

5.3 JICA Questionnaire Surveys

The JICA study team has launched the following questionnaire surveys which are potential sources of data about contaminated sites:

- Questionnaire survey of hazardous waste generation and management;
- Questionnaire survey of waste management conditions under EPIs with a question concerning contaminated sites in the 1st questionnaire sent to EPIs;
- Questionnaire survey of soil-contaminated sites, also sent to EPI.

5.3.1 Results from the 1st Questionnaire on Contaminated Sites

The results of the first questionnaire sent to EPI have shown that the total number of soil-contaminated sites could amount 125 sites for 64 industrial operators and 7 geographical units (where no operator is mentioned), after including all categories of sites at the discretion of EPIs staff. This total has been reviewed at 97 units after analysis. The list of soil-contaminated sites from the first questionnaire and the comparison with other data are shown in section 5.5. In this list, each operator or geographical unit under review may concern several contaminated sites. These estimates give a preliminary indication of soil-contaminated sites according to local EPIs. It was also indicating that 26 counties among 42 country-wide have declared the presence of soil-contaminated sites. Most of the soil-contaminated sites declared are dumps and landfills of industrial hazardous waste. Heavy metals and oils or petroleum products appear as the main sources of contamination.

The EPIs statement about contaminated sites is sometimes inconsistent with other sources like the counties annual reports of state of environment. Dolj and Alba counties are typical examples, since they have declared no contaminated site, which is in contradiction with the selection and visit of such sites by the JICA study team in these counties.

5.3.2 Results from the Questionnaire on Contaminated Sites

The JICA study team has directly sent the questionnaire survey of soil-contaminated sites to local EPIs on 26 July 2002, during the 3rd mission. The objective was to get a more complete and accurate information on the number and categories of soil-contaminated sites in the counties. The questionnaire included only 2 questions with a matrix table to check the categories of contaminated sites of concern. The definition of categories was given in details in the questionnaire sheet. In few cases, the EPIs needed however more information about these categories, which was done by phone talk. The questionnaire sheets as well as the main results obtained from EPIs are presented in Appendix 5.6 of this report.

Among the 42 questionnaires sent, 35 have been returned, which is a very good rate of response given the conditions of the survey and short delays. Within the 35 responses, 4 have declared not to have soil-contaminated sites. The questionnaire of soil-contaminated sites has shown that there was some difficulty to understand the soil contamination issue, probably for several reasons like:

- No awareness raising could be done before the survey;
- Confusion between the variety of cases proposed in the questionnaire;
- Low awareness about the meaning of past activity related contaminated site;
- Low understanding of the objectives of the study;

- Possible confusion between hazardous waste issue and contaminated sites issue.

The distinction between past and present activities, and between contamination sources and contaminated areas has been obviously difficult in most cases. It is also possible that the geographical scale or delimitation of the soil-contaminated site unit has raised problems.

Accordingly, in spite of a careful analysis and interpretation of each questionnaire results in order to avoid misunderstanding as much as possible, it must be recognised that the results have a limited reliability. The results of study of the questionnaires need additional check during next mission. According to actual evaluation, the total number of soil-contaminated sites declared through the questionnaire has reached 1041 units, of which 501 from old past activities and 540 from new activities. Detailed results according to waste types and site categories have been summarised in 5.5. Care should be given to these data because there is obviously some duplication of sites in both past and present activity tables, which can be partly but not always justified. Such duplication is also possible inside the same table.

The number of past activity contamination sources is found to be of 340 units, against 370 for units in operation, of which 206 and 306 hazardous waste deposit sites, respectively. From the point of view of geographical distribution, almost 40% of county EPIs have declared to have between 10 and 50 contaminated sites. Table 5.3.1 gives the range of frequency of contaminated sites.

It is difficult to evaluate the rate of sites duplication in the responses between contaminated areas and contamination sources. In addition, each EPI has its own interpretation of the problem. For example, few EPIs have included municipal waste landfills in their responses while others did not. The comparison of these results with the results of the first EPI questionnaire shows however that the total number of sites declared increased from 98 in the first questionnaire to 1041 in this last questionnaire. This result is consistent with the expected results, but there is certainly some overestimation due to the probable duplication of same sites in different categories. All these results are reported in the following section.

The questionnaire results have shown the difficulty to establish an inventory of contaminated sites and the need to prepare such action with awareness raising and technical support in order to make clear the objectives and issues. EPIs staff is well aware of soil and groundwater contamination risk in relationship with units under inspection, but probably lacks the means, resources and motivations that would be necessary for starting an inventory of sites including past activity related sites. An awareness raising of EPI authorities would be a preliminary condition necessary for inducing a new approach of inventory of the soil-contaminated sites.

Table 5.3.1 Frequency of Contaminated Sites Declared in Counties

Number of contaminated sites declared in county unit	Number of counties (1)	Number of counties (2)
No answer	7	7
0	4	4
More than or equal 1 / Less than 10	9	12
More than or equal 10 / Less than 50	16	14
More than or equal 50 / Less than 100	4	5
More than or equal 100	2	0
Total	42	42

(1) Based on the total number of contaminated sources + contaminated areas

(2) Based on the number of contaminated sources only

5.3.3 Detailed Data of the Questionnaire Survey

This section provides a list of tables which summarize the data useful for the understanding of the questionnaire results (questionnaire sheets, data analysis) and the main results of the responses to the JICA questionnaire survey about contaminated sites. The following aspects are successively considered:

- (1) Questionnaire sheet on soil contaminated sites (English version)
- (2) Questionnaire sheet on soil contaminated sites (Romanian version)
- (3) Statistical Review of responses to the questionnaire
- (4) Comments about responses to the questionnaire by counties
- (5) Summary of results of responses to the questionnaire
- (6) Data of contaminated sites by counties in 2nd questionnaire
- (7) Review of compared results of the questionnaire
- (8) Soil contaminated sites declared from the 1st EPI questionnaire
- (9) List of hot spots for water pollution and comparison with JICA surveys

Section (1) and (2) show the questionnaire sheets that have been sent to the EPIs for the survey. Section (3) and (4) make a quantitative and qualitative statement of the conditions of responses to the questionnaire by the EPIs. Section (5) is the most important because it shows the summary of the main results given to the questionnaire after processing of the data. Sections (6) to (9) are additional information for the understanding of the results of the questionnaire survey.

