20. IMPLEMENTATION OF THE CONVENTION ON TRANSBOUNDARY EFFECTS OF INDUSTRIAL ACCIDENTS IN THE REPUBLIC OF CROATIA

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INTRODUCTION

A strategic interest of the Republic of Croatia is entering European economic, political and other integrations. Major preconditions for it are the institutional strengthening and legislative harmonisation with the relevant UN conventions and agreements and EU directives in the field of hazardous substances and industrial accidents management, and emergency planning for the protection of humans and the environment.

Becoming a party to the Convention on Transboundary Effects of Industrial Accidents (Helsinki 1992), the Republic of Croatia has committed to developing regulations and mechanisms to promote, ensure and improve elaboration of measures, criteria and procedures in the field of responsibility and liability within the Convention, and to incorporating the provisions of the Convention into its legislative system.

Adopting the provisions of the Convention, Croatia has committed to fulfilling the following basic objectives of the Convention:

- reducing risks of industrial accidents and improving prevention, preparedness and response measures;
- encouraging operators of industrial facilities performing a hazardous activity to take measures to reduce risks of industrial accidents and supply all relevant information on the hazardous activity performance safety;
- giving all relevant information to the public and enabling public participation in relevant procedures related to industrial accident prevention, preparedness and response measures;
- developing harmonised emergency plans at all levels, including joint emergency plans for parties to the Convention, for hazardous activities likely to cause transboundary effects;
- establishing appropriate industrial accident notification systems at all levels;
- developing and harmonising legislation in the field of industrial accidents;
- joint training and advice in industrial accident prevention, preparedness and response;
- drills to verify industrial accident preparedness and response capabilities;
- providing mutual assistance in cases of industrial accidents;
- providing technical assistance for remediation of consequences of an industrial accident.

The first Conference of the Parties has adopted the programme of measures aimed at implementing the Convention.

Long-term measures:

1. Implementation of the Convention
2. Identification of hazardous activities.
3. Industrial accidents reporting
4. Prevention of industrial accidents, including risks for watercourses
5. Preparedness for possible accidents, responsibility and mutual assistance
6. Scientific and technical cooperation in the field of industrial accident prevention, preparedness and response
7. Reporting on industrial accidents within the existing EU Major Accident Reporting System (MARS) network

8. Information exchange and submission

Short-term measures:

1. Implementation of the Convention
2. Identification of sites with hazardous substances and hazardous activities.
3. Promoting industrial accident prevention measures, including prevention measures for accident–induced water pollution
4. Preparation of a joint implementation programme for the Convention on Transboundary Effects of Industrial Accidents and the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, including legal instruments on civil liability for damage caused by hazardous activities covered by both conventions
5. Improving efficiency of industrial accident reporting systems
6. Reporting and analysis of past industrial accidents
7. Improving procedures on safer technologies information exchange

IMPLEMENTATION OF THE CONVENTION IN THE REPUBLIC OF CROATIA

Approximately 100 accidents involving hazardous substances (Appendix 1) that may cause environmental damage, endanger human lives and health, flora and fauna, as well as natural and cultural heritage, are registered in Croatia each year.

Import, export and transit of hazardous substances through the Republic of Croatia (Appendix 2) present additional burden and risk for the environment.

Data on sites with hazardous activities, especially in the chemicals industry (Appendix 3), and the fact that existing facilities mostly use outdated and obsolete technology, warn that Croatia needs a clearly articulated accident prevention policy.

Policy and measures

Consideration of the problem if accidental and uncontrolled discharges of hazardous substances into the environment has been clearly defined in a number of national regulations, international agreements and directives that are incorporated in the Croatian legislative system.

Environmental emergency plan

The Government of the Republic of Croatia has enacted the Environmental Emergency Plan (hereinafter: the Plan), which is based on the provisions of the Convention. The Plan became effective on January 1, 2000.

The Plan applies to possible environmental accidents or environmental emergencies likely to cause environmental risks and human health hazards.

The Plan defines types of risks and hazards, procedures and measures for mitigation and elimination of immediate environmental consequences, actors in charge of implementation of individual measures, implementation responsibilities and authorisations, and methods of coordination with contingency measures implemented according to other regulations.

The Plan does not apply to military establishments or storage facilities or cases of radioactive pollution.

The Plan is based on the principles defined in the Law on Environmental Protection: prevention, integrity, polluter pays, honouring rights, and public participation.

In line with the rights and responsibilities of the counties, towns and municipalities, for defining measures for predicting, preventing and limiting environmental pollution and methods of implementing contingency measures for environmental emergencies within their

environmental protection programmes, the Plan contains the elements of such programmes.

