The Ministerial Decree of 9 May 2001 (Italian decree on LUP) and elements for updating in light of new safety requirements

STRATEGIES FOR EMERGENCY PLANNING AND LAND USE PLANNING FOR SEVESO SITES

Case studies and exchanges of bilateral experience Italy/Europe

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The role of ISPRA for industrial control

ISPRA has a national role as a technical body supporting the Ministry of Environment in the national implementing of the Seveso Directives for the prevention of major accidents (D.Lgs. 105/2015)

Definition of **technical contents of laws and decrees** to control Major Accidents

Set-up of the **National Inventory of major accident hazards establishments** and other related data-bases

Evaluation activity for the **Notification** form and "**exclusion of substances**" procedure

Pluri-annual **Planning and Inspections** of UT establishments **SMS-PMA on a regular basis or after an accident**

Support for **international activities** (EU, OECD, bilateral cooperation)

Technical coordination and **addressing of Regional Agencies** for the Protection of Environment (ARPA)

Collaboration with other Authorities competent for industrial risk (National Fire Brigades; Civil protection; Ministry of infrastructures)

Training for Seveso national inspectors aimed at Italian CCAA

https://www.isprambiente.gov.it/it/attivita/controlli-e-ispezioni-ambientali/rischio-industriale-e-direttive-seveso-1

Program and themes

1. Land use planning and urbanization control in the national legislation
2. Minimum safety requirements in terms of urban and territorial planning for areas affected by Seveso establishments: the DM 9/5/2001
3. National experience and effective implementation
4. European context and proposals for regulatory revision

1. Land use planning and urbanization control in the national legislation

The LUP in the national implementation of the Seveso III

In the areas affected by establishments, minimum safety requirements shall apply in terms of LUP, concerning the destination and use of land:

a) Siting of new establishments

b) Hazardous modifications to the establishments

c) New establishments or infrastructures around existing establishments, where the location or establishment or infrastructure may increase the risk or the consequences of a major accident

The tools for the control of the territory

In areas affected by establishments, the LUP tools provide for:

a) Maintaining appropriate safety distances between the establishments and residential areas, buildings and public areas, recreational areas and main transport routes

b) Protecting areas of natural interest near the establishments

c) Adopting, for pre-existing establishments, complementary technical measures to avoid increasing risks to human health and the environment

Guidelines for the LUP tools

Guidelines are adopted for territorial planning tools, identifying:

a) Cognitive elements of the state of the territory, of the environmental components and of the cultural and landscape assets, affected by potential major accident scenarios

b) Criteria for the possible adoption of additional safety and protection measures for people and the environment, also through interventions on buildings and areas affected by damage scenarios

c) Criteria for the simplification and unification of territorial and urban planning procedures

The technical document issued by the Major

The municipal urban planning tools identify and regulate the areas to be subjected to specific regulation, through a technical document ("RIR")

The technical document is prepared according to the Ministerial Decree of 9/5/2001 (*issued with the Seveso II directive, but still valid*) and updated at least every five years

The information contained in the technical document is transmitted to local authorities to adapt the urban planning tools of competence

Source of information and technical assessment

- The competent authorities use the information provided by the operator, the results of the inspections and the technical assessments carried out on the risk analysis
- The territorial and urban planning tools incorporate the relevant elements of the external emergency plan
- If the technical document has not been adopted, the building permits are issued based on the risk's technical assessment by the CCAA
- For establishments with a domino effect, the planning tools consider the assessment of the integrated safety study of the area

2. Minimum safety requirements in terms of urban and territorial planning for areas affected by Seveso establishments: the DM 9/5/2001

https://www.gazzettaufficiale.it/eli/id/2001/06/16/001A5676/sg

The “RIR” technical document: a part of the urban planning tool

- ✓ Information provided by the site operator
- ✓ Vulnerable territorial and environmental elements and the geometric envelope of the damage areas
- ✓ Areas to be regulated resulting from the overlapping of the envelopes of the damage areas and vulnerable elements
- ✓ Any technical evaluation of the competent authorities
- ✓ Any measures adopted: planning criteria, protection works and design criteria, road planning, elements of correlation with external emergency planning, and civil protection