(1) Questionnaire Sheet on Soil Contaminated Sites (English version)

EPIs Questionnaire to Chief Inspectors

NATIONAL EVALUATION OF CONTAMINATED SITES

The precedent questionnaires on the national evaluation of hazardous waste that have been kindly fulfilled by all the EPIs of Romania did not focus on contaminated sites. This questionnaire is additional to complete information about contaminated sites.

Definition

Contaminated site means any land area with possible or effective contamination of soil or groundwater by hazardous substances. Contaminated sites include pollution sources and area contaminated by this pollution source. Contamination is pollution from hazardous substances and materials. Then, first point is to know if there are such contamination sources.

Contamination sources are present or old activities. Contamination source does not mean that there is effective contamination. Contamination can be however suspected. Typically, contamination sources include the following cases:

- **Factories:** Those in operation are not considered. Only those out of operation after closure (abandoned factories) with known activity of handling hazardous waste are considered as contamination sources. There are 2 cases of old factories after closure: a) Case of old factory plant still visible with derelict facilities, and b) case of old factory plant no more visible because of change in land use.
- **Storage of hazardous waste:** Those in operation and those out of operation after closure.
- **Landfill site, including dumps or lagoons:** Those in operation and those out of operation after closure.
- **Accidental leakage:** Past leakage or recent / present leakage.

Contaminated area is groundwater or soil polluted by hazardous substances. Contamination is effective. Contaminated area is identified by monitoring or check of soil and groundwater quality. Pollution source might known or unknown.

Questions

- 1) After carefully reading the definition of contaminated site put above, can you please fulfill the following tables by indicating the number of contamination sources and contaminated areas in the county? In case of sites included in "E. Contaminated area with pollution source known", please could you precise the type of contamination source between parenthesis (A, B, C, or D).
- 2) Can you please make and attach a list of sites which you have considered in the tables, providing their names, location, and few observations if possible?

I. OLD ACTIVITY

	CONTAMINATION SOURCE				CONTAMINATED AREA	
	A. Factory	B. Storage of hazardous waste	C. Landfill / dump / lagoon	D. Accidental leakage	E. Contaminated area with pollution source known	F. Contaminated area with pollution source unknown
1. Metallic and equivalent inorganic materials						
2. Asbestos						
3. Oil and petroleum products						
4. Chlorinated chemicals						
5. PCBs						
6. Pesticides						
7. Other organic substances						
8. Ash residues and dust						
9. Others						

II. NEW ACTIVITY

	CONTAMINATION SOURCE				CONTAMINATED AREA	
	A. Factory	B. Storage of hazardous waste	C. Landfill / dump / lagoon	D. Accidental leakage	E. Contaminated area with pollution source known	F. Contaminated area with pollution source unknown
1. Metallic and equivalent inorganic materials						
2. Asbestos						
3. Oil and petroleum products						
4. Chlorinated chemicals						
5. PCBs						
6. Pesticides						
7. Other organic substances						
8. Ash residues and dust						
9. Others						

(2) Questionnaire Sheet on Soil Contaminated Sites (Romanian version)

CHESTIONAR IPM – In atentia Inspectorului Sef

EVALUAREA LA SCARA NATIONALA A ZONELOR CONTAMINATE

Chestionarele anterioare referitoare la evaluarea la scara nationala a deseurilor periculoase, pe care ati avut amabilitatea sa le completati, nu au fost focalizate pe zonele contaminate. Acest chestionar are ca scop completarea informatiilor despre aceste zone contaminate.

Definitie

Zona contaminata inseamna orice portiune de teren cu contaminare posibila sau existenta a solului sau apei subterane determinata de deseuri periculoase. Zonele contaminate includ atat sursele de poluare cat si zona contaminata de aceasta sursa de poluare. Astfel, in primul rand este necesar sa se cunoasca daca exista astfel de surse de contaminare.

Sursele de contaminare rezulta din activitati prezente sau din trecut. Existenta sursei de contaminare nu inseamna ca si exista o contaminare efectiva. Contaminarea poate fi oricum prezenta. In mod obisnuit, sursele de contaminare includ urmatoarele situatii:

- Intreprinderi: cele care sunt in functiune nu se vor lua in considerare. Sunt considerate ca surse de contaminare numai acele intreprinderi care si-au incetat activitatea ca urmare a inchiderii (abandonate) cunoscute ca generatoare de deseuri periculoase. Exista 2 cazuri de astfel de intreprinderi : a) Cazul fostelor intreprinderi, la limita supravietuirii, cu instalatii depreciate, si b) cazul fostelor intreprinderi disparute ca urmare a schimbarii destinatiei terenului.
- Stocarea deseurilor periculoase: atat cele in exploatare cat si cele scoase din exploatare ca urmare a inchiderii.
- Depozitare finala, inclusiv halde si bataluri: atat cele in exploatare cat si cele scoase din exploatare ca urmare a inchiderii.
- Deversari (scurgeri) accidentale: din trecut sau prezente/recente.

Zona contaminata reprezinta zona cu sol sau apa subterana poluata de substante periculoase. Contaminarea este efectiva. Zona contaminata este identificata prin monitorizare sau verificarea calitatii solului sau a apei subterane. Sursa de poluare poate fi cunoscuta sau necunoscuta.

Intrebari

- 1) Dupa citirea cu atentie a definitiei zonei contaminate mentionata mai sus, va rugam sa aveti amabilitatea de a completa tabelele indicand numarul de surse de contaminare si de zone contaminate din judetul dumneavoastra. In cazul zonelor incluse in coloana "E. Zona contaminata cu sursa de poluare cunoscuta", va rugam sa precizati tipul sursei de contaminare intre paranteze (A, B, C, D).
- 2) Va rugam sa anexati o lista a zonelor pe care le-ati luat in considerare in tabele, furnizand denumirea acestora, precum si amplasamentul si cateva observatii, daca este posibil.

