



REGIONAL HLW REPOSITORY – A RATIONAL SOLUTION

Andrej Stritar
Slovenian Nuclear Safety Administration

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Why regional?

- Not because each of our countries would like to get rid of High Level radioactive Waste from its territory!
- Because it is **cheaper and safer!**



Why would it be cheaper?

- One site instead of N sites
 - One research
 - One licensing
 - One operation
- Larger volume of the repository contributes only a fraction to the cost



Why is it safer?

- More funds to assure long term safety
- Easier to assure security – non-proliferation



The current international scene



International scene

- Each country should take care of its own waste
 - **AIMBY** syndrome!
- Countries with advanced HLW disposal projects avoid any discussion about regional solutions:
 - Such discussions would jeopardize their public acceptance
- Export should be possible only to “reliable” countries
- Regional solutions are possible on EU level!



Controversy of developed

"Wait until several national HLW disposal projects are implemented, than we will help you!"

but, in the next sentence

"Don't you ever dream that we will accept any waste from abroad to our HLW repository!"



Joint Convention 2003

- Slovenian initiative taken with the surprising interest
- Discussed at the plenary
 - Major players repeated their concerns
 - It is mentioned in the final report
- Surprising strong support by USA-DOE!



Definition of the Region

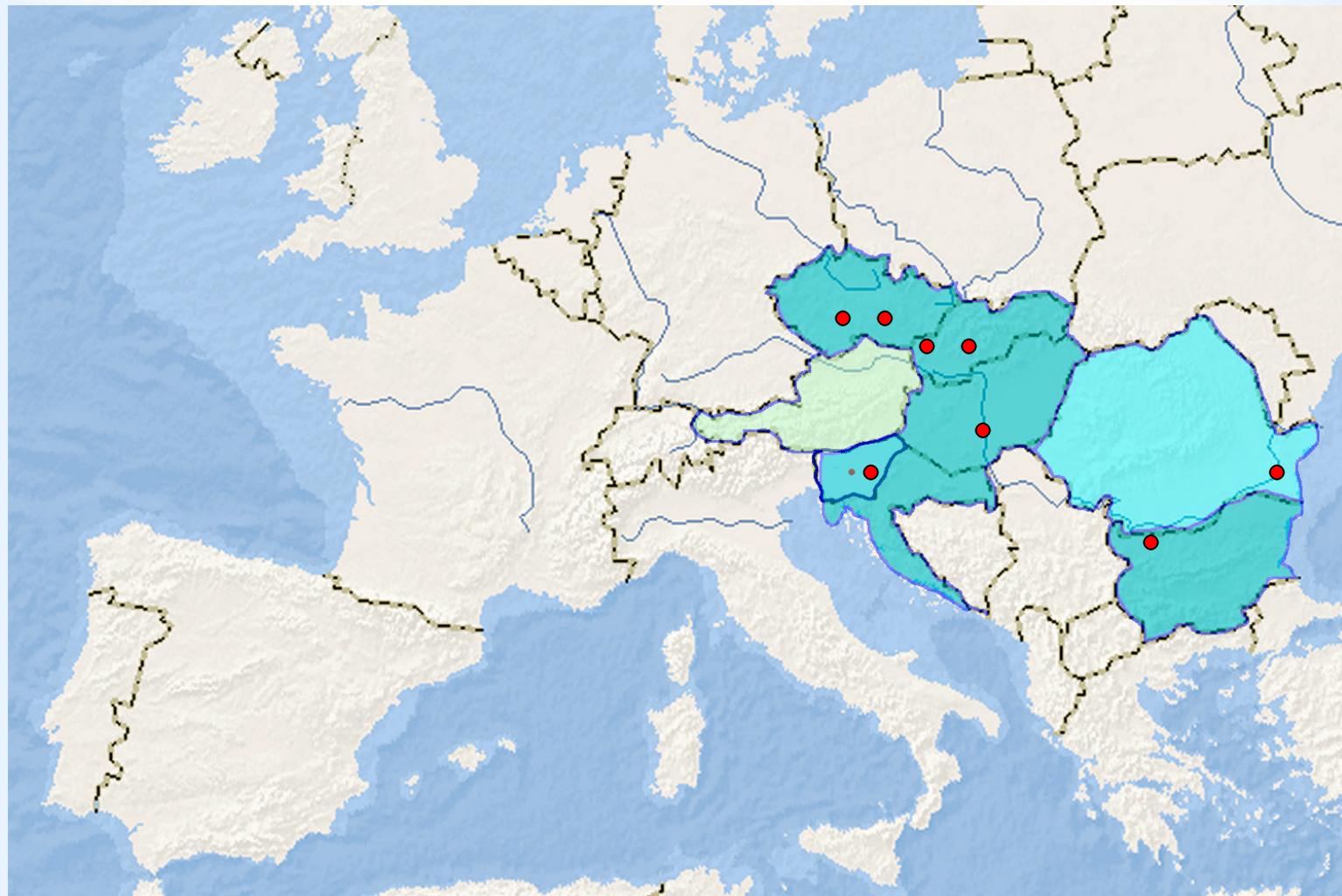


Definition of the region

- Any group of interested countries
- Does not have to be bound to any current political connections
- Could consist of more than one geographic area



Currently willing to discuss



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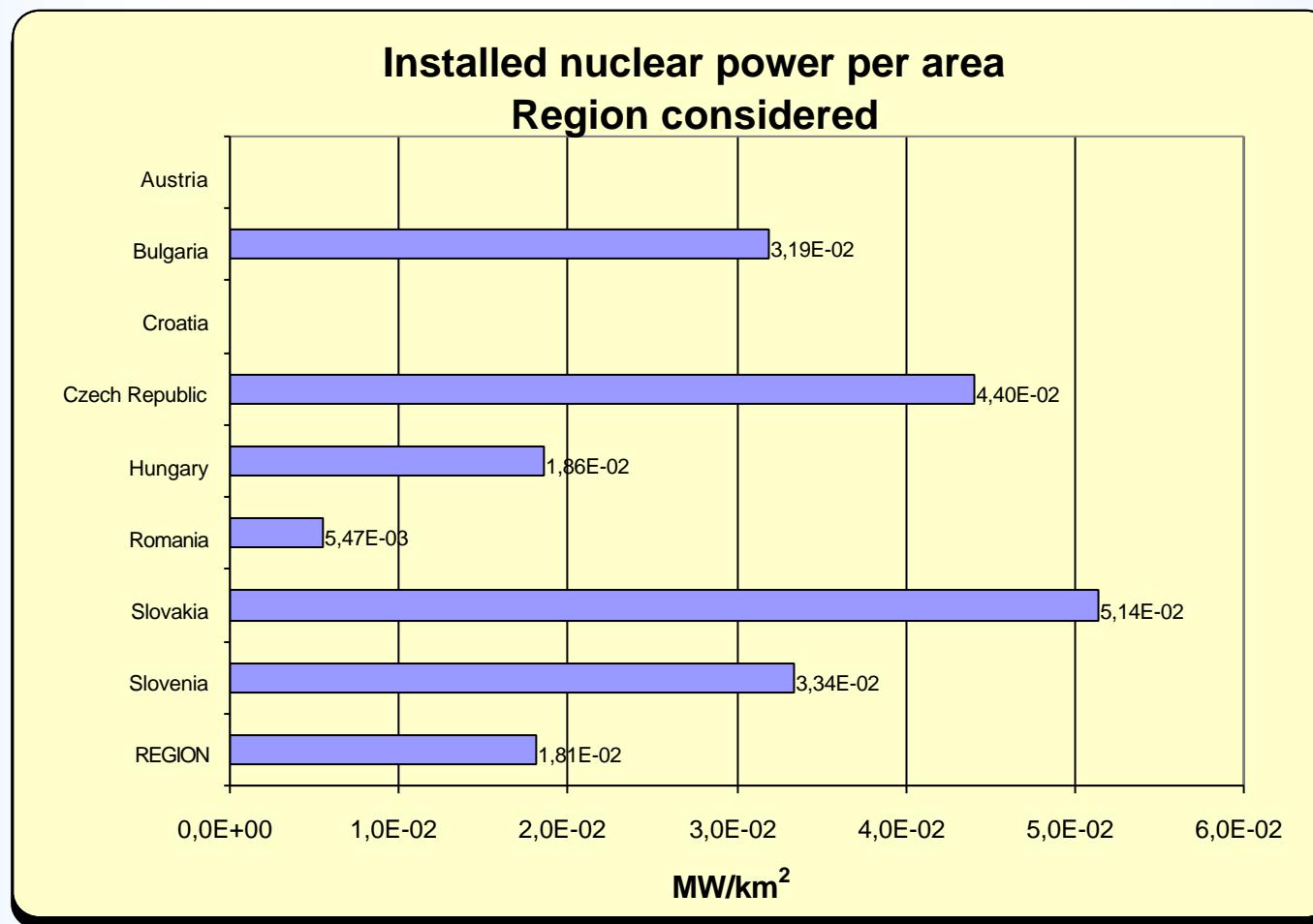


