	(Min,Max)
070105	Spent catalysts containing precious metals	4.0	(4.0 4.0)
070106	Other spent catalysts	4.0	(4.0 4.0)
070107	Halogenated still bottoms and reaction residues	4.0	(4.0 4.0)
070108	Other still bottoms and reaction residues	4.0	(4.0 4.0)
070109	Halogenated filter cakes, spent absorbents	4.0	(4.0 4.0)
070110	Other filter cakes, spent absorbents	4.0	(4.0 4.0)
070199	Wastes not otherwise specified	4.5	(4.0 6.0)
070200	Waste from the MFSU of plastics, synthetic rubber and man-made fibres	5.0	(5.0 6.0)
070201	Aqueous washing liquids and mother liquors	5.0	(4.0 6.0)
070202	Sludges from on-site effluent treatment	4.0	(4.0 4.0)
070203	Organic halogenated solvents, washing liquids and mother liquors	5.0	(4.0 6.0)
070204	Other organic solvents, washing liquids and mother liquors	5.0	(4.0 6.0)
070205	Spent catalysts containing precious metals	4.0	(4.0 4.0)
070206	Other spent catalysts	4.0	(4.0 4.0)
070207	Halogenated still bottoms and reaction residues	4.0	(4.0 4.0)
070208	Other still bottoms and reaction residues	4.0	(4.0 4.0)
070209	Halogenated filter cakes, spent absorbents	4.0	(4.0 4.0)
070210	Other filter cakes, spent absorbents	4.0	(4.0 4.0)
070299	Wastes not otherwise specified	4.5	(4.0 6.0)
070300	Waste from the MFSU of organic dyes and pigments (excluding 06 11 00)	5.0	(5.0 6.0)
070301	Aqueous washing liquids and mother liquors	5.0	(4.0 6.0)
070302	Sludges from on-site effluent treatment	4.0	(4.0 4.0)
070303	Organic halogenated solvents, washing liquids and mother liquors	5.0	(4.0 6.0)
070304	Other organic solvents, washing liquids and mother liquors	5.0	(4.0 6.0)
070305	Spent catalysts containing precious metals	4.0	(4.0 4.0)
070306	Other spent catalysts	4.0	(4.0 4.0)
070307	Halogenated still bottoms and reaction residues	4.0	(4.0 4.0)
070308	Other still bottoms and reaction residues	4.0	(4.0 4.0)
070309	Halogenated filter cakes, spent absorbents	4.0	(4.0 4.0)
070310	Other filter cakes, spent absorbents	4.0	(4.0 4.0)
070399	Wastes not otherwise specified	4.5	(4.0 6.0)
070400	Waste from the MFSU of organic pesticides (except 02 01 05)	5.0	(5.0 6.0)
070401	Aqueous washing liquids and mother liquors	5.0	(4.0 6.0)
070402	Sludges from on-site effluent treatment	4.0	(4.0 4.0)
070403	Organic halogenated solvents, washing liquids and mother liquors	5.0	(4.0 6.0)
070404	Other organic solvents, washing liquids and mother liquors	5.0	(4.0 6.0)
070405	Spent catalysts containing precious metals	4.0	(4.0 4.0)
070406	Other spent catalysts	4.0	(4.0 4.0)
070407	Halogenated still bottoms and reaction residues	4.0	(4.0 4.0)
070408	Other still bottoms and reaction residues	4.0	(4.0 4.0)
070409	Halogenated filter cakes, spent absorbents	4.0	(4.0 4.0)
070410	Other filter cakes, spent absorbents	4.0	(4.0 4.0)
070499	Wastes not otherwise specified	4.5	(4.0 6.0)
070500	Waste from the MFSU of pharmaceuticals	5.0	(5.0 6.0)
070501	Aqueous washing liquids and mother liquors	5.0	(4.0 6.0)
070502	Sludges from on-site effluent treatment	4.0	(4.0 4.0)
070503	Organic halogenated solvents, washing liquids and mother liquors	5.0	(4.0 6.0)
070504	Other organic solvents, washing liquids and mother liquors	5.0	(4.0 6.0)
070505	Spent catalysts containing precious metals	4.0	(4.0 4.0)
070506	Other spent catalysts	4.0	(4.0 4.0)
070507	Halogenated still bottoms and reaction residues	4.0	(4.0 4.0)
070508	Other still bottoms and reaction residues	4.0	(4.0 4.0)

CODE	WASTE TYPE	*n*0 VALUE	
		Average	(Min,Max)
070509	Halogenated filter cakes, spent absorbents	4.0	(4.0 4.0)
070510	Other filter cakes, spent absorbents	4.0	(4.0 4.0)
070599	Wastes not otherwise specified	4.5	(4.0 6.0)
070600	Waste from the MFSU of fats, grease, soaps, detergents disinfectants and cosmetics	5.0	(5.0 6.0)
070601	Aqueous washing liquids and mother liquors	5.0	(4.0 6.0)
070602	Sludges from on-site effluent treatment	4.0	(4.0 4.0)
070603	Organic halogenated solvents, washing liquids and mother liquors	5.0	(4.0 6.0)
070604	Other organic solvents, washing liquids and mother liquors	5.0	(4.0 6.0)
070605	Spent catalysts containing precious metals	4.0	(4.0 4.0)
070606	Other spent catalysts	4.0	(4.0 4.0)
070607	Halogenated still bottoms and reaction residues	4.0	(4.0 4.0)
070608	Other still bottoms and reaction residues	4.0	(4.0 4.0)
