Implementation of the Convention on the Transboundary Effects of Industrial Accidents and Seveso II Directive in the Czech Republic

Shortcomings and limitations in major hazard prevention prior to and by implementing an integrated approach

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Content

- Legislative development
- APELL principles implementation
- International Commission for the Protection of the Elbe River
- Integrated approach through data mining for emergency planning and response in major hazard prevention
- Integrated Rescue System in the Czech Republic
Legislative development


International Labour Organization (1990): Convention Concerning Safety in the Chemicals at Work


Legislative development

• CTEIA is transposed by the Coll. of the Int. Pacts No. 58/2002 on the effects of industrial accidents which overrun state boundaries (entered into force on 10th September 2000).

• Act No. 59/2006 Coll., on the major accident prevention (in compliance with Seveso II Directive)

• Others (such as special Act No. 240/2000 Coll., on crisis management)
Legislative development

- Special Czech Act No. 383/2000 Coll. gives the rules for development of external emergency planning in the case of a hazardous facility, which is classified as B.

- Border of zone of external emergency planning is generated by a circle with radius $2*R$ ($R$ depends on the classification of chemicals).

Notice: $R$ is calculated in compliance with the risk analysis screening method IAEA-TECDOC-727. In special cases another risk analysis method or procedure could be chosen (usually it is highly recommended).
Goals of the Convention

• Protection of people and environment
• Major accident prevention and reducing their potential effects
• Reducing the number of and relevance of industrial accidents
• Reducing risks
There exist valid bilateral agreements on cooperation and reciprocal support in major accident and disaster cases between the Czech Republic and its neighbouring states:

Poland
Austria
Slovakia
Germany
Hungary
Facilities territorial distribution according to Major accident prevention act no. 353/1999

Situation as of 2001-2-13

- Group A
- Group B
APELL PROCESS IN CZECH REPUBLIC

AWARENESS AND PREPAREDNESS FOR EMERGENCIES AT LOCAL LEVEL
APELL PROCESS IN CZECH REPUBLIC

History of APELL in the Czech Republic

Early 90’s – first introduction of APELL principles in the Czech Republic

Research Institute of Occupational Health and Safety (VUBP) as national contact point

Ministry of Environment playing a key promoting role

APELL PROCESS IN CZECH REPUBLIC

APELL principles implementation

• Searching for a case studies
• Storage of fuels by CEPRO at Loukov was chosen
• Original situation: nearly no information exchanged or existing cooperation
• Goal: establish cooperation, information exchange and build the mutual confidence of all partners
APELL PROCESS IN CZECH REPUBLIC

THE GEOGRAPHICAL SITUATION OF LOUKOV AND OSÍČKO
APELL PROCESS IN CZECH REPUBLIC

THE PROCESS

1. PREPARATORY STAGE
2. EMERGENCY RESPONSE TRAINING
3. EVALUATION AND FEEDBACK
4. SPIN-OFF AND DISSEMINATION
APELL PROCESS IN CZECH REPUBLIC

THE PREPARATION STAGE

- UNDERSTAND LEGISLATIVE AND SOCIETAL CONTEXT
- IDENTIFICA TE AND MOTIVATE PARTICIPANTS
- CONDUCT PUBLIC OPINION RESEARCH IN TWO COMMUNITIES (Loukov, Osicko), INCLUDED SCHOOL CHILDREN

RESULTS:

- 63% of people are interested in installation risks
- 67% have little or no information about risks
- 74% feel they have little or no information on how to react in case of an accident
APELL PROCESS IN CZECH REPUBLIC

IDENTIFICATION OF PARTICIPANTS
APELL PROCESS IN CZECH REPUBLIC

METHODS OF IMPLEMENTATION

1. Participants contacted
2. Open information about APELL
3. Started communication
   - ČEPRO a.s.
     - problems of communication between the company and municipalities
     - preparing the emergency response training
   - MUNICIPALITIES OSÍČKO, LOUKOV
     - assess the problems with communication between the company and villages
     - assisted organisers with communication strategy (especially with questionnaires)
INFORMATIONAL LEAFLET TO EACH FAMILY

APPELL PROCESS IN CZECH REPUBLIC

NEBEZPEČNÉ LÁTKY

NAFTA

- Použití nepříznivě, smí se nacházet v oblastech s vysokým počtem osob.
- SKLADOVÁNÍ
- Přístup do skladu je povolený uživatelům.
- Výroba
- Skladování

BENZÍN

- Přístup do skladu je povolený uživatelům.
- Výroba
- Skladování

O VZNIKU HAVÁRIJE JE OBYVATELSTVO INFORMOVÁNO

BRŽNÍ
- Skladování
- Výroba

Pokud dojde k havárii:

- Je-li možné, zpestřovat místo havárie.
APEL PROCESS IN CZECH REPUBLIC

THE EMERGENCY RESPONSE TRAINING

- Emergency response training with cooperation of CEPRO, integrated rescue system and municipalities
- Public invited to watch
Main result

The mutual confidence increased!
International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe
Internationale Kommission zum Schutz der Elbe

www.ikse-mkol.org
International Commission for the Protection of the Elbe River
2002 Situation

1. End of 2002 - 146 establishments and installations

2. Elbe catchment (including whole Moldau catchment)
   90
   • Lower tiers (A) – 52
   • Upper tiers (B) – 38

3. Defined segments along the river (ICPE stations)
Czech hazardous installations in Elbe catchment area
Segments along the Elbe River