NPPs and area

	NPPs (MW)			Territory (sqkm)
	Operating or under construction	Ownership	Shutdown	
Austria	0	0	0	83.858
Bulgaria	2722	2722	816	110.994
Croatia	0	338	0	56.510
Czech Republic	3472	3472	0	78.864
Hungary	1731	1731	0	93.030
Romania	650	650	650	237.500
Slovakia	2408	2408	110	49.035
Slovenia	676	338	0	20.253
REGION	11659	11659	1576	730.044

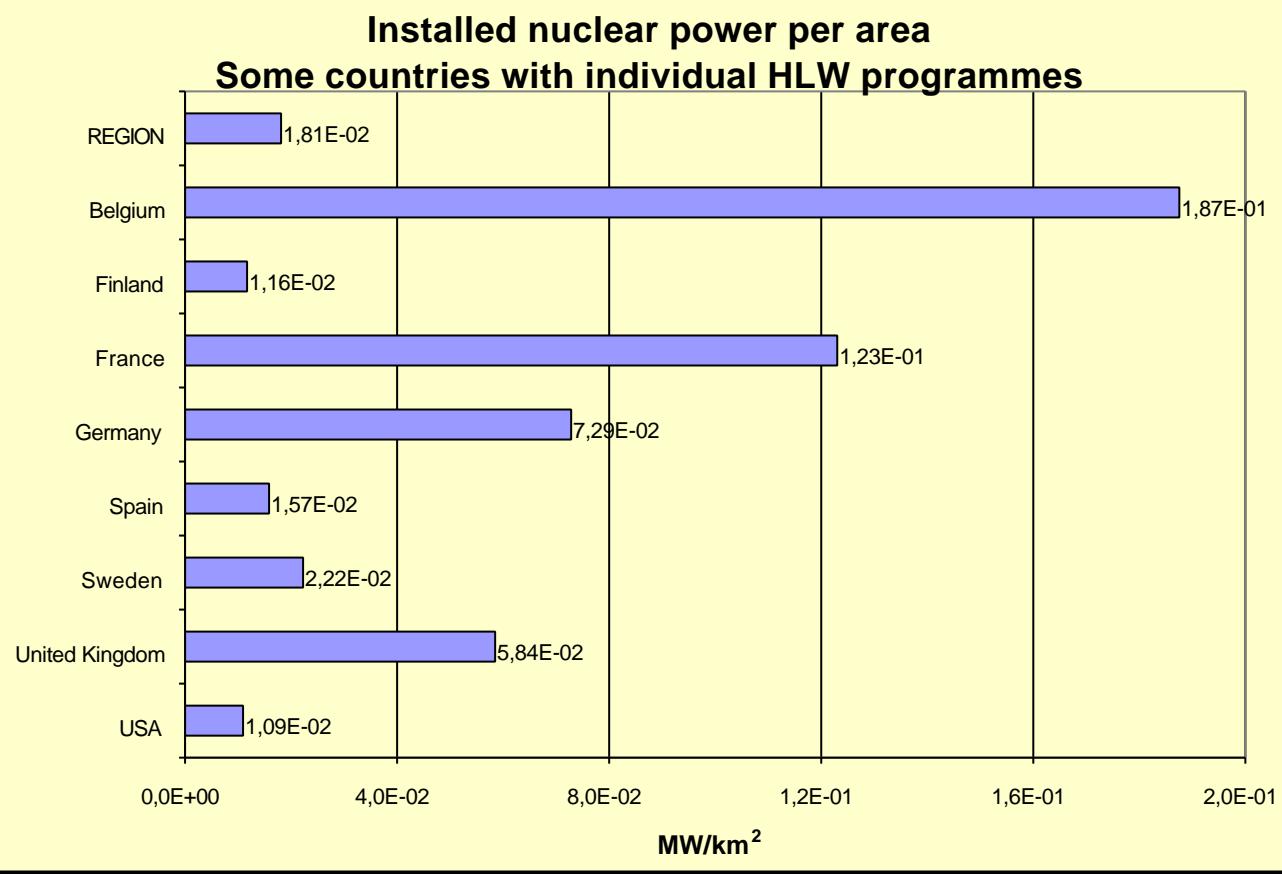


Area available for disposal





Area available for disposal





Is it rational to bind a HLW repository site to current political boundaries?

