



BELÜGYMINISZTERIUM
ORSZÁGOS KATASZTRÓFAVÉDELMI FŐIGAZGATÓSÁG
„Magyarország szolgálatában a biztonságért!”



How we measure chemical accident risks arising from different sources

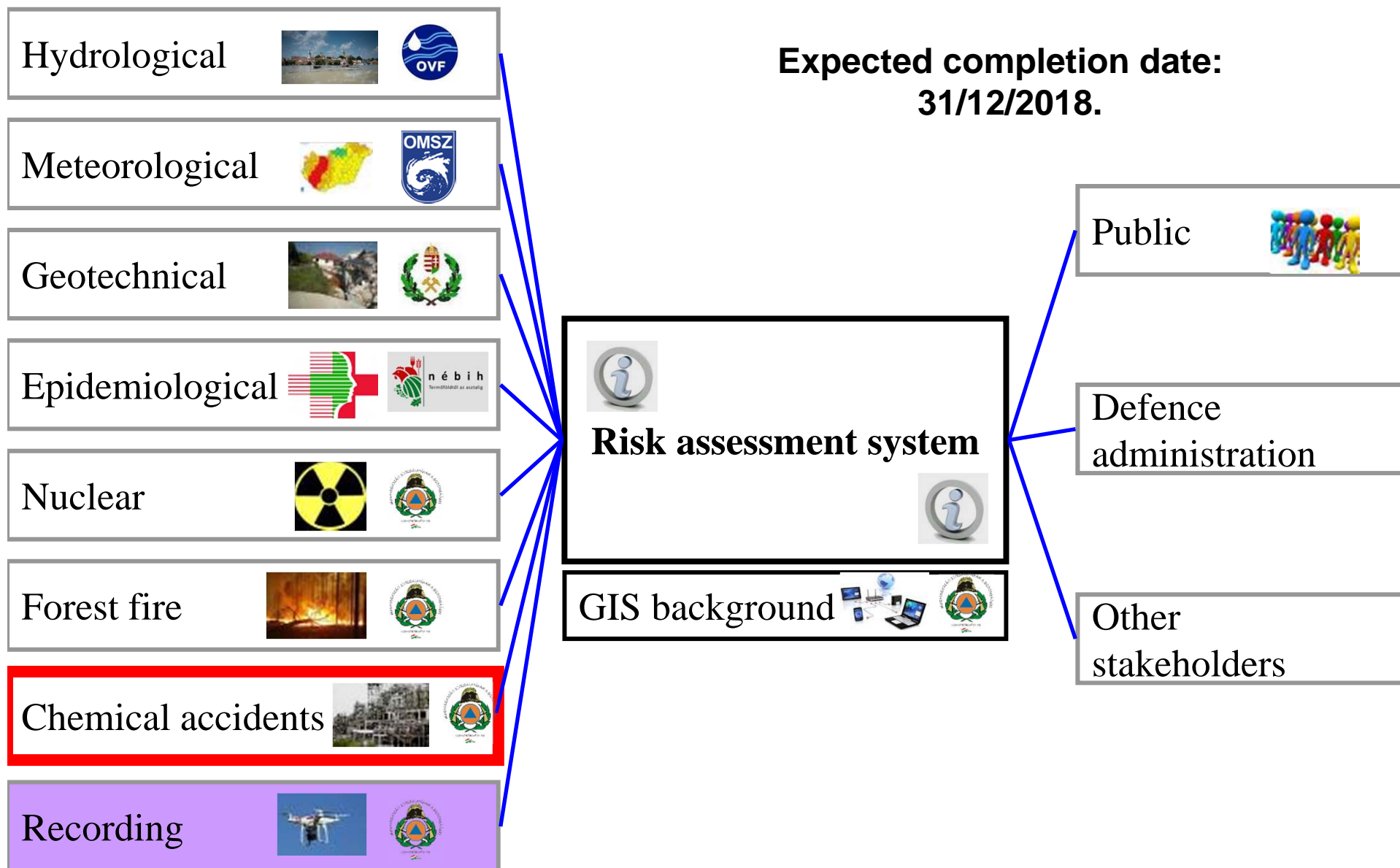
„executive summary of our national project”

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Overviewing the project: hazard factors and beneficiaries