II. ACTIVITATI IN DERULARE

	SURSA DE CONTAMINARE				ZONA CONTAMINATA	
	A. Intreprindere	B. Stocare deseuri periculoase	C. Depozitare/halda/batal	D. Scurgere accidentala	E. Zona contaminata cu sursa de poluare cunoscuta	F. Zona contaminata cu sursa de poluare necunoscuta
1. Deseuri cu continut de metale grele si/sau alte substante anorganice echivalente						
2. Azbest						
3. Uleiuri uzate si produse petroliere						
4. Substante chimice clorurate						
5. PCB						
6. Pesticide						
7. Alte substante organice						
8. Cenusi de termocentrala						
9. Altele						

I. ACTIVITATI TRECUTE

	SURSA DE CONTAMINARE				ZONA CONTAMINATA	
	A. Intreprindere	B. Stocare deseuri periculoase	C. Depozitare/halda/batal	D. Scurgere accidentala	E. Zona contaminata cu sursa de poluare cunoscuta	F. Zona contaminata cu sursa de poluare necunoscuta
1. Deseuri cu continut de metale grele si/sau alte substante anorganice echivalente						
2. Azbest						
3. Uleiuri uzate si produse petroliere						
4. Substante chimice clorurate						
5. PCB						
6. Pesticide						
7. Alte substante organice						
8. Cenusi de termocentrala						
9. Altele						

(3) Statistical Review of Responses to the Questionnaire

	Counties	Received answer	Comments
1.	Alba	<i>no</i>	
2.	Arad	yes	
3.	Arges	yes	
4.	Bacau	yes	
5.	Bihor	yes	
6.	Bistrita Nasaud	yes	
7.	Botosani	yes	
8.	Brasov	<i>no</i>	
9.	Braila	yes	
10.	Buzau	yes	
11.	Caras Severin	yes	
12.	Calarasi	yes	
13.	Cluj	yes	
14.	Constanta	<i>no</i>	
15.	Covasna	yes	
16.	Dambovita	yes	
17.	Dolj	yes	
18.	Galati	yes	No contaminated area declared
19.	Giurgiu	yes	
20.	Gorj	yes	
21.	Harghita	yes	
22.	Hunedoara	yes	
23.	Ialomita	yes	No contaminated area declared
24.	Iasi	<i>no</i>	
25.	Maramures	yes	
26.	Mehedinti	<i>no</i>	
27.	Mures	yes	
28.	Neamt	yes	
29.	Olt	yes	
30.	Prahova	yes	
31.	Satu Mare	yes	
32.	Salaj	yes	
33.	Sibiu	yes	
34.	Suceava	yes	
35.	Teleorman	yes	
36.	Timis	yes	
37.	Tulcea	yes	
38.	Vaslui	yes	No contaminated area declared
39.	Valcea	yes	
40.	Vrancea	yes	No contaminated area declared
41.	Ilfov	<i>no</i>	
42.	Bucuresti	<i>no</i>	

Conclusions:

1. A number of 42 questionnaires were sent to local EPIs
2. We received answers from 35 local EPIs;
3. Out of 35 local EPIs which sent answers 4 of them stated they do not have contaminated areas

(4) Comments about Responses to the Questionnaire by Counties

	Counties	Comments
1.	Alba	No answers available
2.	Arad	Reliable answers; the definitions of the contaminated sites was understood
3.	Arges	Contamination source and contamination site were reported to be the same for both old activity and new activity; they took into consideration as old activity the previous activity of the companies still in operation; the columns A and D include in fact the same source of contamination; answers are reliable but some adjustment had to be done in processing the data
4.	Bacau	Not a very good understanding of the questionnaire; instead of requested answers the tables were filled in with surfaces and quantities; the same contaminated sites could be found for both present and past activities
5.	Bihor	Very unreliable answers; the same source is reported under different columns (A through D); lot of adjustments had to be done in order to process the data; it was difficult to select good answers from unclear ones
6.	Bistrita Nasaud	Apparently accurate answers but limited only to mining polluted areas; the same sources and contaminated areas are included in both tables (old and new activity)
7.	Botosani	No differences between old and new activities; there is a confusion related to the source of contamination and the contaminated area; the gas stations are included as well as source of contamination
8.	Brasov	No answer available
9.	Braila	The same source is reported under different columns (A through D); sources are indicated but no related contaminated areas; the presence of old pesticides is mentioned but no figure is included as an answer (17 old pesticides storage areas were indicated within the 1 st questionnaire whilst the 3 rd questionnaire does not include any figure); thus, no old pesticide storage areas were included
10.	Buzau	Almost good answers; the main sources of contamination provided by the answers are represented by the old pesticides storage sites (32 sources out of the total of 64); the same source is reported under different columns (A through D); anyhow all of them were counted
11.	Caras Severin	Very unclear answers; different sources refer on the same location in fact; the main sources are represented by old pesticides storage areas and radioactive sterile disposal sites; adjustments were done in order to process the data
12.	Calarasi	No sources and contaminated areas were reported under present activity table; apparently the provided definition was understood
13.	Cluj	No contamination sources were mentioned but only the contaminated sites were indicated; clear answers
14.	Constanta	No answers available
15.	Covasna	Good and clear answers
16.	Dambovita	Very difficult to process the data, the same source being mentioned many times under each column; all answers were counted
17.	Dolj	the same source is reported under different column (A through D); difficulties in processing the data; all old pesticides storage areas were included
18.	Galati	No contamination sources and sites were reported
19.	Giurgiu	Acceptable answers, even the same source is mentioned under the columns A through D; all answers were included
20.	Gorj	Acceptable answers, even the same source is mentioned under the