070609	Halogenated filter cakes, spent absorbents	4.0	(4.0 4.0)
070610	Other filter cakes, spent absorbents	4.0	(4.0 4.0)
070699	Wastes not otherwise specified	4.5	(4.0 6.0)
070700	Waste from the MFSU of fine chemicals and chemical products not otherwise specified	5.0	(5.0 6.0)
070701	Aqueous washing liquids and mother liquors	5.0	(4.0 6.0)
070702	Sludges from on site effluent treatment	4.0	(4.0 4.0)
070703	Organic halogenated solvents, washing liquids and mother liquors	5.0	(4.0 6.0)
070704	Other organic solvents, washing liquids and mother liquors	5.0	(4.0 6.0)
070705	Spent catalysts containing precious metals	4.0	(4.0 4.0)
070706	Other spent catalysts	4.0	(4.0 4.0)
070707	Halogenated still bottoms and reaction residues	4.0	(4.0 4.0)
070708	Other still bottoms and reaction residues	4.0	(4.0 4.0)
070709	Halogenated filter cakes, spent absorbents	4.0	(4.0 4.0)
070710	Other filter cakes, spent absorbents	4.0	(4.0 4.0)
070799	Wastes not otherwise specified	4.5	(4.0 6.0)
080000	WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVE, SEALANTS AND PRINTING INKS		
080100	Wastes from MFSU of paint and varnish	5.0	(4.0 6.0)
080101	Waste paints and varnish containing halogenated solvents	5.0	(4.0 6.0)
080102	Waste paints and varnish free of halogenated solvents	4.5	(4.0 5.0)
080103	Waste from water-based paints and varnishes	4.0	(4.0 4.0)
080104	Powder paints	4.0	(4.0 4.0)
080105	Hardened paints and varnishes	4.0	(4.0 4.0)
080106	Sludges from paint or varnish removal containing halogenated solvents	5.5	(5.0 6.0)
080107	Sludges from paint or varnish removal free of halogenated solvents	5.5	(5.0 6.0)
080108	Aqueous sludges containing paint or varnish	5.5	(5.0 6.0)
080109	Waste from paint or varnish removal (except 08 01 05 and 08 01 06)	5.5	(5.0 6.0)
080110	Aqueous suspensions containing paint or varnish	5.5	(5.0 6.0)
080199	Wastes not otherwise specified	5.0	(4.0 6.0)
080200	Wastes from MFSU of other coating (including ceramic materials)	4.0	(3.0 5.0)
080201	Waste coating powders	3.5	(1.0 6.0)
080202	Aqueous sludges containing ceramic materials	4.0	(2.0 6.0)
080203	Aqueous suspensions containing ceramic materials	4.0	(2.0 6.0)
080299	Wastes not otherwise specified	4.0	(2.0 6.0)
080300	Waste from MFSU of printing inks	4.0	(4.0 4.0)
080301	Waste ink containing halogenated solvents	5.0	(4.0 6.0)
080302	Waste ink free of halogenated solvents	4.0	(4.0 4.0)
080303	Waste from water-based ink	4.0	(4.0 4.0)
080304	Dried ink	4.0	(4.0 4.0)

CODE	WASTE TYPE	*n* VALUE	
		Average	(Min,Max)
080305	Ink sludges containing halogenated solvents	5.5	(5.0 6.0)
080306	Ink sludges free of halogenated solvents	5.5	(5.0 6.0)
080307	Aqueous sludges containing ink	5.5	(5.0 6.0)
080308	Aqueous liquid waste containing ink	5.5	(5.0 6.0)
080309	Waste printing toner (including cartridges)	4.5	(4.0 5.0)
080399	Wastes not otherwise specified	4.5	(4.0 5.0)
080400	Wastes from MFSU of adhesives and sealants (including waterproofing products)	4.0	(4.0 4.0)
080401	Waste adhesives and sealants containing halogenated solvents	5.0	(4.0 6.0)
080402	Waste adhesives and sealants free of halogenated solvents	5.0	(5.0 5.0)
080403	Wastes from water-based adhesives and sealants	5.0	(5.0 5.0)
080404	Hardened adhesives and sealants	3.5	(3.0 4.0)
080405	Adhesives and sealants sludges containing halogenated solvents	5.0	(4.0 6.0)
080406	Adhesives and sealants sludges free of halogenated solvents	5.0	(5.0 5.0)
080407	Aqueous sludges containing adhesives and sealants	5.5	(5.0 6.0)
080408	Aqueous liquid wastes containing adhesives and sealants	5.5	(5.0 6.0)
080499	Wastes not otherwise specified	5.0	(4.0 6.0)
090000	Wastes from the photographic industry		
090100	Wastes from photographic industry	3.5	(3.0 4.0)
090101	Water based developer and activator solutions	3.5	(3.0 4.0)
090102	Water based offset plate developer solutions	3.5	(3.0 4.0)
090103	Solvent based developer solutions	3.5	(3.0 4.0)
090104	Fixer solutions	5.0	(5.0 5.0)
090105	Bleach solutions and bleach fixer solutions	5.0	(5.0 5.0)
090106	Waste containing silver from on-site treatment of photographic waste	3.0	(3.0 3.0)
090107	Photographic film and paper containing silver or silver compounds	3.0	(3.0 3.0)
090108	Photographic film and paper free of silver or silver compounds	3.0	(3.0 3.0)