Risk areas

Appointed for detailed analysis

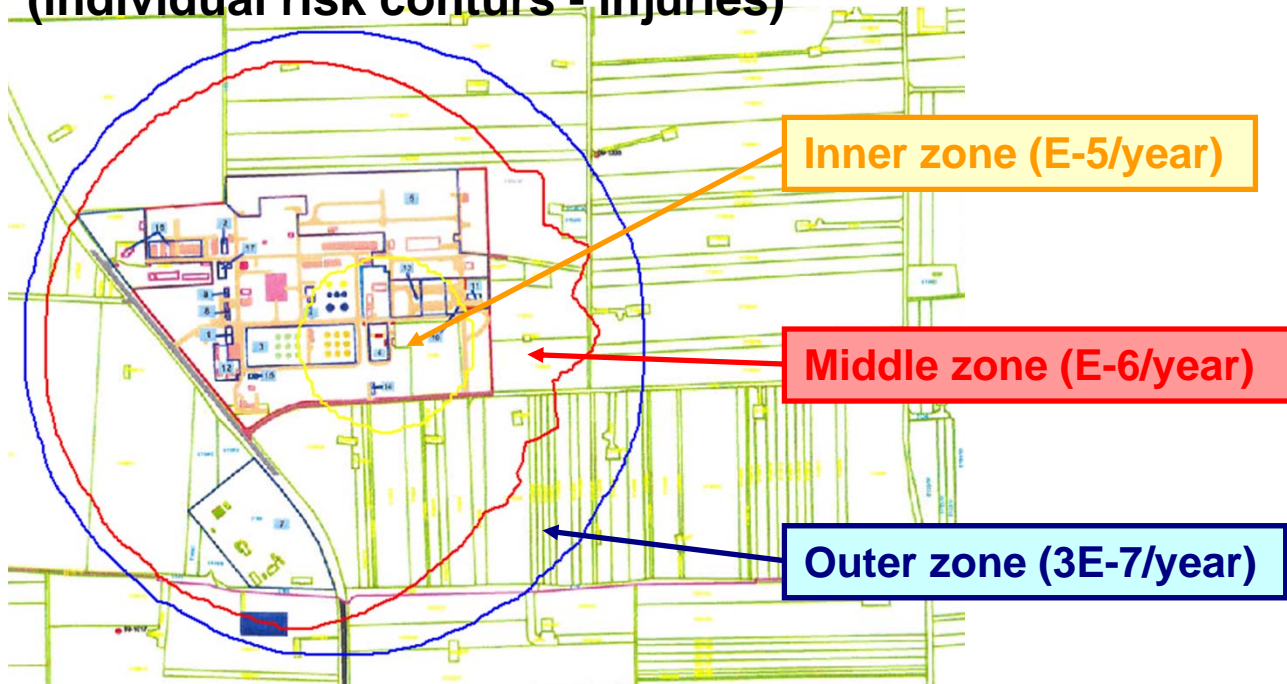




Seveso establishments



**Main pillar: Land use planning – hazard zones
(individual risk contours - injuries)**



Hazard maps:

Data available at
Regional Competent
Authorities

(DNV PhastRisk
v6.54 software)

Vulnerability maps:

Data available at
national database of
Fire and Rescue
Plans (hospitals,
schools, workplaces,
hotels, public
entertainment etc.)
and at National
Public Register
(population)



**What types of risks do we
measure?**

Source specific risk values



Pictures are only illustration.

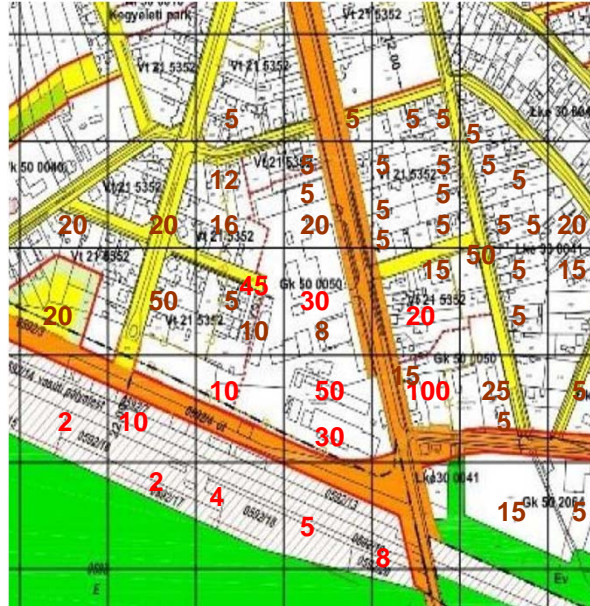
Calculation method:

$$2\text{persons} \times E-5\text{in./year} + 82\text{persons} \times E-6\text{in./year} + 79\text{persons} \times 3E-7\text{/year} = 1,26E-4\text{in./year}$$

In the light of these values:

- a) More frequent authorial supervision of the most dangerous sources
- b) Imposition of further risk reduction measures

Territorial unit specific risk values



Pictures are only illustration.