		columns A through D; all answers were included
21.	Harghita	Acceptable answers, even the same source is mentioned under the columns A through D; some adjustment were done; a lot of pesticides storage areas were reported; all answers were included
22.	Hunedoara	The questionnaire was understood; mainly spent oil sources were reported
23.	Ialomita	No contamination sources and sites were reported
24.	Iasi	No answers available
25.	Maramures	Relatively unclear answers; we assumed that sources are the same under the different columns
26.	Mehedinti	No available answers
27.	Mures	Unclear answer, difficult to identify the number of sources, the columns were filled in incorrectly, the contamination source corresponding to a type of waste being mentioned repeatedly; too many details were mentioned as quantities and surfaces
28.	Neamt	The answers are correct; a number of 67 radioactive sterile disposal sites (out of 68 contamination sources) and only 1 contaminated area related to these ones was reported
29.	Olt	Acceptable answers but including quantities and surfaces; some adjustments had to be made in order to process the data; a number of 40 pesticides storage areas (out of 53 contamination sources) were reported
30.	Prahova	Reliable answers
31.	Satu Mare	Apparently good answers; pesticides residues are included (but not with the same figures) both under the old activities and new activities
32.	Salaj	Reliable answers
33.	Sibiu	Reliable answers
34.	Suceava	Reliable answers
35.	Teleorman	Good answers
36.	Timis	Good answers
37.	Tulcea	Answers are including quantities and surfaces and some adjustments had to be done in order to process the data; the same contamination source was mentioned under different columns; all answers were included
38.	Vaslui	No contamination sources or contaminated areas were reported
39.	Valcea	Good answers
40.	Vrancea	No contamination sources or contaminated areas were reported
41.	Ilfov	No answers available
42.	Bucuresti	No answers available

(5) Summary of Results of the Responses to the Questionnaire

Number of Soil-contaminated Sites from Past Activity

	CONTAMINATION SOURCE					CONTAMINATED AREA		TOTAL
	A. Factory	B. Storage of hazardous waste	C. Landfill / dump / lagoon	D. Accidental leakage	TOTAL	E. Contaminated area with pollution source known	F. Contaminated area with pollution source unknown	
1. Metallic materials	14	5	23	7	49	27	1	77
2. Asbestos	2	1	2	0	5	3	0	8
3. Oil and petroleum products	20	16	18	18	72	24	0	96
4. Chlorinated chemicals	4	0	0	6	10	22	1	33
5. PCBs	8	3	1	0	12	10	0	22
6. Pesticides	18	33	12	6	69	37	7	113
7. Other organic substances	4	4	4	5	17	9	0	26
8. Ash residues and dust	4	0	8	0	12	6	0	18
9. Others	14	2	74	4	94	14	0	108
TOTAL	88	64	142	46	340	152	9	501

Number of Soil-contaminated Sites from New Activity

	CONTAMINATION SOURCE					CONTAMINATED AREA		TOTAL
	A. Factory	B. Storage of hazardous waste	C. Landfill / dump / lagoon	D. Accidental leakage	TOTAL	E. Contaminated area with pollution source known	F. Contaminated area with pollution source unknown	
1. Metallic materials		23	22	10	55	35	1	91
2. Asbestos		3	6	0	9	4	0	13
3. Oil and petroleum products		17	22	33	72	56	1	129
4. Chlorinated chemicals		1	3	5	9	15	0	24
5. PCBs		54	5	0	59	2	0	61
6. Pesticides		100	11	8	119	9	7	135
7. Other organic substances		0	8	5	13	10	0	23
8. Ash residues and dust		0	12	0	12	9	0	21
9. Others		5	14	3	22	21	0	43
TOTAL		203	103	64	370	161	9	540

(6) Data of Contaminated Sites by Counties in 2nd Questionnaire

	Counties	Past activity contamination source (name)	Present activity contamination source (name)	Contaminated area (name)	Total number of sites from questionnaire
43.	Alba	-	-	-	-
44.	Arad	2	1	3	6
45.	Arges	6	3	26	35
46.	Bacau	11	11	20	42
47.	Bihor	87	48	54	189
48.	Bistrita Nasaud	2	1	4	7
49.	Botosani	13	2	20	35
50.	Brasov	-	-	-	-
51.	Braila	10	3	0	13
52.	Buzau	2	64	3	69
53.	Caras Severin	17	10	15	42
54.	Calarasi	1	0	1	2
55.	Cluj	0	0	12	12
56.	Constanta	-	-	-	-
57.	Covasna	7	10	17	34
58.	Dambovita	4	17	8	29
59.	Dolj	0	19	0	19
60.	Galati	0	0	0	0
61.	Giurgiu	0	2	1	3
62.	Gorj	0	11	4	15
63.	Harghita	17	4	20	41
64.	Hunedoara	11	19	28	58
65.	Ialomita	0	0	0	0
66.	Iasi	-	-	-	-
67.	Maramures	3	2	4	9
68.	Mehedinti	-	-	-	-
69.	Mures	0	8	2	10
70.	Neamt	68	0	2	70
71.	Olt	0	53	6	59
72.	Prahova	1	2	3	6
73.	Satu Mare	46	42	37	125
74.	Salaj	3	0	3	6
75.	Sibiu	2	12	6	20
76.	Suceava	9	10	17	36
77.	Teleorman	2	3	4	9
78.	Timis	3	0	2	5
79.	Tulcea	12	7	4	23
80.	Vaslui	0	0	0	0
81.	Valcea	1	6	5	12
82.	Vrancea	0	0	0	0
83.	Ilfov	-	-	-	-
84.	Bucuresti	-	-	-	-
	TOTAL	340	370	331	1041