090109	Single-use cameras with batteries	4.0	(4.0 4.0)
090110	Single use cameras without batteries	3.5	(3.0 4.0)
090199	Wastes not otherwise specified	3.5	(3.0 4.0)
100000	INORGANIC WASTES FROM THERMAL PROCESSES		
100100	Wastes from power station and other combustion plants (except 19 00 00)	4.0	(3.0 5.0)
100101	Bottom ash	3.0	(3.0 3.0)
100102	Coal fly ash	4.0	(4.0 4.0)
100103	Peat fly ash	4.0	(4.0 4.0)
100104	Oil fly ash	4.0	(4.0 4.0)
100105	Calcium based reaction wastes from flue gas desulphurisation in solid form	5.0	(5.0 5.0)
100106	Other solid wastes from gas treatment	5.0	(5.0 5.0)
100107	Calcium based reaction wastes from flue gas desulphurisation in sludge form	4.0	(4.0 4.0)
100108	Other sludges from gas treatment	5.0	(5.0 5.0)
100109	Sulphuric acid	5.5	(5.0 6.0)
100110	Spent catalysts e.g. from removal of NOx	5.0	(5.0 5.0)
100111	Aqueous sludges from boiler cleansing	3.5	(3.0 4.0)
100112	Spent linings and refractories	5.0	(5.0 5.0)
100199	Wastes not otherwise specified	4.0	(3.0 5.0)
100200	Wastes from the iron and steel industry	5.0	(4.0 6.0)
100201	Waste from the processing of slag	5.0	(4.0 6.0)
100202	Unprocessed slag	5.0	(4.0 6.0)
100203	Solid wastes from gas treatment	5.0	(5.0 5.0)
100204	Sludges from gas treatment	5.0	(5.0 5.0)
100205	Other sludges	4.5	(4.0 5.0)
100206	Spent linings and refractories	5.0	(4.0 6.0)
100299	Wastes not otherwise specified	4.5	(4.0 6.0)

CODE	WASTE TYPE	*n* VALUE	
		Average	(Min,Max)
100300	Wastes from aluminium thermal metallurgy	5.0	(5.0 5.0)
100301	Tars and other carbon-containing wastes from anode manufacture	4.5	(4.0 5.0)
100302	Anode scraps	4.5	(4.0 5.0)
100303	Skimmings	5.0	(5.0 5.0)
100304	Primary smelting slags/white drosses	5.0	(5.0 5.0)
100305	Alumina dust	4.5	(3.0 6.0)
100306	Used carbon strips and fireproof materials from electrolysis	5.0	(5.0 5.0)
100307	Spent pot linings	5.0	(5.0 5.0)
100308	Salt slags from secondary smelting	4.5	(4.0 5.0)
100309	Black drosses from secondary smelting	5.0	(5.0 5.0)
100310	Waste from treatment of salt slags and black drosses treatment	5.0	(5.0 5.0)
100311	Flue gas dust	5.5	(5.0 6.0)
100312	Other particulates and dust (including ball mill dust)	4.5	(3.0 6.0)
100313	Solid waste from gas treatment	5.0	(5.0 5.0)
100314	Sludges from gas treatment	5.0	(5.0 5.0)
100399	Wastes not otherwise specified	5.0	(3.0 6.0)
100400	Wastes from lead thermal metallurgy	4.5	(4.0 5.0)
100401	Slags (first and second smelting)	5.0	(5.0 5.0)
100402	Dross and skimmings (first and second smelting)	4.5	(3.0 6.0)
100403	Calcium arsenate	5.0	(5.0 5.0)
100404	Flue gas dust	5.5	(5.0 6.0)
100405	Other particulates and dust	4.5	(3.0 6.0)
100406	Solid waste from gas treatment	5.0	(5.0 5.0)
100407	Sludges from gas treatment	5.0	(5.0 5.0)
100408	Spent linings and refractories	5.0	(5.0 5.0)
100499	Wastes not otherwise specified	5.0	(3.0 6.0)
100500	Wastes from zinc thermal metallurgy	4.5	(4.0 5.0)
100501	Slags (first and second smelting)	4.5	(4.0 5.0)
100502	Dross and skimmings (first and second smelting)	4.5	(3.0 6.0)
100503	Flue gas dust	5.5	(5.0 6.0)
100504	Other particulates and dust	4.5	(3.0 6.0)
100505	Solid waste from gas treatment	5.0	(5.0 5.0)
100506	Sludges from gas treatment	5.0	(5.0 5.0)
100507	Spent linings and refractories	5.0	(5.0 5.0)
100599	Wastes not otherwise specified	5.0	(3.0 6.0)
100600	Wastes from copper thermal metallurgy	5.0	(5.0 5.0)
100601	Slags (first and second smelting)	5.0	(5.0 5.0)
100602	Dross and skimmings (first and second smelting)	4.5	(3.0 6.0)
100603	Flue gas dust	5.5	(5.0 6.0)
100604	Other particulates and dust	4.5	(3.0 6.0)
100605	Waste from electrolytic refining	4.0	(4.0 4.0)
100606	Solid waste from gas treatment	5.0	(5.0 5.0)
100607	Sludges from gas treatment	5.0	(5.0 5.0)
100608	Spent linings and refractories	5.0	(5.0 5.0)
100699	Wastes not otherwise specified	5.0	(3.0 6.0)
100700	Wastes from silver, gold and platinum thermal metallurgy	5.0	(5.0 5.0)
100701	Slags (first and second smelting)	5.0	(5.0 5.0)
100702	Dross and skimmings (first and second smelting)	4.5	(3.0 6.0)
100703	Solid waste from gas treatment	5.0	(5.0 5.0)
100704	Other particulates and dust	4.5	(3.0 6.0)
100705	Sludges from gas treatment	5.0	(5.0 5.0)