The process of adapting urban planning tools

1. Identification of vulnerable elements, integrating the information of the site operator with the data of the Municipality
2. Determination of the damage areas and overlapping on the cartography with the vulnerable territorial and environmental elements
3. Evaluation of territorial and environmental compatibility, determining the destinations of use compatible with the presence of the establishment
4. Adoption of the urban planning tool based on national and local laws

Areas to be subjected to specific regulation

Categorization of the areas surrounding the establishment based on the value of the building index and the identification of vulnerable elements of a specific nature -*categories from "A" to "F"*

- ***VULNERABLE TERRITORIAL ELEMENTS***

Landscape and environmental assets, Protected natural areas, Surface water resources, Deep water resources, Land use

- ***VULNERABLE ENVIRONMENTAL ELEMENTS***

Territorial categories

A

1. Residential areas with a building land index greater than 4.5 m3/m2
2. Places of concentration of people with limited mobility (more than 25 beds or 100 people present)
3. Places with significant crowding outdoors (more than 500 people present)

B

1. Residential areas with a building land index between 4.5 and 1.5 m3/m2
2. Places of concentration of people with limited mobility (up to 25 beds or 100 people present)
3. Places with significant crowding outdoors (up to 500 people present)
4. Places with significant indoor crowding (over 500 people present)
5. Places with significant crowding with limited periods of exposure to risk (over 100 people outdoors, over 1000 indoors)
6. Railway stations and other transport hubs (movement of more than 1000 people/day)

Territorial categories

C

1. Residential areas with a building land index between 1.5 and 1 m3/m2
2. Places with significant indoor crowding (up to 500 people present)
3. Places with significant crowding with limited periods of exposure to risk (up to 100 people outdoors, up to 1000 indoors; of any size if attendance is at most weekly)
4. Railway stations and other transport hubs (movement up to 1000 people/day)

D

1. Residential areas with a building land index between 1 and 0.5 m3/m2
2. Places with significant crowding, with maximum monthly attendance

E

1. Residential areas with a building land index is less than 0.5 m3/m2
2. Industrial, artisanal, agricultural and livestock establishments

F

1. Area within the boundaries of the establishment
2. Area adjacent to the establishment, within which there are no structures with ordinary presence of people

Determination of damage areas: Threshold values

Accident Scenario	*High Lethality*	*Beginning of Lethality*	*Irreversible Lesions*	*Reversible Lesions*	*Damage to Structures – Domino Effects*
Fire	12.5 kw/m2	7 kw/m2	5 kw/m2	3 kw/m2	12.5 kw/m2
BLEVE/Fireball	Fireball radius	350 KJ/m2	200 KJ/m2	125 KJ/m2	200-800m
Flash-Fire	LFL	½ LFL			
VCE	0.3 bar (0.6 open spaces)	0.14bar	0.07 bar	0.03 bar	0.3 bar
Toxic Release	LC50		IDLH		

- Damage areas must be determined by the site operator, considering the specificity of their situation and according to the threshold values
- He must indicate, for each of the significant hypotheses, the probability class of the events according to the following tables

Territorial categories compatible with establishments

Event Probability Class	*Effects Category*			
	High Lethality	**Beginning of Lethality**	**Irreversible Lesions**	**Reversible Lesions**
$< 10^{-6}$	DEF	CDEF	BCDEF	ABCDEF
10^{-4} - 10^{-6}	EF	DEF	CDEF	BCDEF
10^{-3} – 10^{-4}	F	EF	DEF	CDEF
$> 10^{-3}$	F	F	EF	DEF