(7) Review of Compared Results of the Questionnaire

	Counties	Total number of sites declared	Total number of sites declared in 1 st questionnaire	Total number of sites common in both questionnaires	Number of sites declared and known as hot spots (water)
1.	Alba	-	0	0	0
2.	Arad	6	4	2	0
3.	Arges	35	0	0	0
4.	Bacau	42	1	1	1
5.	Bihor	189	7	7	4
6.	Bistrita Nasaud	7	0	0	0
7.	Botosani	35	4	4	0
8.	Brasov	-	0	0	0
9.	Braila	13	17	0	1
10.	Buzau	69	2	2	1
11.	Caras Severin	42	2	2	1
12.	Calarasi	2	1	1	1
13.	Cluj	12	2	2	1
14.	Constanta	-	5	0	0
15.	Covasna	34	0	0	0
16.	Dambovita	29	6	6	0
17.	Dolj	19	0	0	1
18.	Galati	0	4	0	0
19.	Giurgiu	3	3	1	0
20.	Gorj	15	0	0	1
21.	Harghita	41	3	3	0
22.	Hunedoara	58	1	1	0
23.	Ialomita	0	0	0	0
24.	Iasi	-	0	0	0
25.	Maramures	9	5	2	0
26.	Mehedinti	-	0	0	0
27.	Mures	10	2	2	1
28.	Neamt	70	3	2	0
29.	Olt	59	2	1	0
30.	Prahova	6	6	2	0
31.	Satu Mare	125	5	5	1
32.	Salaj	6	1	1	0
33.	Sibiu	20	4	4	1
34.	Suceava	36	1	1	0
35.	Teleorman	9	3	2	0
36.	Timis	5	2	2	1
37.	Tulcea	23	0	0	0
38.	Vaslui	0	0	0	0
39.	Valcea	12	1	1	0
40.	Vrancea	0	0	0	0
41.	Ilfov	-	0	0	0
42.	Bucuresti	-	0	0	0
	TOTAL	1041	97	57	16

(8) Soil Contaminated Sites Declared from the 1st EPI Questionnaire

	Designation of sites	Location/ County	Category of contaminated site	Type of wastes	Contaminated area	Possible environmental impact
1.	Settling lagoon of CNCAF Deva *	Luncsoara/ Arad	Dump lagoon (authorization in progress)	Poly-metallic sludge	2 ha	Risk of accidental pollution (air, soil, water)
2.	Landfill of CNO SA Bucharest *	Ranusa/ Arad	Deposit of mining material (authorization in progress)	Low radioactive sterile	1 ha	Risk of accidental pollution (air, soil, water)
3.	Archim Agro-Industrial SRL	Vladimirescu/ Arad	Dump lagoon (authorization in progress)	Phospho-ammonia waters (phosphates, nitrates, chlorine)	2 ha	Risk of accidental pollution (soil, water)
4.	Thermal Power plant (based on coal)	Arad/Arad	Industrial landfill site (authorised)	Slag and ash	9 ha	Risk of accidental pollution (air, soil, underground water)
5.	SC SOFERT S.A. disposal site	Bacau/Bacau	Industrial landfill site (within the limits of the factory) (authorized)	Phospho-gypsum	12 ha (no concrete platform)	Soil; shallow water
6.	SC CEMTRADE SA Oradea (closed)	Episcopia Bihor/ Bihor	Industrial dump site (not authorized)	26573		Air, underground water
7.	SC PROTPLANT S.A. Oradea *	Oradea / Bihor	Temporary storage; Warehouse (not authorized)	Obsolete pesticides		smell
8.	SNP Petrom	Marghita / Bihor	Industrial dump site (authorized)	Petroleum residues (?), 31271; 26886		
9.	SC PETROL DERNA SA	Derna / Bihor	(not authorized)	20947		
10.	SC HOLCIM SA	Fasca / Bihor	(not authorized)	32116		yes
11.	SC SINTEZA SA Oradea	Oradea / Bihor	Industrial disposal site (Authorized)	Mixture of organic substances; 26573		smell
12.	Thermal Power plant	Santau & Cheri / Bihor	Industrial landfill site (Authorized)	ashes		
13.	Braila	Braila	17 temporary storage of hazardous	Obsolete pesticides (40 to)	No	

			wastes			
14.	SC Moldova SA Botosani (cotton textiles)	Botosani/Botosani	Temporary storage site	Various coloring products (13 to) PCB condensers (107 pieces) – 2 to		
15.	SC Madexin SA (furniture manufacturing)	Botosani/Botosani	Temporary storage site	PCB condensers (36 pieces) – 0,5 to		
16.	SC Armonia SA (cotton textiles)	Botosani/Botosani	Temporary storage site	PCB condensers (71 pieces) – 0,86 to		
17.	SC Filatura SA (cotton fibres manufacturing)	Botosani/Botosani	Temporary storage site	PCB condensers (125 pieces) – 1,5 to		
18.	SC FERMIT SA Rm Sarat	Rm Sarat/Buzau	Dumping of hazardous wastes (not-authorized)	Heavy metals containing wastes	unknown (2 ha – site surface)	air
19.	SC VENUS OILREG SA refinery	Rm Sarat/Buzau	2 Dump lagoons (not-authorized) - within the limit of refinery (closed) - left side of Rm Sarat river (in operation)	Liquid wastes from regeneration of spent oils; waste water treatment sludge; hydrocarbons	unknown (6 ha – site surface)	-Possible contamination of underground waters and soil - possible risk of dam failure
20.	Ciudanovita disposal site	Ciudanovita/Caras Severin	Deposit of mining material	Radioactive sterile (uranium, radium)	7.59 ha	Radioactive contamination
21.	Dobrei, Natra	Lisava/Caras Severin	Deposit of mining material	Radioactive sterile (uranium, radium)	7.15 ha	Radioactive contamination
22.	Uzina Cocschimica Calarasi (closed)	Calarasi	Dumping of hazardous wastes (not-authorized)	Tars, ammonium waters	0.6 ha	
23.	HCH disposal sites	Turda and neighborhoods / Cluj	Temporary disposal sites (not-authorized)	HCH isomers		Air, water, soil, vegetation
24.	TERAPIA S.A. Cluj	Cluj / Cluj	Temporary storage -dump lagoon within	Sludge form WWTP, spent carbon,	0.09 ha	Soil, shallow water, air