100706	Spent linings and refractories	5.0	(5.0 5.0)

CODE	WASTE TYPE	*n* VALUE	
		Average	(Min,Max)
100799	Wastes not otherwise specified	5.0	(3.0 6.0)
100800	Wastes from other non-ferrous thermal metallurgy	5.0	(5.0 5.0)
100801	Slags (first and second smelting)	5.0	(5.0 5.0)
100802	Dross and skimmings (first and second smelting)	4.5	(3.0 6.0)
100803	Flue gas dust	5.5	(5.0 6.0)
100804	Other particulates and dust	4.5	(3.0 6.0)
100805	Solid waste from gas treatment	5.0	(5.0 5.0)
100806	Sludges from gas treatment	5.0	(5.0 5.0)
100807	Spent linings and refractories	5.0	(5.0 5.0)
100899	Wastes not otherwise specified	5.0	(3.0 6.0)
100900	Wastes from casting of ferrous pieces	4.5	(3.0 6.0)
100901	Casting cores and moulds containing organic binders which have not undergone pouring	4.0	(4.0 4.0)
100902	Casting cores and moulds containing organic binders which have undergone pouring	4.0	(4.0 4.0)
100903	Furnace slag	4.5	(4.0 5.0)
100904	Furnace dust	4.0	(4.0 4.0)
100999	Wastes not otherwise specified	4.5	(3.0 6.0)
101000	Wastes from casting of non-ferrous pieces	4.5	(3.0 6.0)
101001	Casting cores and moulds containing organic binders which have not undergone pouring	4.0	(4.0 4.0)
101002	Casting cores and moulds containing organic binders which have undergone pouring	4.0	(4.0 4.0)
101003	Furnace slag	4.5	(4.0 5.0)
101004	Furnace dust	5.0	(5.0 6.0)
101099	Wastes not otherwise specified	4.5	(3.0 6.0)
101100	Wastes from manufacture of glass and glass products	4.0	(4.0 4.0)
101101	Waste preparation mixture before thermal processing	4.0	(4.0 4.0)
101102	Waste glass	2.0	(2.0 2.0)
101103	Waste glass-based fibrous materials	2.0	(2.0 2.0)
101104	Flue gas dust	3.5	(3.0 4.0)
101105	Other particulates and dust	3.5	(1.0 6.0)
101106	Solid waste from gas treatment	5.0	(5.0 5.0)
101107	Sludges from gas treatment	5.0	(5.0 5.0)
101108	Spent linings and refractories	2.0	(2.0 2.0)
101199	Wastes not otherwise specified	3.5	(1.0 6.0)
101200	Wastes from manufacture of ceramic goods, bricks, tiles and constructions products	2.0	(2.0 2.0)
101201	Waste preparation mixture before thermal processing	2.0	(2.0 2.0)
101202	Flue gas dust	3.5	(3.0 4.0)
101203	Other particulates and dust	3.5	(1.0 6.0)
101204	Solid waste from gas treatment	5.0	(5.0 5.0)
101205	Sludges from gas treatment	5.0	(5.0 5.0)
101206	Discarded moulds	2.0	(1.0 3.0)
101207	Spent linings and refractories	2.0	(2.0 2.0)
101299	Wastes not otherwise specified	3.5	(1.0 6.0)
101300	Wastes from manufacture of cement, lime and plaster and articles and products made from them	3.0	(3.0 3.0)
101301	Waste preparation mixture before thermal processing	3.0	(3.0 3.0)
101302	Wastes from asbestos-cement manufacture	4.0	(4.0 4.0)
101303	Wastes from other cement-based composite materials	3.0	(3.0 3.0)
101304	Waste from calcination and hydration of lime	3.0	(3.0 3.0)
101305	Solid waste from gas treatment	5.0	(5.0 5.0)
101306	Other particulates and dust	3.5	(1.0 6.0)
101307	Sludges from gas treatment	5.0	(5.0 5.0)
101308	Spent linings and refractories	2.0	(2.0 2.0)
101399	Wastes not otherwise specified	3.5	(1.0 6.0)

CODE	WASTE TYPE	*n* VALUE	
		Average	(Min,Max)
110000	INORGANIC WASTE WITH METALS FROM METAL TREATMENT AND THE COATING OF METALS; NON-FERROUS HYDRO-METALLURGY		
110100	Liquid wastes and sludges from metal treatment and coating of metals (e.g. galvanic processes, zinc coating processes, pickling processes, etching, phosphatising, alkaline degreasing)	5.5	(5.0 6.0)
110101	Cyanidic (alkaline) wastes containing heavy metals other than chromium	6.0	(6.0 6.0)
110102	Cyanidic (alkaline) wastes which do not contain heavy metals	6.0	(6.0 6.0)
110103	Cyanide-free wastes containing chromium	5.0	(5.0 5.0)
110104	Cyanide-free wastes not containing chromium	5.5	(5.0 6.0)
110105	Acidic pickling solutions	5.0	(5.0 5.0)
110106	Acids not otherwise specified	5.5	(5.0 6.0)
110107	Alkalis not otherwise specified	5.0	(5.0 5.0)
110108	Phosphatising sludges	5.0	(5.0 5.0)
110200	Wastes and sludges from non-ferrous hydrometallurgical processes	5.0	(5.0 5.0)
110201	Sludges from copper hydrometallurgy	5.0	(5.0 5.0)
110202	Sludges from zinc hydrometallurgy (including jarosite, goethite)	5.0	(5.0 5.0)
110203	Wastes from the production of anodes for aqueous electrolytical processes	4.0	(3.0 5.0)