Legal and natural persons engaged in production, storage, treatment, transportation, collection or performance of other activities involving Appendix 4 hazardous substances, shall develop Operative Environmental Emergency Plans if the quantity of the hazardous substance on site equals or exceeds 1% of the threshold quantity for that hazardous substance. Outline contents of the Operative Plan include the following:

- list of hazardous substances, maximum expected quantity of hazardous substances, description of site and of the surrounding, list of possible sources of risk, assessment of possible emergency causes and risks;
- emergency prevention measures, including mandatory reporting (numbers, addresses, reporting);
- assessment of consequences of an emergency, including analysis of the worst possible case (worst-case scenario, EPA 40 CFR 68) and the risk zones assessment;
- hierarchy and implementation of measures for emergency cases;
- authorised individuals and experts necessary for the implementation of measures;
- participation of other legal and natural persons as contractors;
- methods of handling hazardous substances present and environmental mitigatory action;
- training and drills programme;
- informing the public of the cases of environmental pollution with off-site consequences;
- appendices – decisions on adoption and revisions, schemes, tables, calculations, address books, lists, procedures, relations to other plans, etc.

In the course of development of operative Environmental Emergency Plans, legal or natural persons must take into account the local circumstances, such as population density, water management zones, protected nature parts, economic, transport, cultural and tourism aspects, protective distances, etc.

Legal or natural persons are obliged to submit their operative Environmental Emergency Plans to county offices in charge of environmental protection, within the deadlines defined in the Plan.

Operative Environmental Emergency Plans developed by legal or natural persons form the basis for development of local environmental policy, i.e. for environmental emergency plans of counties, towns and municipalities and environmental protection programmes of local self-government units.

The Ministry of Environmental Protection and Physical Planning should create conditions for implementation of the APELL process (Awareness and Preparedness for Emergencies at Local Level) as a response to industrial accidents, and monitor its implementation. The APELL process in Croatia began on November 1, 2000. With expert backup of the Industry and Environment Office of the United Nations Environment Program, education on APELL implementation is being carried out. Local self-government units are obliged, within one year from the start of APELL process implementation, to develop emergency plans based on operative emergency plans of legal and natural persons, also taking into account other relevant aspects that may influence the effective implementation of such plans. Deadlines for coordinating all of the elements, conducting obligatory training and drills and informing the public of the Plan is two years from the start of APELL process implementation.

The Ministry of Environmental Protection and Physical Planning is in charge of analysis and coordination of plans with the provisions of the Convention on Transboundary Effects of Industrial Accidents.

In order to establish prevention and preparedness measures, as a party to the Convention Croatia shall undertake all necessary measures for identification of hazardous activities within the scope of its jurisdiction, ensure notification to all parties likely to be affected by such activities about all existing or planned hazardous activities, in line with the Convention, and shall develop a joint emergency plan for an existing activity likely to have transboundary effects, for cases of accidental and uncontrolled discharge of a hazardous substance into the environment.

As a party to the Convention, the Republic of Croatia shall ensure adequate level of public information in areas that may be affected by industrial accidents caused by some hazardous activity.

For purposes of delivery and transfer of industrial accident information, Croatia has developed effective information systems, both at local and national levels, and the State Center for Notification has been designated by the Croatian Government as a part of the notification system within the Convention on Transboundary Effects of Industrial Accidents. As a point of contact with the Convention, the State Center for Notification must ensure the fastest possible transfer of data and predictions according to the defined codes, applying synchronised systems of data transfer and processing for notifications on industrial accidents and replies to notifications. The State Centre for Notification has also been designated as the point of contact for mutual assistance.

Parties to the Convention must undertake regular efficiency testing of their notification systems, including regular staff training. This year, the Republic of Croatia volunteered to organise testing of the UN/ECE Industrial Accident Notification System, thus confirming its readiness to implement the Convention.

CONCLUSIONS

In the development of industrial accident prevention, preparedness and response systems in accordance with the Convention on Transboundary Effects of Industrial Accidents, the Republic of Croatia has made a number of positive steps, aided by the experience gained in the homeland war. Affirming its determination towards effective implementation of the Convention, the Republic of Croatia shall:

- maintain and regularly update the list of sites with hazardous substances;
- develop an information system on hazardous activities;
- establish an integrated chemicals management system;
- in the transport sector, undertake construction and reconstruction of certain traffic routes so as to direct hazardous cargoes outside inhabited and specially protected areas;
- develop emergency plans for cases of accidental and uncontrolled discharge of hazardous substances into the environment, and coordinate them with the commitments arising from international agreements and conventions;
- through the selection of adequate new technologies and the improvement of existing ones, prevent major industrial accidents and their transboundary effects.