			the municipal disposal site – (not authorized)	ion-exchange resins		
25.	SC ETERMED SA Medgidia-DD P	Medgidia / Constanta	? Temporary storage (authorised)	Asbestos		
26.	SC MARWAY Fertilchim Navodari (closed)	Navodari / Constanta	3 dump lagoons; 1 Disposal site (not authorised)	Phospho-gypsum Pyrite ashes		
27.	SC Lafarge Romcim SA	Medgidia / Constanta	(authorised)	Asbo-cement wastes		
28.	SC Rompetrol Petromidia refinery SA	Midia / Navodari / Constanta	3 Industrial disposal sites (authorisation in progress)	Oil residues		
29.	SC Oil terminal SA Constanta	Constanta / Constanta	4 dump lagoons: Lagoon 1 – North II disposal site Lagoon 2 – North I disposal site (closed) Lagoon 3 – North II (closed) Lagoon 4 – South (closed) (authorised)	tank cleaning residues WWT sludge “ “ “ “ “ “		
30.	Oil extraction field – Targoviste	Teis and Ochiuri / Dambovita	Dump lagoon Teis Dump lagoon Ochiuri (not authorized)	Drilling wastes	0.02 ha 0.04 ha	Local soil pollution
31.	Oil extraction field – Gaiesti	Saru village and Cobia commune / Dambovita	Dump lagoon – Saru Dump lagoon – Cobia (not authorized)	Oil drilling wastes	0.14 ha 0.18 ha	Local soil pollution
32.	Oil extraction field Moreni	Moreni / Dambovita	1 –South III disposal site Moreni 2 – EPS disposal site (not authorized)	Oil drilling wastes	0.15 ha 0.05 ha	Local soil pollution
33.	SC Terra Titu S.A.	Titu – Vanatori farm/ Dambovita	Temporary disposal site	Obsolete pesticides	-	-
34.	SC STEAUA ELECTRICA	Tepes Voda / Dambovita	Underground disposal site	Electroplating sludge;	-	-

	S.A. Fieni		(authorized)	chromium content		
35.	S.C.DFEE Muntenia – Targoviste branch	Targoviste / Dambovita	Disposal site	PCB transformers	-	-
36.	SIDEX steel complex in Galati	West to SIDEX Galati/Galati	Industrial disposal site	Slag	600 m	Water
37.	CATUSA lagoon	South to SIDEX Galati/Galati	Dump lagoon (authorized)	Water treatment residues containing Ca, C2, C3, Fe	100 m	Air, soil
38.	MALINA lake	West to SIDEX Galati/Galati	Landfilling of industrial wastes (authorized)	Furnace sludge, Fe particles	300 m	Water, soil
39.	SOLDANA lake	South to SIDEX Galati/Galati	Dumping of industrial wastes (authorized)	Waste water treatment sludge, tars	200 m	Water, soil
40.	Parcul 1 Videle	Marsa village/ Giurgiu county	Dumping of hazardous wastes (not-authorized)	Sludge from tank cleaning	-	
41.	Anghelesti disposal site	Anghelesti commune/ Giurgiu county	Dumping of hazardous wastes (not-authorized)	Spent oils	1 ha	Soil, underground waters
42.	Remus storage center	Remus village/ Giurgiu	Temporary storage (authorized)	obsolete pesticides	-	
43.	SNP PETROM S.A. – PECO Harghita branch	Miercurea Ciuc / Harghita	Landfilling of industrial wastes	Sludge from tank cleaning		
44.	SC BUCIN S.A.	Gheorghieni / Harghita	Landfilling of industrial wastes	Melting sand with phenol content		
45.	Phitosanitary Department – Harghita	Harghita	Temporary storage	Obsolete pesticides		
46.	SC SIDERURUGI CA Hunedoara	Hunedoara (Buituri) / Hunedoara	Dumping of hazardous wastes (not-authorized)	Acid tars, slag	Not evaluated	Soil contamination less than 5 m depth
47.	SC RBG PHOENIX SA	Baia Mare/ Maramures	Dump lagoons (authorized)	Heavy metals containing residues	0.05 ha (site surface)	
48.	SC ROMPLUMB BAIAMARE	Baia Mare/ Maramures	Landfilling of industrial wastes (not – authorized)	Slag containing heavy metals	1.2 ha (site surface)	High level of contamination of environment and health

49.	UP Flotatia Centrala	Baia Mare/ Maramures	Deposit of mining material (not – authorized)	Slag and ashes	3.5 ha (site surface)	
50.	“Aurul” SA settling lagoon	Sasar village, Bozanta/ Maramures	Deposit of mining material; Dump lagoon (94 ha) (authorized)	Heavy metals containing wastes	94 ha (site surface)	
51.	PECO disposal site Baia Mare	Baia Mare / Maramures	Temporary storage (authorized)	Spent oil	0.01 ha (site surface)	
52.	SC BICAPA SA	Tarnaveni/ Mures	Landfill of hazardous wastes (not – authorized) (historical activity)	Sludge containing hexavalent chromium	2 ha	Surface water and underground water, soil and underground
53.	SC AZOMURES SA	Tg Mures/Mures	Dump lagoons, underground tanks (not – authorized)	Waste waters containing nitrites, nitrates, phosphates; arsen in spent solutions	1 km downstream the lagoon along Mures river	Surface water and underground water, soil and underground
54.	67 disposal sites – CNU Bucharest: - Primatar sector - Tulges – Grinties sector - Bicazu – Ardelean sector (extraction industry)	Neamt	Deposit of mining sterile (not – authorized)	Radioactive sterile containing heavy metals	15.9 ha	Radioactive contamination ; risk of dam failure
55.	SC Petrotub SA Roman	Simionesti / Neamt	Dump lagoon; Dumping of hazardous wastes (not – authorized)	Petroleum residues Chemical sludge (heavy metals, sulfates, phosphates)	4.78 ha	Underground water contaminated with heavy metals and organics
56.	SC Fibrexyllon SA – Cianuril disposal site	Savinesti / Neamt	Dumping of hazardous wastes (authorisation in progress)	Spent catalysts, residues containing Cyanide compounds	About 0.1 ha	Soil and underground water
57.	OTESTI lagoon	Cungrea commune, Otesti village/Olt	Dump lagoon (not-authorized)	Petroleum residues		Soil and underground water
58.	SC ARTROM S.A. Slatina	Slatina / Olt	Dump lagoon (authorized)	heavy metals containing sludge from		Soil and underground water