Calculation method:

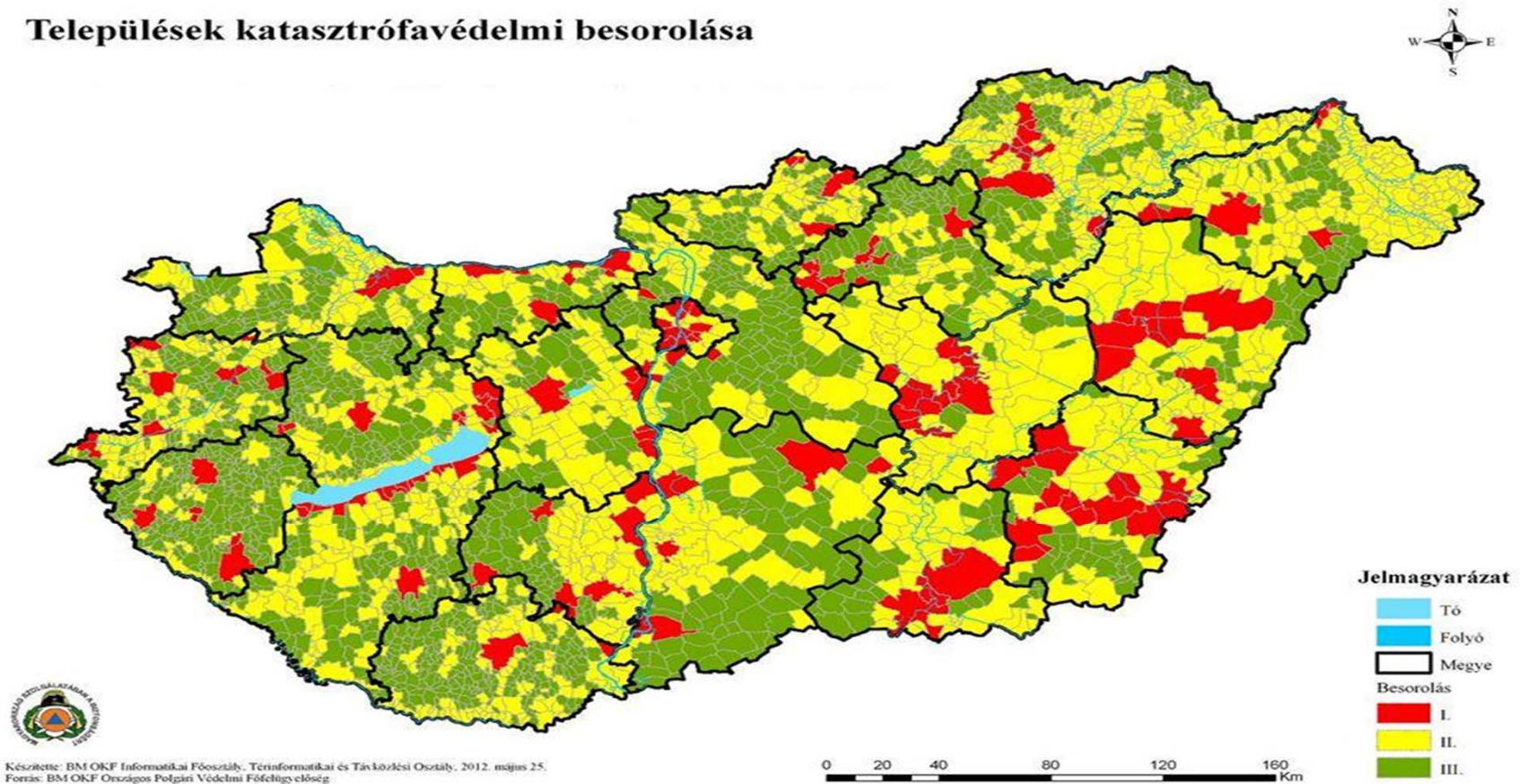
The same like on the previous slide, but applicable only within one territorial unit.