Despite its determination to implement the goals of the Convention, the Republic of Croatia will not be able to handle their fast and effective realisation alone. Poor material and technical equipment coupled with inadequate professional training of response units is the first-rate problem and a threat both to humans and to the environment. Another major problem lies in the fact that Croatia currently does not have a governmental authority that would deal with hazardous substances in an integrated and consistent manner. Once such an authority is established, the priorities will be legislative and institutional harmonisation, development of an integrated chemicals management system, and centralised collection and

dissemination of information on hazardous substances, which would require an adequate hazardous substances information system, unavailable at the moment. The Republic of Croatia will be more successful in the preparation of joint implementation of the Convention on Transboundary Effects of Industrial Accidents and the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, including legal instruments on civil liability for damage caused by hazardous activities covered by both conventions, after restructuring of the Ministry of Environmental Protection and Physical Planning, which is planned towards mid 2001. The newly restructured Ministry should then incorporate the water protection sector as well.

SUMMARY

A strategic interest of the Republic of Croatia is entering European economic, political and other integrations. Major preconditions for it are the institutional strengthening and legislative harmonisation with the relevant UN conventions and agreements and EU directives in the field of hazardous substances and industrial accidents management, and emergency planning for the protection of humans and the environment.

In July 1999 the Croatian Parliament ratified the Convention on Transboundary Effects of Industrial Accidents, thus incorporating it into its legal system.

Becoming a party to the Convention, Croatia enters into a harmonised system of protection in cases of industrial accidents and has committed to define its prevention policy for accidents likely to cause transboundary effects.

In line with the provisions of the Convention, Croatia should seek the establishment of policies on siting of new hazardous activities and on significant modifications to existing hazardous activities, with the objective of minimising the risk to population and the environment, to be applied in the entire territory of the country, and especially in areas likely to be affected by transboundary effects of an industrial accident.

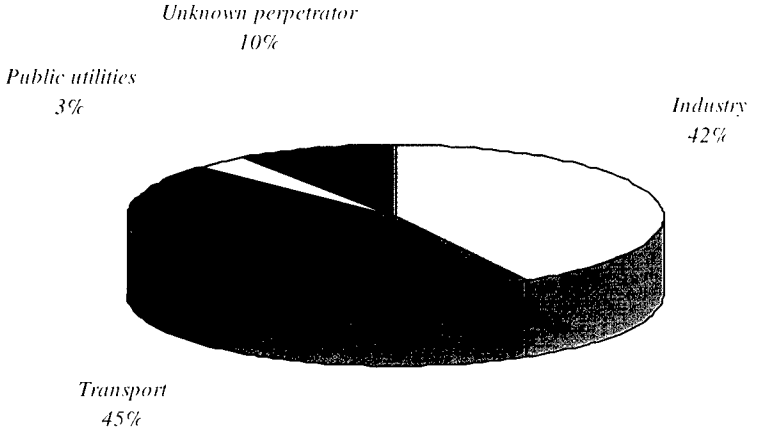
REFERENCES

1. Law on Environmental Protection (Off. gazette of the Republic of Croatia *Narodne novine* #82/94, 128/99)
2. Water Act (*NN* #107/95)
3. Law on Carriage of Dangerous Goods (*NN* #97/93)
4. Law on Toxins (*NN* #26/99)
5. National Water Protection Plan (*NN* #26/99)
6. Contingency Plan for Accidental Pollution of the Adriatic Sea in the Republic of Croatia (*NN* #8/97)
7. Environmental Emergency Plan (*NN* #82/99)
8. Convention on Transboundary Effects of Industrial Accidents (Helsinki, 1992), *NN - International Treaties* #7/99
9. European Agreements on International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), UN/ECE, Geneva, 1998/99
10. Agenda 21 (UN, Rio de Janeiro, 1992)
11. Directive 96/82/EC
12. Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki, 1992), *NN - International treaties* #4