				electroplating		
59.	ASTRA ROMANA refinery Ploiesti	Ploiesti railway/ Prahova	Dump lagoons (authorisation in progress)	Organic wastes (acid tars, sulfonic solutions, sludge from equipment cleaning)		
60.	“Steaua Romana” refinery Campina	Campina / Prahova	Dump lagoons: - Bucea site - IPT site - Campina (authorised)	Acid tars WWWT sludge		
61.	VEGA refinery, Ploiesti	Ploiesti / Prahova	Dump lagoons	Acid tars Sludge from tank cleaning Aluminum sludge	3.5 ha	
62.	SC HIDROJET SA Breaza	West side of the company/ Prahova	Fuel storage area (not authorized)	Oil residues	0.5 ha	soil
63.	SC Romfosochim Active SRL Valea Calugareasca*	Valea Calugareasca/ Prahova	Dumping of industrial wastes: West of facility Darvari (not authorized)	Phospho-gypsum (radioactive wastes)	29 ha	Radioactive contamination
64.	The MEGA Company Valea Calugareasca*	Valea Calugareasca/ Prahova	Dumping of industrial wastes (not authorized)	Pyrite (heavy metals: Pb, Co, Cd, Zn, Cu, Ni)	500 m	Soil pollution with heavy metals
65.	SC ELECTROLUX SA Satu Mare	Satu Mare/ Satu Mare	Dumping of hazardous wastes (authorized)	enamel wastes heavy metals based wastes	0.155 ha	
66.	SNP Petrom SA – PECO Satu Mare branch	Satu Mare and Carei / Satu Mare	Temporary storage (authorized)	oil products	3 ha – Satu Mare 4.5 ha - Carei	yes
67.	SC SATURN SA – Platforma 2 (heavy industry)	Stau Mare / Satu Mare	Dumping of hazardous wastes (authorized)	slag and smelting sands	0.15 ha	yes
68.	Socea mining area	Valea Socea, Tarna Mare commune / Satu Mare	Deposit of mining materials (not-authorized)	mining sterile	3.46 ha	no
69.		Satu Mare	Temporary storage	obsolete pesticides: 80.5 t +8023.27 l (stored at economical agents)		
70.	SC IZOMAT Simleu	Simleu / Salaj	Dumping of industrial	phenol containing	0.65 ha	

			wastes (authorised)	wastes		
71.	SC SOMETRA SA Copsa Mică	Copsa Mica / Sibiu	Deposit of mining slag material (authorized)	slag ; sterile containing heavy metals	10 ha	Soil, water, underground water, vegetation
72.	SC CARBOSIN SA Copsa Mică (decommission ed)	Copsa Mică / Sibiu	Industrial disposal site (within the limits of the industrial area)	- sludge from tank cleaning - tars - oil wastes	2 ha	Soil, underground water and vegetation
73.	SC DPC S.A. Sibiu	Sibiu / Sibiu	Temporary storage; Dump lagoon (within the Sibiu municipal disposal site) (not-authorized)	- sludge containing chromium - sludge from tank cleaning - oil residues - heavy metals containing wastes	0.25 ha	Underground water and vegetation
74.	SC PRESTSA S.A. Medias	Tarnava commune / Sibiu	Temporary storage; Dump lagoon (within Medias municipal disposal site) (not-authorized)	- sludge containing chromium - sludge from tank cleaning - oil residues - heavy metals containing wastes - cyanides salts and solutions - organic solutions	0.20 ha	Underground water
75.	Falticeni – City Hall of Falticeni	Falticeni (nearby MWWTP)/ Suceava	Dumping of hazardous wastes (not-authorized)	Aceto-cyanhyd rine	0.02 ha	Soil and shallow water
76.	Landfill site of Videle	North of Dep. 160 Videle / Teleorman	Landfilling of hazardous wastes (authorization in progress)	petroleum residues – sludge from tank cleaning	secured landfill	Landfilling of hazardous wastes (authorization in progress)
77.	Landfill site of Poieni	Nearby Dep. 9 Poieni / Teleorman	Landfilling of hazardous wastes (not-authorized)	petroleum residues – sludge from tank cleaning		Landfilling of hazardous wastes (not-authorized)
78.	Landfill site of SC TURNU S.A.	Măgurele /Teleorman	Dumping of hazardous wastes	pyrite ashes	0,1 ha	

79.	SC SOLVENTUL SA Timisoara *	Margina / Timis	Dumping of hazardous wastes; Settling lagoon (not-authorized)	liquid organic wastes	5.4 ha	Soil and underground waters
80.	SC CIOCANUL SA *	Nadrag / Timis	Dumping of hazardous wastes; Settling lagoon (not-authorized)	electroplating sludge	1.6 ha	Not evaluated
81.	SC OLTCHIM SA Rm Valcea	Right side Olt river / Valcea	Landfilling of hazardous wastes (authorised)	HCH Inactive isomers Organo-chlorinated residues		Soil and shallow waters

* to be closed

Observations:

The list of contaminated sites is classified by operators or municipalities according to the case. One operator or commune or geographical locality of reference may have several contaminated sites.

Out of the total of 42 local EPIs in Romania, only 26 considered to have contaminated sites on their territory. The criteria to decide which is contaminated site were at EPI choice.

For instance Alba county did not record any contaminated site despite the presence of the high polluted area of Zlatna city.

On the other hand there are local EPIs which recorded as contaminated sites all the hazardous wastes disposal sites in the county.

In terms of adjacent contaminated surface it is possible that more of the answers refer to the disposal site surface.

All the references about the possible impact of the contaminated site are usually qualitative evaluation or are not mentioned in the answers at all.