*Event Probability Class**	*Effects Category**			
	High Lethality	**Beginning of Lethality**	**Irreversible Lesions**	**Reversible Lesions**
$< 10^{-6}$	EF	DEF	CDEF	BCDEF
10^{-4} - 10^{-6}	F	EF	DEF	CDEF
10^{-3} – 10^{-4}	F	EF	EF	DEF
$> 10^{-3}$	F	F	F	EF

For building permits in the absence of urban planning adpation

Environmental Compatibility

The remediation and environmental restoration interventions, following the accident, can be concluded within two years

- ***SIGNIFICANT DAMAGE***

The remediation and environmental restoration interventions, following the accident, can be concluded exceeding two years

- ***SERIOUS DAMAGE***

- The hypothesis of serious damage is not compatible
- For existing establishments, in case of serious damage, the operator must inform about the complementary measures to reduce the risk
- For significant damage (potential impacts), prevention and mitigation measures must be introduced, depending on the feasibility and characteristics of the sites, aimed at reducing the damage category

3. National experience and effective implementation

Urbanization control: the information

Information provided by the site operator	*Evaluations provided by the CA*
• Envelope of damage areas for each of the four categories of effects and according to the threshold values • For LPG storage and for storage of flammable a/o toxic liquids, the storage category obtained by the indexed method • For all establishments, the probability class of each individual event • For the environmental damage, the damage categories in relation to the vulnerable environmental elements	• Information provided by the operator in the SR in a specific attachment concerning elements for land use planning • Any variations regarding the damage areas, the class of deposits, the frequency categories, compared to the information transmitted by the operator • Any other elements for a more complete and correct assessment of territorial and environmental compatibility

Verification of compatibility between urbanization and establishments

The vulnerability of the elements considered must be assessed in relation to the incidental phenomenology

In general, the effect produced by energetic phenomena such as explosion and fire on water and the subsoil can be considered negligible

In all other cases, the vulnerability assessment must consider the specific damage that can be caused to the environmental element, the social and environmental relevance of the resource considered, the possibility of implementing restoration interventions following a possible release

Crtiteria for the evaluation and interventions

- The compatibility assessment must be formulated considers the information acquired by the operator and possibly validated
- The technical elements must not be interpreted in rigid and complete terms, but rather used within the assessment process
- The assessment considers the operator's possible commitment to adopt complementary technical measures
- The planning tools may include appropriate measures that reduce the vulnerability of the buildings affected by the damage areas
- Integrated Intervention Programs can be promoted to define useful actions to resolve complex situations, for example by providing methods for transferring building rights to other areas

4. European context and proposals for regulatory revision

The work of the Seveso Expert Group

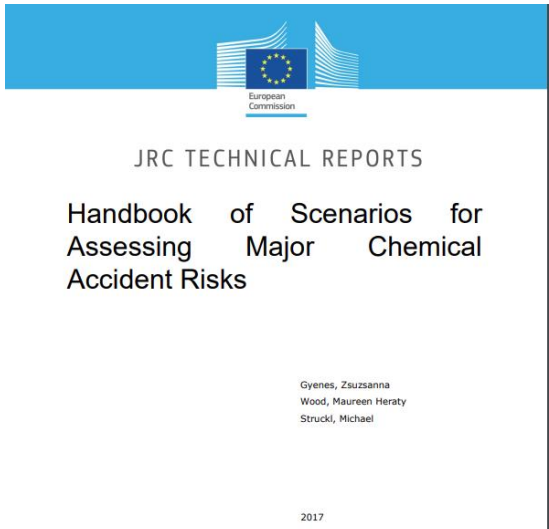
The 12th Meeting of the Commission Expert Group on the Control of Major Accident Hazards Involving Dangerous Substances ("SEVESO EXPERT GROUP-SEG"), held in Warsaw (PL), February 18-20, 2025, was organized by the European Commission (EC)-Directorate General Environment, as well as local authorities (Polish Presidency)