110204	Sludges not otherwise specified	5.0	(5.0 5.0)
110300	Sludges and solids from tempering processes	6.0	(6.0 6.0)
110301	Wastes containing cyanide	6.0	(6.0 6.0)
110302	Other wastes	5.5	(5.0 6.0)
110400	Other inorganic wastes with metals not otherwise specified	4.0	(3.0 5.0)
110401	Other inorganic wastes with metals not otherwise specified	4.0	(3.0 5.0)
120000	WASTES FROM SHAPING AND SURFACE TREATMENT OF METALS AND PLASTICS		
120100	Wastes from shaping (including forging, welding, pressing, drawing, turning, cutting and filing)	3.5	(3.0 4.0)
120101	Ferrous metal filings and turnings	3.5	(3.0 4.0)
120102	Other ferrous metals particles	3.5	(3.0 4.0)
120103	Non-ferrous metal filings and turnings	3.5	(3.0 4.0)
120104	Other non-ferrous metal particles	3.5	(3.0 4.0)
120105	Plastics particles	3.5	(3.0 4.0)
120106	Waste machining oils containing halogens (not emulsioned)	5.5	(5.0 6.0)
120107	Waste machining oils free of halogens (not emulsioned)	4.0	(4.0 4.0)
120108	Waste machining emulsions containing halogens	5.0	(5.0 5.0)
120109	Waste machining emulsions free of halogens	5.0	(5.0 5.0)
120110	Synthetic machining oils	5.0	(5.0 5.0)
120111	Machining sludges	4.0	(4.0 4.0)
120112	Spent waxes and fats	3.5	(3.0 4.0)
120113	Welding wastes	3.0	(3.0 3.0)
120199	Wastes not otherwise specified	3.5	(3.0 4.0)
120200	Wastes from mechanical surface treatment processes (blasting, grinding, honing, lapping, polishing)	4.0	(4.0 4.0)
120201	Spent blasting grit	4.0	(4.0 4.0)
120202	Sludges from grinding, honing and lapping	4.0	(4.0 4.0)
120203	Polishing sludges	4.0	(2.0 6.0)
120299	Wastes not otherwise specified	4.0	(2.0 6.0)
120300	Wastes from water and steam degreasing processes (except 11 00 00)	5.0	(5.0 5.0)
120301	Aqueous washing liquids	5.0	(5.0 5.0)
120302	Steam degreasing wastes	5.0	(5.0 5.0)
130000	OIL WASTES (except edible oils, 05 00 00 and 12 00 00)		
130100	Waste hydraulic oils and brake fluids	4.5	(4.0 5.0)
130101	Hydraulic oils, containing PCBs or PCTs	6.0	(6.0 6.0)
130102	Other chlorinated hydraulic oils (not emulsions)	4.0	(4.0 4.0)
130103	Non chlorinated hydraulic oils (not emulsions)	4.0	(4.0 4.0)
130104	Chlorinated emulsions	5.5	(5.0 6.0)

CODE	WASTE TYPE	n VALUE	
		Average	(Min,Max)
130105	Non-chlorinated emulsions	5.5	(5.0 6.0)
130106	Hydraulic oils containing only mineral oil	5.5	(5.0 6.0)
130107	Other hydraulic oils	5.5	(5.0 6.0)
130108	Brake fluids	4.5	(4.0 5.0)
130200	Waste engine, gear & lubricating oils	5.0	(5.0 5.0)
130201	Chlorinated engine, gear and lubricating oils	5.0	(5.0 5.0)
130202	Non-chlorinated engine, gear, lubricating oils	5.0	(5.0 5.0)
130203	Other engine, gear and lubricating oils	5.0	(5.0 5.0)
130300	Waste insulating and heat transmission oils and other liquids	5.0	(4.0 6.0)
130301	Insulating or heat transmission oils and other liquids containing PCBs or PCTs	6.0	(6.0 6.0)
130302	Other chlorinated insulating and heat transmission oils and other liquids	4.0	(4.0 4.0)
130303	Non-chlorinated insulating and heat transmission oils and other liquids	5.0	(5.0 5.0)
130304	Synthetic insulating and heat transmission oils and other liquids	5.0	(5.0 5.0)
130305	Mineral insulating and heat transmission oils	4.5	(4.0 5.0)
130400	Bilge oils	4.0	(4.0 4.0)
130401	Bilge oils from inland navigation	4.0	(4.0 4.0)
130402	Bilge oils from jetty sewers	4.0	(4.0 4.0)
130403	Bilge oils from other navigation	4.0	(4.0 4.0)
130500	Oil/water separator contents	4.0	(4.0 4.0)
130501	Oil/water separator solids	4.0	(4.0 4.0)
130502	Oil/water separator sludges	4.0	(4.0 4.0)
130503	Interceptor sludges	4.0	(4.0 4.0)
130504	Desalter sludges or emulsions	5.0	(5.0 5.0)
130505	Other emulsions	5.0	(4.0 6.0)
130600	Oil waste not otherwise specified	4.5	(4.0 5.0)
130601	Oil waste not otherwise specified	4.5	(4.0 5.0)
140000	WASTES FROM ORGANIC SUBSTANCES EMPLOYED AS SOLVENTS (except 07 00 00 and 08 00 00)		
140100	Wastes from metal degreasing and machinery maintenance	5.0	(5.0 6.0)
140101	Chlorofluorocarbons	5.0	(5.0 6.0)
140102	Other halogenated solvents and solvent mixes	5.5	(5.0 6.0)
140103	Other solvents and solvent mixes	5.0	(4.0 6.0)
140104	Aqueous solvent mixes containing halogens	5.5	(5.0 6.0)
140105	Aqueous solvent mixes free of halogens	5.0	(4.0 6.0)