It is sometimes unclear which is the industrial source of contamination

(9) List of Hot Spots for Water Pollution and Comparison with JICA Surveys

No.	Pollution sources	Type of site	Localisation by county	Localisation by river basin	Belonging to Questionnaire results EPI	Belonging to field survey
1	SC European Drinks SA Rieni	Industrial	Bihor	Crisuri	Yes	No
2	SNP Oil Derrick Suplacu de Barcau	Industrial	Bihor		yes	No
3	Bihor Stei mine: decantation facility and wastewater from Nucet mine	Industrial	Bihor		Yes	No
4	RAGCL Oradea – biological ponds	Municipal	Bihor		No	No
5	SC Petrolsub SA Suplacu de Barcau	Industrial	Bihor		Yes	No
6	SINTEZA SA Oradea	Industrial	Bihor		Yes	No
7	ROMCIM SA Oradea (HOLCIM SA)	Industrial	Bihor		Yes	No
8	SC TERAPIA Cluj Napoca	Industrial municipal	+ Cluj	Somes	Yes	Yes
9	SC SOMES Dej	Industrial	Cluj		No	No
10	SC AGROCOMSUIN Bontida	Agriculture	Cluj		No	No
11	Turt mine	Industrial	Satu Mare		Yes	No
12	Ilba mine	Industrial	Maramures		No	No
13	RAGCL Zalau	Municipal	Salaj		No	No
14	SC PHOENIX SA Baia Mare	Industrial	Maramures		Yes	No
15	SC CLUJANA SA Cluj Napoca	Industrial	Cluj		No	No
16	AVICOLA Satu Mare	Agriculture	Satu Mare		No	No
17	CORANDA Certej mine	Industrial		Mures	no	No
18	SC BICAPA SA Tarnaveni	Industrial	Mures		yes	Yes
19	Rosia Montana mine	Industrial	Alba		No	No
20	Abrud mine	Industrial	Alba		yes	No
21	Baia de Aries mine	Industrial	Alba		yes	No
22	RAMGCL Deva	Municipal	Hunedoara		No	No
23	SC SOMETRA SA Copsa Mica	Industrial	Sibiu		Yes	Yes
24	UPSOM Ocna Mures	Industrial	Mures		No	No
25	COMSUIN Beregsau	Agriculture	Timis	Timis-bega	No	No
26	EM Ciudanovita - Oravita	Industrial	Caras-Severin		Yes	No
27	RAGCL – Resita	Municipal	Caras-Severin		No	No
28	AQUATIM - Timisoara	Municipal	Timis		No	No

29	SC Zahar - Timisoara	Industrial	Timis		No	No
30	SC SOLVENTUL - Margina	Industrial	Timis		No	No
31	Lupeni mining preparation facility	Industrial	Gorj	Jiu	No	No
32	Petrila mining preparation facility	Industrial	Gorj		No	No
33	DOLJCHIM Craiova	Industrial	Dolj		Yes	No
34	RAACT Craiova	Municipal	Dolj		No	No
35	ROVERGO - Rovinari	Industrial	Dolj		No	No
36	Sibiu Water-Sewage Company	Municipal	Sibiu	Olt	No	No
37	SC NITRAMONIA SA Fagaras	Industrial	Brasov		Yes	No
38	SC COLOROM SA Codlea	Industrial	Brasov		No	No
39	RAGCL Caracal	Municipal	Olt		No	No
40	SC GOVORA SA Rm. Valcea	Industrial	Valcea		Yes	Yes
41	Brasov Water Company	Municipal	Brasov		No	No
42	Apa Nova Bucharest	Municipal	Bucharest	Arges	No	No
43	R.A. REGOTRANS Pitesti	Municipal	Arges		No	No
44	SAIC Bragadiru	Agriculture	Ilfov		No	No
45	RAGCL Gaiesti	Municipal	Dambovita		No	No
46	RA Edilul Campulung	Municipal	Arges		No	No
47	SC ARPECHIM Pitesti	Industrial	Arges		No	No
48	RA GOSARG Curtea de Arges	Municipal	Arges		No	No
49	Peris swine breeding farm	Agriculture	Ilfov		No	No
50	SC PETROBRAZI SA Brazi	Industrial	Prahova	Ialomita-Buzau	Yes	No
51	SC VEGA Ploiesti	Industrial	Prahova		Yes	No
52	SUINPROD Cazanesti	Agriculture	Ialomita		No	No
53	SC PETROTEL SA Ploiesti	Industrial	Prahova		Yes	No
54	COMB. Gheorghe Doja	Industrial	Ialomita		Yes	No
55	Pucioasa (locality)	Municipal	Dambovita		No	No
56	RAM Buzau	Municipal	Buzau		No	No
57	SC DUCTIL SA Buzau	Industrial	Buzau		Yes	No
58	SC SUINTEST Focsani	Agriculture	Vrancea	Siret	No	No
59	AVIPUTNA SA Golesti	Agriculture	Suceava		No	No
60	SC RAFO Onesti	Industrial	Bacau		Yes	No
61	SC LETEA Bacau	Industrial	Bacau		No	No
62	SC PETROTUB SA Roman	Industrial	Bacau		No	No

63	SC FIBREX SA Savinesti	Industrial	Bacau		No	No
64	SC AVICOLA SA Catamaresti	Agriculture		Prut	No	No
65	SC CONACET SA Saveni	Industrial	Botosani		No	No
66	SC COMTOM SA Tomesti	Industrial	Iasi		No	No
67	SC SUINPROD Suceava	Agriculture	Suceava		No	No
68	RAJAH Iasi	Municipal	Iasi		No	No
69	The town of Galati	Municipal	Galati		No	No
70	SC ANTIBIOTICE Iasi	Industrial	Iasi		Yes	No
71	SC CELHART DONARIS Braila	Industrial	Braila	Danube	Yes	No
72	SIDERCA Calarasi	Industrial	Calarasi		No	No
73	SC VERACHIM Giurgiu	Industrial	Giurgiu		No	No
74	SC COMCEH Calarasi	Industrial	Calarasi		No	No
75	LAFARGE (ROMCIM) Medgidia	Industrial	Constanta		Yes	No
76	RAJA Mangalia	Municipal	Constanta		No	No
77	RAJA Constanta	Municipal	Constanta		No	No
78	ROMAG Drobeta Turnu-Severin	Industrial	Mehedinti		No	No
79	SC Bere Spirt SA Drobeta Turnu- Severin	Industrial	Mehedinti		No	No
80	SC COMSUIN SA Ulmeni	Agriculture	Calarasi		No	no