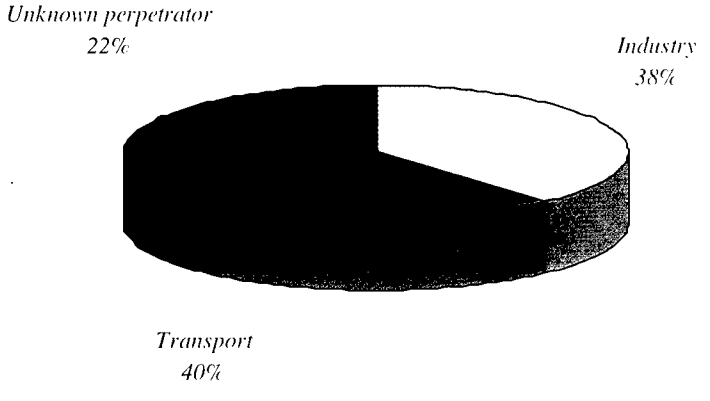
KEYWORDS
Industrial accident, hazardous substances, hazardous activities, emergency plans, contigency measures

APPENDIX 1: Accident distribution as per pollution source

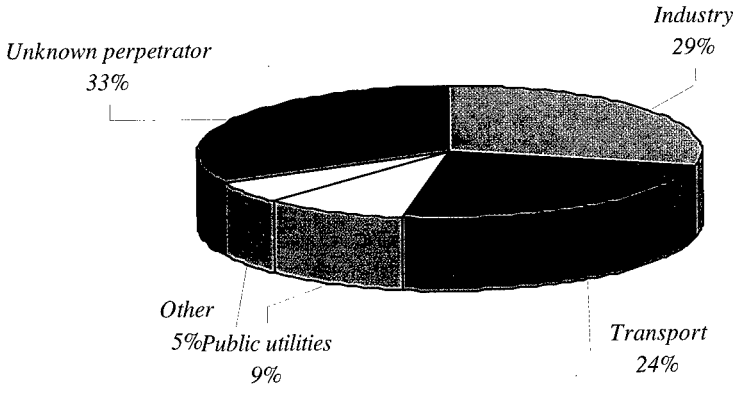
Pollution chart 1998:



Pollution chart 1999:



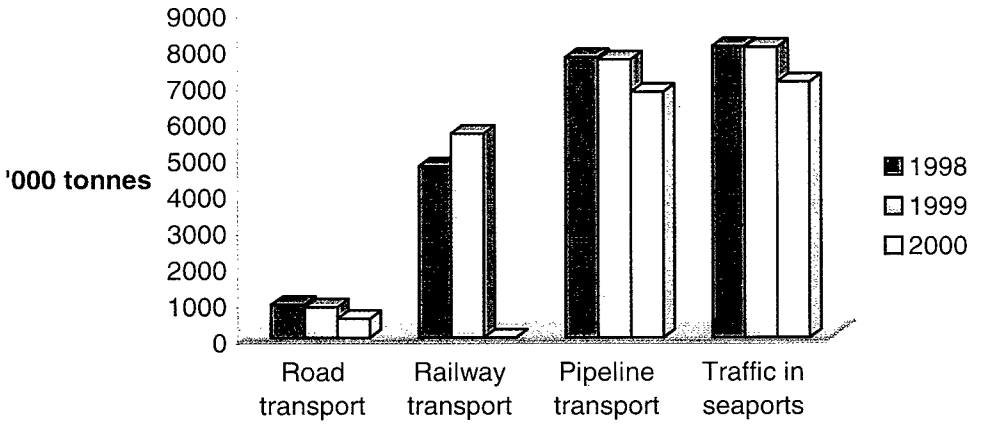
Pollution chart 2000:



APPENDIX 2: Transport of dangerous goods
('000 tonnes)

	Road transport			*Railway transport*			*Pipeline transport*			*Traffic in seaports*		
	1998	1999	2000	1998	1999	2000	1998	1999	2000	1998	1999	2000
domestic transport	*798,4*	*769,4*	*	*2104,2*	*3895,6*	*	*4916,6*	*5668,1*	*	*1627,8*	*1401,2*	*
import	*84,5*	*50,5*	*	*1041,4*	*703,3*	*	*817,1*	*820,6*	*	*4981,9*	*4902,7*	*
export	*29,7*	*27,7*	*	*869,6*	*461,0*	*	-	-	*	*305,0*	*699,8*	*
transit	*1,5*	*1,3*	*	*722,6*	*565,0*	*	*1999,3*	*1189,3*	*	*1122,9*	*1009,3*	*
TOTAL	914,1	848,9	526,0	4737,8	5624,9	*	7733,0	7678,0	6774,0	8037,6	8013,0	7056,0

* Data for 2000 not yet processed



APPENDIX 3: Actual or potential hazard based on hazardous substance quantity (D) in accordance with Major Accident Reporting System (MARS)