140106	Sludges or solid wastes containing halogenated solvents	5.5	(5.0 6.0)
140107	Sludges or solid wastes free of halogenated solvents	5.5	(5.0 6.0)
140200	Wastes from textile cleaning and degreasing of natural products	5.0	(4.0 6.0)
140201	Halogenated solvents and solvent mixes	5.5	(5.0 6.0)
140202	Solvent mixes or organic liquids free of halogenated solvents	5.0	(4.0 6.0)
140203	Sludges or solid wastes containing halogenated solvents	5.5	(5.0 6.0)
140204	Sludges or solid wastes containing other solvents	5.5	(5.0 6.0)
140300	Wastes from the electronic industry	5.0	(4.0 6.0)
140301	Chlorofluorocarbons	5.0	(5.0 6.0)
140302	Other halogenated solvents	5.5	(5.0 6.0)
140303	Solvents and solvent mixes free of halogenated solvents	5.0	(4.0 6.0)
140304	Sludges or solid wastes containing halogenated solvents	5.5	(5.0 6.0)
140305	Sludges or solid wastes containing other solvents	5.5	(5.0 6.0)
140400	Wastes from coolants, foam/aerosol propellents	5.0	(4.0 6.0)
140401	Chlorofluorocarbons	5.0	(5.0 6.0)
140402	Other halogenated solvents and solvent mixes	5.5	(5.0 6.0)
140403	Other solvents and solvent mixes	5.0	(4.0 6.0)
140404	Sludges or solid wastes containing halogenated solvents	5.5	(5.0 6.0)
140405	Sludges or solid wastes containing other solvents	5.5	(5.0 6.0)

CODE	WASTE TYPE	*n* VALUE	
		Average	(Min,Max)
140500	Wastes from solvent and coolant recovery (still bottoms)	5.0	(4.0 6.0)
140501	Chlorofluorocarbons	5.0	(5.0 6.0)
140502	Halogenated solvents and solvent mixes	5.5	(5.0 6.0)
140503	Other solvents and solvent mixes	5.0	(4.0 6.0)
140504	Sludges containing halogenated solvents	5.5	(5.0 6.0)
140505	Sludges containing other solvents	5.5	(5.0 6.0)
150000	PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED		
150100	Packaging	2.5	(2.0 3.0)
150101	Paper and cardboard	3.0	(3.0 3.0)
150102	Plastic	3.0	(3.0 3.0)
150103	Wooden	4.0	(2.0 6.0)
150104	Metallic	3.0	(3.0 3.0)
150105	Composite packaging	2.5	(2.0 3.0)
150106	Mixed	2.5	(2.0 3.0)
150200	Absorbents, filter materials, wiping cloths and protective clothing	4.0	(3.0 5.0)
150201	Absorbents, filter materials, wiping cloths, protective clothing	4.0	(3.0 5.0)
160000	WASTE NOT OTHERWISE SPECIFIED IN THE CATALOGUE		
160100	End of life vehicles	4.5	(4.0 5.0)
160101	Catalysts removed from vehicles containing precious metals	4.0	(4.0 4.0)
160102	Other catalysts removed from vehicles	4.0	(4.0 4.0)
160103	Used tyres	3.0	(3.0 3.0)
160104	Discarded vehicles	4.5	(4.0 5.0)
160105	Light fraction from automobile shredding	4.0	(3.0 5.0)
160199	Wastes not otherwise specified	4.0	(3.0 5.0)
160200	Discarded equipment and shredder residues	4.0	(4.0 4.0)
160201	Transformers and capacitors containing PCB or PCTs	6.0	(6.0 6.0)
160202	Other discarded electronic equipment (e.g. printed circuit boards)	3.5	(3.0 4.0)
160203	Equipment containing chlorofluorocarbons	5.0	(5.0 5.0)
160204	Discarded equipment containing free asbestos	4.0	(4.0 4.0)
160205	Other discarded equipment	3.5	(3.0 4.0)
160206	Wastes from the asbestos processing industry	4.0	(4.0 4.0)
160207	Waste from the plastic converter industry	3.5	(3.0 4.0)
160208	Shredder residues	4.0	(4.0 4.0)
160300	Off-specification batches	4.5	(4.0 5.0)
160301	Inorganic off-specification batches	4.5	(4.0 5.0)
160302	Organic off-specification batches	4.5	(4.0 5.0)
160400	Waste explosives	5.0	(5.0 5.0)
160401	Waste ammunition	5.0	(4.0 6.0)
160402	Fireworks waste	4.0	(4.0 4.0)
160403	Other waste explosives	5.0	(5.0 5.0)
160500	Chemicals and gases in containers	5.0	(5.0 5.0)
160501	Industrial gases in high pressure cylinders, LPG containers and industrial aerosol containers (including halons)	5.0	(5.0 5.0)
160502	Other waste containing inorganic chemicals, e.g. lab chemicals not otherwise specified, fire extinguishing powders	4.5	(4.0 5.0)
160503	Other waste containing organic chemicals, e.g. lab chemicals not otherwise specified	4.5	(4.0 5.0)
160600	Batteries and accumulators	4.0	(4.0 4.0)
160601	Lead batteries	4.0	(4.0 4.0)
160602	Ni-Cd batteries	4.0	(4.0 4.0)
160603	Mercury dry cells	4.0	(4.0 4.0)
160604	Alkaline batteries	4.0	(4.0 4.0)

CODE	WASTE TYPE	*n* VALUE	
		Average	(Min,Max)
160605	Other batteries and accumulators	4.0	(4.0 4.0)
160606	Electrolyte from batteries and accumulators	5.0	(5.0 5.0)