Or, how irrational is
All In My BackYard Syndrome

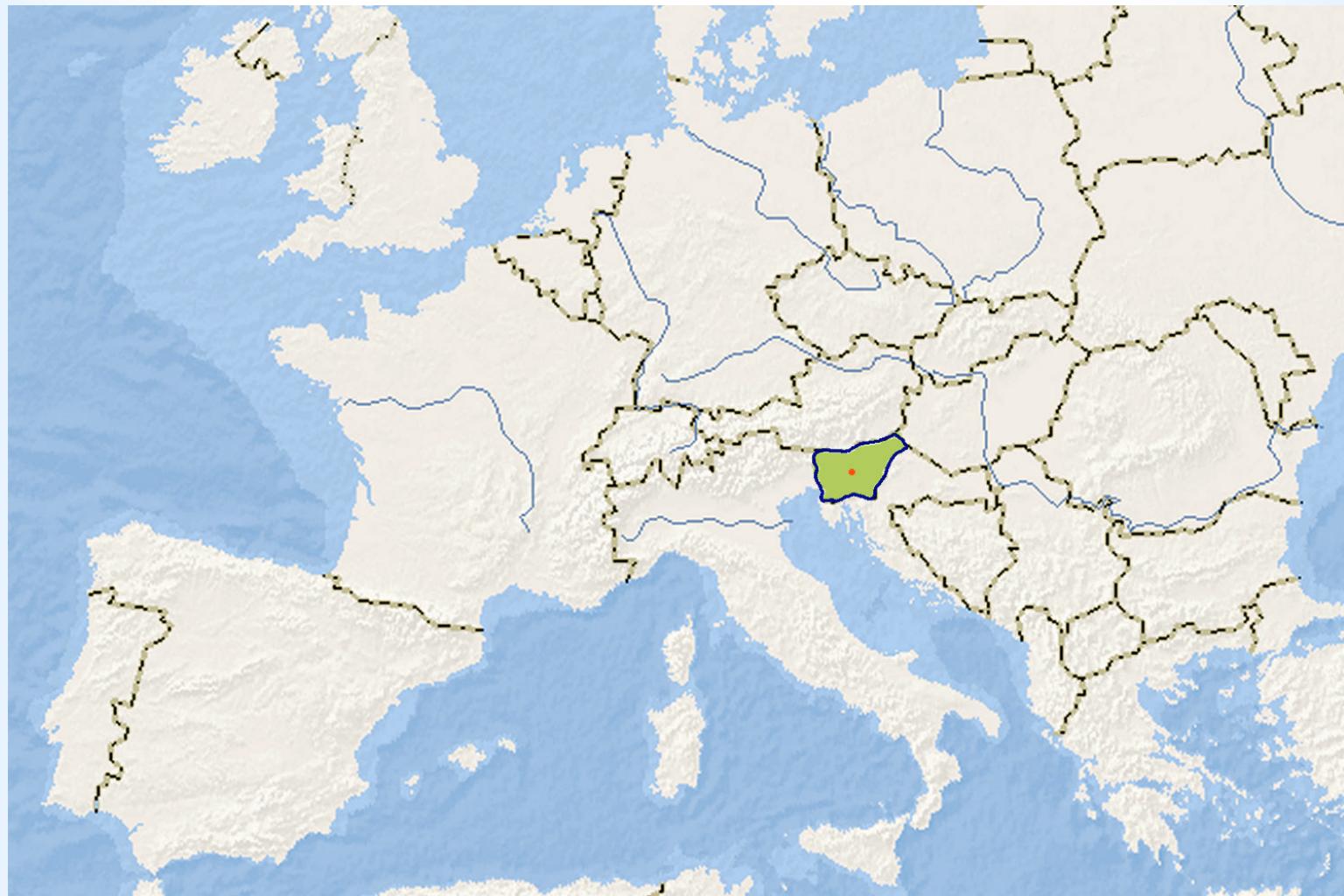


Political boundaries – short half life

- Each state should take care of it's waste!
- Sounds reasonable and fair, but is it optimal?
- At the territory of Ljubljana there were 7 different states in last 100 years!
- Political boundaries seem to be the shortest living factor influencing site selection