County	*Number on sites with hazardous substances in chemical industry and possible consequences*				
	D=5 Disastrous	*D=4 Very serious*	*D=3 Serious*	*D=2 Significant*	*D=1 Insignificant*
City of Zagreb	8	1	1	3	3
Zagrebačka	3	1	1	1	1
Sisačko-moslavačka	3	1	1	-	-
Primorsko-goranska	1	1	-	1	-
Istarska	2	1	1	-	-
Splitsko-dalmatinska	1	2	-	-	-
Zadarska	1	-	-	-	-
Brodsko-posavska	1	-	2	-	-
Međimurska	-	-	-	-	1
Požeško-slavonska	-	-	-	-	1
Karlovačka	-	-	1	1	-
Osječko-baranjska	-	-	2	-	1
Dubrovačko-neretvanska	-	-	-	2	-
Varaždinska	-	-	2	-	-
Ličko-senjska	-	-	1	-	-
Koprivničko-križevačka	-	-	1	-	-
Krapinsko-zagorska	-	1	-	1	-

APPENDIX 4: Treshold quantities of dangerous substances for purposes of the Plan

Dangerous substances Directive 96/82/EC	Treshold quantities (tonnes) and possible consequences				
	100% D=5	10% D=4	1% D=3	0,1% D=2	<0,1% D=1
	Disastrous	Very serious	Serious	Significant	Insignificant
Ammonium nitrate (explosive)	350	35	3,5	0,35	0,0035
Ammonium nitrate (fertiliser)	1250	125	12,5	1,25	0,125
Arsenic pentoxide (acids and salts)	1	0,1	0,01	0,001	0,0001
Arsenic trioxide (acids and salts)	0,1	0,01	0,001	0,0001	0,00001
Bromine	20	2	0,2	0,02	0,002
Chlorine	10	1	0,1	0,01	0,001
Nickel compounds	1	0,1	0,01	0,001	0,0001
Ethyleneimine	10	1	0,1	0,01	0,001
Flourine	10	1	0,1	0,01	0,001
Formaldehyde (concentration >=90%)	5	0,5	0,05	0,005	0,0005
Hydrogen	5	0,5	0,05	0,005	0,0005
Hydrogen chloride (liquefied gas)	25	2,5	0,25	0,025	0,0025
Lead alkyls	5	0,5	0,05	0,005	0,0005
Liquefied extremely flammable gases including LPG) and natural gases	50	5	0,5	0,05	0,005
Acetylene	5	0,5	0,05	0,005	0,0005
Ethylene oxide	5	0,5	0,05	0,005	0,0005
Propylene oxide	5	0,5	0,05	0,005	0,0005
Methanol	500	50	5	0,5	0,05
2-chloraniline	0,01	0,001	0,0001	0,00001	0,000001
Methylisocyanate	0,15	0,015	0,0015	0,00015	0,000015
Oxygen	200	20	2	0,2	0,02
Toluene diisocyanate	10	1	0,1	0,01	0,001
Phosgene	0,3	0,03	0,003	0,0003	0,00003
Arsine	0,2	0,02	0,002	0,0002	0,00002
Phosphine	0,2	0,02	0,002	0,0002	0,00002
Sulphur dichloride	1	0,1	0,01	0,001	0,0001
Sulphur trioxide	15	1,5	0,15	0,015	0,0015
TCDD (and equivalents)	0,001	0,0001	0,00001	0,000001	0,0000001
Carcinogens	0,001	0,0001	0,00001	0,000001	0,0000001
Automotive petrol and other petroleum derivatives	5000	500	50	5	0,05
Very toxic substances (T+)	5	0,5	0,05	0,005	0,0005
Toxic substances (T)	50	5	0,5	0,05	0,005
Oxidising substances (Ox)	50	5	0,5	0,05	0,005
Explosives (Ex) and and pyrotechnic substances	50	5	0,5	0,05	0,005

Dangerous substances Directive 96/82/EC	Treshold quantities (tonnes) and possible consequences				
	100% D=5	10% D=4	1% D=3	0,1% D=2	<0,1% D=1
	Disastrous	Very serious	Serious	Significant	Insignificant
Explosives (Ex) creating extreme risks	10	1	0,1	0,01	0,001
Flammable substances (R10)	5000	500	50	5	0,5
Highly flammable substances (R17)	50	5	0,5	0,05	0,005
Highly flammable substances (R11)	5000	500	50	5	0,5
Extremely flammable substances (R12)	10	1	0,1	0,01	0,001
Substances dangerous for the environment (R50)	200	20	2	0,2	0,02
Substances dangerous for the environment (R 51-R 53)	500	50	5	0,5	0,05
R14 substances (R14/15)	100	10	1	0,1	0,01
R29 substances	50	5	0,5	0,05	0,005