160700	Waste from transport and storage tank cleaning (except 05 00 00 and 12 00 00)	4.0	(4.0 4.0)
160701	Waste from marine transport tank cleaning, containing chemicals	4.5	(4.0 5.0)
160702	Waste from marine transport tank cleaning, containing oil	5.0	(5.0 5.0)
160703	Waste from railway and road transport tank cleaning containing oil	5.0	(5.0 5.0)
160704	Waste from railway and road transport tank cleaning containing chemicals	4.5	(4.0 5.0)
160705	Waste from storage tank cleaning, containing chemicals	4.5	(4.0 5.0)
160706	Waste from storage tank cleaning, containing oil	5.0	(5.0 5.0)
160707	Solid wastes from ship cargoes	3.5	(3.0 4.0)
160799	Waste not otherwise specified	4.5	(4.0 5.0)
170000	CONSTRUCTION AND DEMOLITION WASTE (INCLUDING ROAD CONSTRUCTION)		
170100	Concrete, bricks, tiles, ceramics, and gypsum based materials	2.0	(1.0 3.0)
170101	Concrete	2.0	(1.0 3.0)
170102	Bricks	2.0	(1.0 3.0)
170103	Tiles and ceramics	2.0	(2.0 2.0)
170104	Gypsum based construction materials	3.0	(3.0 3.0)
170105	Asbestos based construction materials	4.0	(4.0 4.0)
170200	Wood, glass and plastic	3.0	(2.0 6.0)
170201	Wood	4.0	(2.0 6.0)
170202	Glass	2.0	(2.0 2.0)
170203	Plastic	3.5	(3.0 4.0)
170300	Asphalt, tar and tarred products	4.0	(4.0 4.0)
170301	Asphalt containing tar	4.5	(4.0 5.0)
170302	Asphalt (not containing tar)	4.0	(4.0 4.0)
170303	Tar and tar products	4.5	(4.0 5.0)
170400	Metals (including their alloys)	3.5	(3.0 4.0)
170401	Copper, bronze, brass	3.5	(3.0 4.0)
170402	Aluminium	3.0	(3.0 3.0)
170403	Lead	4.0	(4.0 4.0)
170404	Zinc	3.5	(3.0 4.0)
170405	Iron and steel	3.5	(3.0 4.0)
170406	Tin	3.5	(3.0 4.0)
170407	Mixed metals	4.0	(3.0 5.0)
170408	Cables	3.0	(3.0 3.0)
150500	Soil and dredging spoil	1.0	(1.0 1.0)
150501	Soil and stones	1.0	(1.0 1.0)
150502	Dredging spoil	1.0	(1.0 1.0)
170600	Insulation materials	4.0	(4.0 4.0)
170601	Insulation materials containing asbestos	5.0	(5.0 5.0)
170602	Other insulation materials	3.0	(3.0 3.0)
170700	Mixed construction and demolition waste	3.0	(3.0 3.0)
170701	Mixed construction and demolition waste	3.0	(3.0 3.0)
180000	WASTES FROM HUMAN OR ANIMAL HEALTH CARE AND/OR RELATED RESEARCH (excluding kitchen and restaurant wastes which do not arise from immediate health care)		
180100	Waste from natal care, diagnosis, treatment or prevention of disease in humans	4.0	(3.0 5.0)
180101	Sharps	4.0	(3.0 5.0)
180102	Body parts and organs including blood bags and blood preserves	4.5	(4.0 5.0)
180103	Other wastes whose collection and disposal is subject to special requirements in view of the prevention of infection	4.0	(3.0 5.0)
180104	Wastes whose collection and disposal is not subject to special requirements in view of the prevention of infection (e.g. dressings, plaster casts, linen, disposable clothing, diapers)	4.0	(4.0 4.0)

CODE	WASTE TYPE	*n* VALUE	
		Average	(Min,Max)
180105	Discarded chemicals and medicines	4.5	(4.0 5.0)
180200	Waste from research, diagnosis, treatment or prevention of disease involving animals	4.0	(3.0 5.0)
180201	Sharps	4.0	(3.0 5.0)
180202	Other wastes whose collection and disposal is subject to special requirements in view of the prevention of infection	4.0	(3.0 5.0)
180203	Wastes whose collection and disposal is not subject to special requirements in view of the prevention of infection	4.0	(4.0 4.0)
180204	Discarded chemicals	4.5	(4.0 5.0)
190000	WASTES FROM WASTE TREATMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE WATER INDUSTRY		
190100	Wastes from incineration or pyrolysis of municipal and similar commercial, industrial and institutional wastes	4.0	(3.0 5.0)
190101	Bottom ash and slag	4.0	(3.0 5.0)
190102	Ferrous materials removed from bottom ash	3.5	(3.0 4.0)
190103	Fly ash	4.0	(4.0 4.0)
190104	Boiler dust	4.0	(3.0 5.0)
190105	Filter cake from gas treatment	5.0	(5.0 5.0)
190106	Aqueous liquid waste from gas treatment and other aqueous liquid wastes	5.0	(5.0 5.0)
190107	Solid waste from gas treatment	5.0	(5.0 5.0)
190108	Pyrolysis wastes	4.0	(4.0 4.0)
190109	Spent catalysts e.g. from NOx removal	4.0	(4.0 4.0)
190110	Spent activated carbon from flue gas treatment	2.0	(2.0 2.0)
190199	Wastes not otherwise specified	4.0	(3.0 5.0)
190200	Wastes from specific physico/chemical treatments of industrial wastes (e.g. dechromatation, decyanidation, neutralisation)	4.5	(3.0 6.0)