D-1 Schmilka – right bank
C-1 Valy – right bank
C-2 Lysá nad Labem – left bank
C-3 Obříství – right bank
C-4 Děčín – left bank
C-5 Zelčín – left bank (Moldau)
Definition of 6 segments along the Elbe and Moldau

A - between stations Schmilka a Děčín
B - between stations Děčín a Obříství
C - between stations Obříství a Lysá nad Labem
D - between stations Lysá nad Labem a Valy
E - upstream station Valy
F - the Lower Moldau
Map of ICPE stations and defined segments

International Commission for the Protection of the Elbe River
Integrated approach through data mining for emergency planning and response in major hazard prevention

Fundamental base of geographical data of the Czech Republic at a scale of 1:10000 (ZABAGED®)

- Base paper map of the Czech Republic at 1:10000
- Scanning and vectorization
- Fundamental base of geographic data at 1:10 000
- Orthorectified images
- Improved ZABAGED® and a new Base Map of the Czech Republic at 1:10 000
Integrated approach through data mining for emergency planning and response in major hazard prevention

ZABAGED®

Base paper map of the Czech Republic at 1:10,000
Integrated approach through data mining for emergency planning and response in major hazard prevention

ZABAGED®

Scanning and vectorization

- Scanning of colour segments of the Base Map of the Czech Republic at 1:10 000 with resolution 1024DPI and positional accuracy 0.05 mm
- Coordinate transformation into S-JTSK (national reference coordinates system)
- Semi-automatic vectorization of the digital records regarding geographical features and their topological relationships
- Well topographically coordinateed digital records of separate features
Integrated approach through data mining for emergency planning and response in major hazard prevention

ZABAGED®

Fundamental base of geographic data at 1:10 000

The digital topographic model of the territory at the level of details of the Base Map of the Czech Republic at 1:10 000

- The content is formed by 106 types of geographic objects represented by planimetric features and their corresponding descriptive and qualitative attributes
- The altimetric component is formed by a digital spatial vector set of contour lines
Integrated approach through data mining for emergency planning and response in major hazard prevention
Integrated approach through data mining for emergency planning and response in major hazard prevention

Flood Hazard Mapping

Density of river network in the Czech Republic
Integrated approach through data mining for emergency planning and response in major hazard prevention

National geoinformational support

- Documentation of river basin management
- Catalogue of river features
- Water management data
- Digital base of water management data at 1:10 000
- Base water management map at a 1:50 000
- National database of hydro-ecological data (HEIS)
- Documentation of flood hazard modeling
- Catalogue of flood plain features
- Hazard mapping data
- Digital flood hazard data at 1:10 000
Integrated approach through data mining for emergency planning and response in major hazard prevention

National geoinformational support

River basin authorities/ Watercourse administrator

Ministry of Agriculture

Ministry of Environment

Water–law authorities (local/regional level)

Documentation of flood hazard modeling
Integrated approach through data mining for emergency planning and response in major hazard prevention

Thematic maps

• Limits of life threatening danger
• Limits of disablement
• Limits of psychological trauma

The most relevant data

• Limit of disablement
  or
• Limit of immediate and severe health damage
Integrated approach through data mining for emergency planning and response in major hazard prevention

Quality objectives of the zones

• **Must be:**
  – an assessment of the extent of hazardous effects
  – linked to change in adequate behaviour

• **Must:**
  – guarantee that there will be no hazards beyond the limit
  – be specific to the nature of the accident and site characteristics

• **Must not be:**
  – the limits of operational decisions
  – a prediction of fatalities

• **Must not:**
  – guarantee that there will be a hazard everywhere within the limits
  – depend on calculations if they are less reliable than experience
Integrated approach through data mining for emergency planning and response in major hazard prevention

**Zone maps are relevant for**

- Fire balls
- Explosion
- Toxic releases

**Zone maps are not relevant for**

- Toxic release in water
- Toxic fumes
- Flash fires
- Pool fires or jet fires
Crisis situations and responses

- An accident occurred and the worst case has already happened
  - tactical response
- There is a threat of an accident
  - strategic response
- An accident occurred and the worst case has yet to happen
  - tactical and strategic response
Integrated Rescue System in the Czech Republic

Crisis situations and responses

• For prevention, mitigation and remediation of accidents consequences (and also in cases of transboundary effects)

• Examples in practice:
  • bilateral training on the Austrian border took place in 2004; simulated a major accident: leak of crude oil from „Mero“ pipeline.; Integrated Rescue System (firebrigade, police, Deconta company, ambulance) participated in the action;
  • similar action took place in 2005 on the German border.
Integrated Rescue System in the Czech Republic

Common principles of crisis communication with the public

• Quick and clear instructions are needed before, in and after crisis situation
• Principles of behaviour in case of an accident
• Alarm guidance release
• Nomination of the persons responsible for communication
• Policy of transparent and open communication
Integrated Rescue System in the Czech Republic

Crisis communication particulars

Crisis communication step by step in course of the crisis

- Preventive crisis communication
- Communication in time of crisis
- Crisis communication in adaptive following phase

Problems in crisis communication resulting from public participation in major hazard prevention

- Diverse public expectations on the results of their participation on communication
- Diverse risk perception
- Confidence
- Social barriers