In the light of these values:

- Identification of the most vulnerable territorial units
- Optimalised spatial allocation of protective measures (eg. storage places for personal protective equipments for evacuation, installation of public warning and alarm system equipments)

Settlement specific risk values

Települések katasztrófavédelmi besorolása



Calculation method:

Pictures are only illustration.

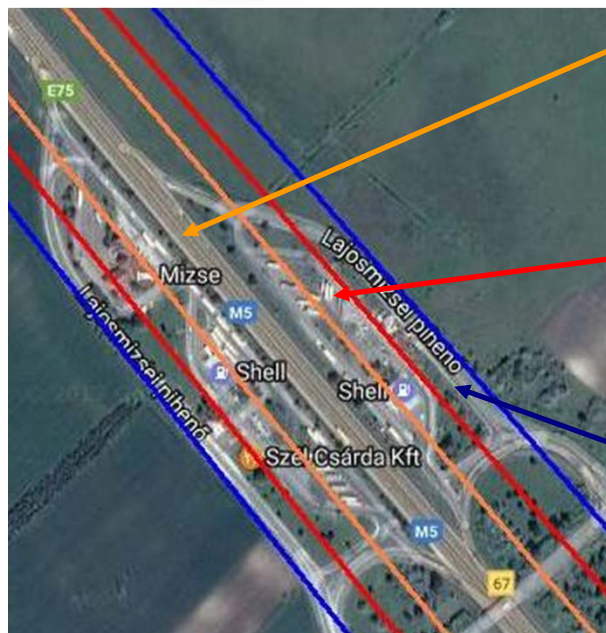
The same like on the previous slide, but applicable only within the territory of the settlement.

In the light of these values:

- a) disaster risk based classification of settlements
- b) determination of minimum set of protective measures



Transport of dangerous goods



Inner zone (E-5/year)

Middle zone (E-6/year)

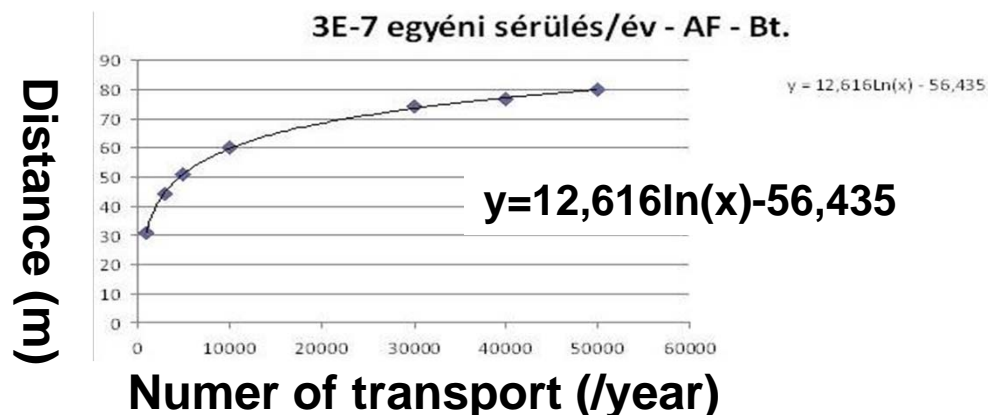
Outer zone (3E-7/year)

Risk is calculated for every km + territorial unit + settlement specific



New GIS based quantitative risk assessment method was developed

- CPR18E 2 Transport, DNV PhastRisk v6.54
- Traffic data form national databases (scientific partners and NDGDM)
- 4 substance categories, 3 track types, 3 calculated zones: 36 functions determined





Other sites with dangerous materials



Newly developed GIS based semi-quantitative risk assessment method

Takes into account:

- More than 80 000 sites (SMEs, wellness, warehouses of supermarkets etc.)
- The quantity of the materials present on site
- Type of the activity
- Population distance and density

Data available from regional databases of competent authorities

No safety documentation – effect zones are not determined

Only source specific and settlement specific risk values are calculated on semi-quantitative way

The common risk scale, integrated maps

Very low

Low

Moderate

Medium

High

Very high



Intergrated hazard, vulnerability and risk maps with different layers:

- Seveso sites
- road transport
- railway transport



In case of other sites: summation with risk matrix (only for settlement specific risk values)

5	10	15	20	25
4	8	12	16	20
3	6	9	12	15
2	4	6	8	10
1	2	3	4	5

Other information on maps (not taken into account in calculations): animal housing facilities.



Thank you for your attendance!



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