190201	Metal hydroxide sludges and other sludges from metal insolubilisation treatment	4.5	(3.0 6.0)
190202	Premixed wastes for final disposal	4.5	(3.0 6.0)
190300	Stabilised/solidified wastes	4.0	(3.0 5.0)
190301	Wastes stabilised/solidified with hydraulic binders	4.0	(3.0 5.0)
190302	Wastes stabilised/solidified with organic binders	4.0	(3.0 5.0)
190303	Wastes stabilised by biological treatment	4.0	(3.0 5.0)
190400	Vitrified wastes and wastes from vitrification	4.0	(3.0 5.0)
190401	Vitrified wastes	4.0	(4.0 4.0)
190402	Fly ash and other flue gas treatment wastes	4.0	(4.0 4.0)
190403	Non-vitrified solid phase	5.0	(5.0 5.0)
190404	Aqueous liquid waste from vitrified waste tempering	5.0	(5.0 5.0)
190500	Wastes from aerobic treatment of solid wastes	4.0	(3.0 5.0)
190501	Non-composted fraction of municipal and similar wastes	3.5	(3.0 4.0)
190502	Non-composted fraction of animal and vegetable wastes	3.5	(3.0 4.0)
190503	Off specification compost	3.5	(3.0 4.0)
190504	Wastes not otherwise specified	3.5	(3.0 4.0)
190600	Wastes from anaerobic treatment of wastes	3.5	(3.0 4.0)
190601	Anaerobic treatment sludges of municipal and similar wastes	3.5	(3.0 4.0)
190602	Anaerobic treatment sludges of animal and vegetal wastes	3.5	(3.0 4.0)
190699	Wastes not otherwise specified	3.5	(3.0 4.0)
190700	Landfill leachate	4.5	(3.0 6.0)
190701	Landfill leachate	4.5	(3.0 6.0)
190800	Wastes from waste water treatment plants not otherwise specified	4.0	(3.0 5.0)
190801	Screenings	3.0	(3.0 3.0)
190802	Wastes from desanding	4.0	(4.0 4.0)
190803	Grease and oil mixture from oil/waste water separation	4.0	(4.0 4.0)
190804	Sludges from the treatment of industrial waste water	4.5	(4.0 5.0)
190805	Sludges from treatment of urban waste water	4.0	(4.0 4.0)

CODE	WASTE TYPE	*n* VALUE	
		Average	(Min,Max)
190806	Saturated or spent ion exchange resins	4.0	(4.0 4.0)
190807	Solutions and sludges from regeneration of ion exchangers	4.0	(4.0 4.0)
190899	Wastes not otherwise specified	4.0	(3.0 5.0)
190900	Wastes from the preparation of drinking water or water for industrial use	4.0	(3.0 5.0)
190901	Solid wastes from primary filtration and screening	3.0	(3.0 3.0)
190902	Sludges from water clarification	4.0	(4.0 4.0)
190903	Sludges from decarbonation	4.0	(4.0 4.0)
190904	Spent activated carbon	2.0	(2.0 2.0)
190905	Saturated or spent ion exchange resins	4.0	(4.0 4.0)
190906	Solutions and sludges from regeneration of ion exchangers	4.0	(4.0 4.0)
190999	Wastes not otherwise specified	4.0	(3.0 5.0)
200000	MUNICIPAL WASTES AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES INCLUDING SEPARATELY COLLECTED FRACTIONS		
200100	Separately collected fractions	3.0	(2.0 4.0)
200101	Paper and cardboard	3.0	(3.0 3.0)
200102	Glass	2.0	(2.0 2.0)
200103	Small plastics	3.5	(3.0 4.0)
200104	Other plastics	3.5	(3.0 4.0)
200105	Small metals (cans etc.)	3.0	(3.0 3.0)
200106	Other metals	3.5	(3.0 4.0)
200107	Wood	4.0	(2.0 6.0)
200108	Organic compostable kitchen waste (including frying oil and kitchen waste from canteens and restaurants)	2.0	(2.0 2.0)
200109	Oil and fat	5.0	(3.0 5.0)
200110	Clothes	3.0	(3.0 3.0)
200111	Textiles	3.0	(3.0 3.0)
200112	Paint, inks, adhesives and resins	4.0	(4.0 4.0)
200113	Solvents	5.0	(4.0 6.0)
200114	Acids	5.5	(5.0 6.0)
200115	Alkalines	5.0	(5.0 5.0)
200116	Detergents	3.5	(3.0 4.0)
200117	Photo chemicals	3.5	(3.0 4.0)
200118	Medicines	5.0	(5.0 5.0)
200119	Pesticides	6.0	(6.0 6.0)
200120	Batteries	4.0	(4.0 4.0)
200121	Fluorescent tubes and other mercury containing waste	4.0	(4.0 4.0)
200122	Aerosols	4.5	(4.0 5.0)
200123	Equipment containing chloroflurocarbons	5.0	(5.0 6.0)
200124	Electronic equipment (e.g. printed circuit boards)	3.5	(3.0 4.0)
200200	Garden and park waste (including cemetery waste)	2.0	(2.0 2.0)
200201	Compostable wastes	2.0	(2.0 2.0)
200202	Soil and stones	1.0	(1.0 1.0)
200203	Other non-compostable wastes	2.0	(2.0 2.0)
200300	Other municipal waste	2.5	(2.0 3.0)
200301	Mixed municipal waste	3.0	(2.0 4.0)
200302	Waste from markets	2.5	(2.0 3.0)
200303	Street cleaning residues	3.0	(3.0 3.0)
200304	Septic tank sludge	3.0	(3.0 3.0)
200305	End of life vehicles	4.0	(3.0 5.0)

WORKING FOR THE DANUBE AND ITS PEOPLE

www.undp-drp.org