- *Periodic event aimed at assessing the status of transposition and implementation of Seveso legislation*
- *"Seminar on Land Use Planning under the Seveso III Directive" was held to compare and share experiences, best practices, and the regulatory framework of the various member countries on the topic of urban and land-use planning around Seveso sites*

https://unece.org/environmental-policy/events/eu-seveso-expert-group-meeting-and-seminar-land-use-planning-under

Issues, challenges and opportunities at European level

The practical implementation of the regulatory obligations related to the LUP presents complex decision-making and implementation challenges in terms of methodologies, criteria, and procedures that require the coordination of public and private stakeholders, at regional, national, and European levels



a) How to determine safety distances near the Seveso establishments

b) Approaches to assessing consequences and risks in land-use planning
   - *Deterministic approaches with implicit risk judgment*
   - *Consequence-based approaches*
   - *Risk-based or "probabilistic" approaches (QRA)*
   - *Semi-quantitative approaches*

https://minerva.jrc.ec.europa.eu/en/shorturl/minerva/handbook_of_scenarios_for_assessing_major_chemical_accident_risksonlinepdf

c) EU efforts to address challenges in harmonizing approaches to assessing consequences

Possible national implications on land-use planning

To improve the efficiency of the evaluation and control system, ISPRA proposed analyzing and reassessing the current state of the RIR Technical Documents prepared by municipalities

- Support from the National Association of Italian Municipalities (ANCI) to obtain updated national quantitative data
- Detection, through explicit request in inspection mandates, of the process of issuing/preparing/updating/revising these tools during routine inspections conducted at a national level

Starting activity for regulatory revision

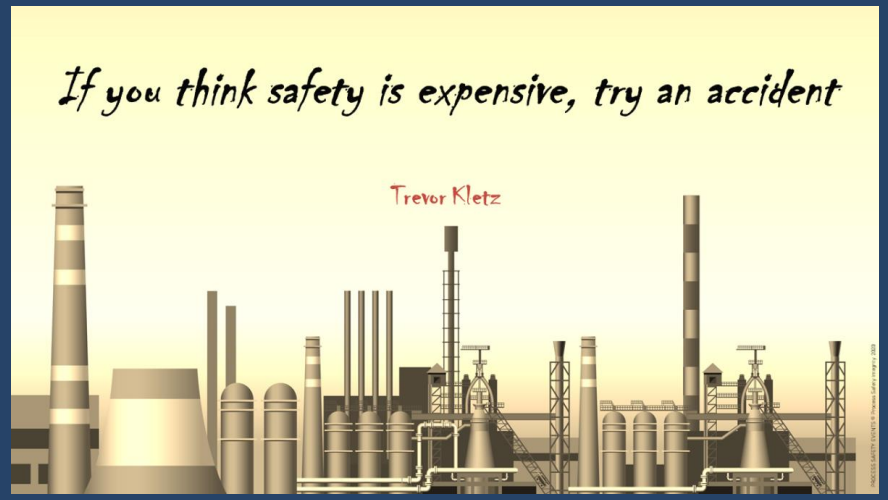
To comply with the regulatory obligations for issuing the update of the DM 9 May 2001, it's proposed to begin the preparation of the "***GGLL on land use planning, for the formation of urban and territorial planning tools and the related implementation procedures for the areas affected by the establishments, as well as establishing the minimum safety requirements***"

Knowledge of the **territory**, **environmental** components, and **cultural** and **landscape** assets affected by major accident scenarios

Adoption of **additional safety and protection measures** for people and the environment, including **interventions on buildings and areas** potentially affected by damage scenarios

Simplification and unification of territorial and urban planning **procedures** for the purpose of controlling **urbanization**

Substantial continuity with the current system, incorporating the innovations of D.Lgs. 105/2015, with rationalization and simplification of contents, where possible



Questions…???...

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Thanks for the attention!!!