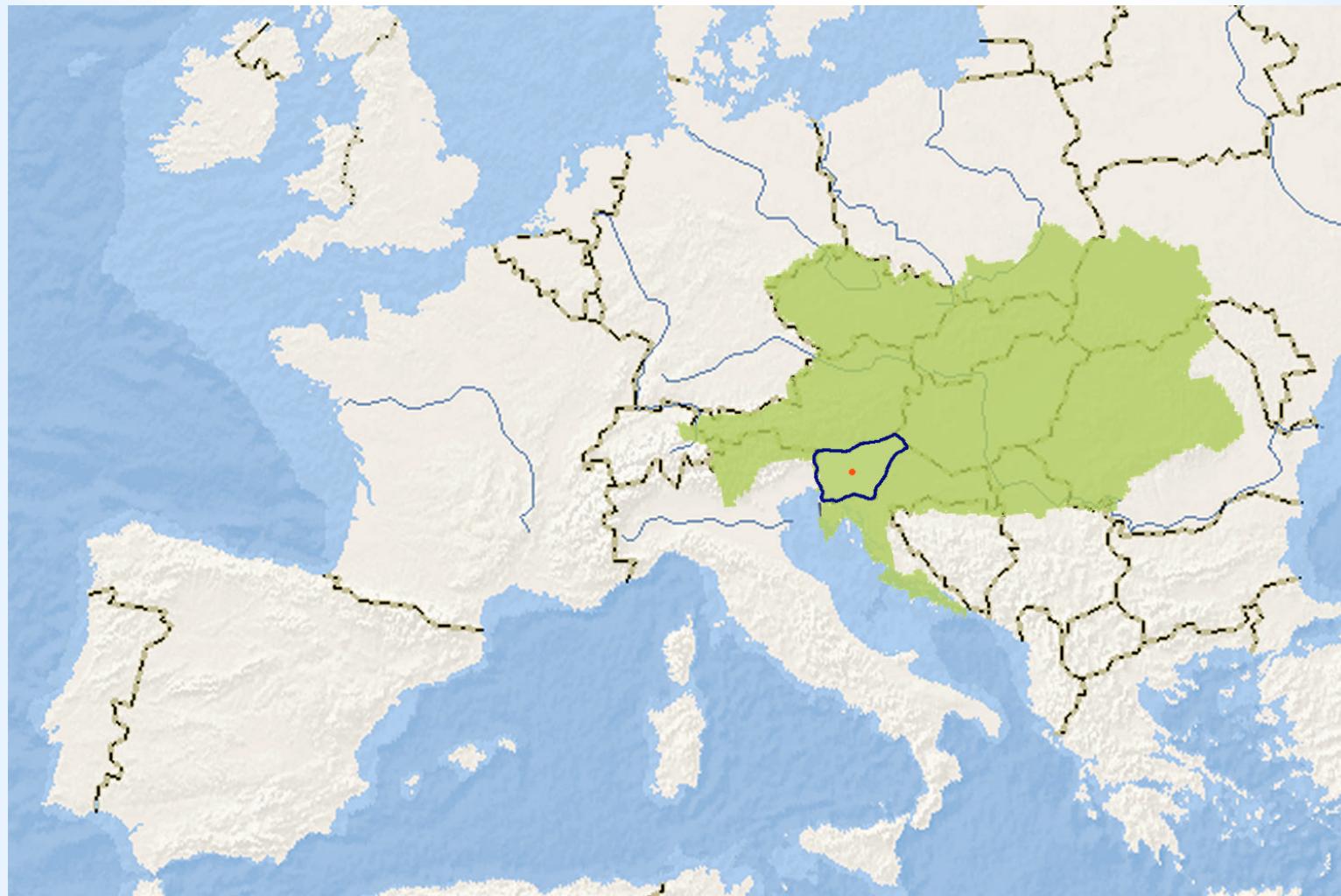
Ljubljana in Slovenia



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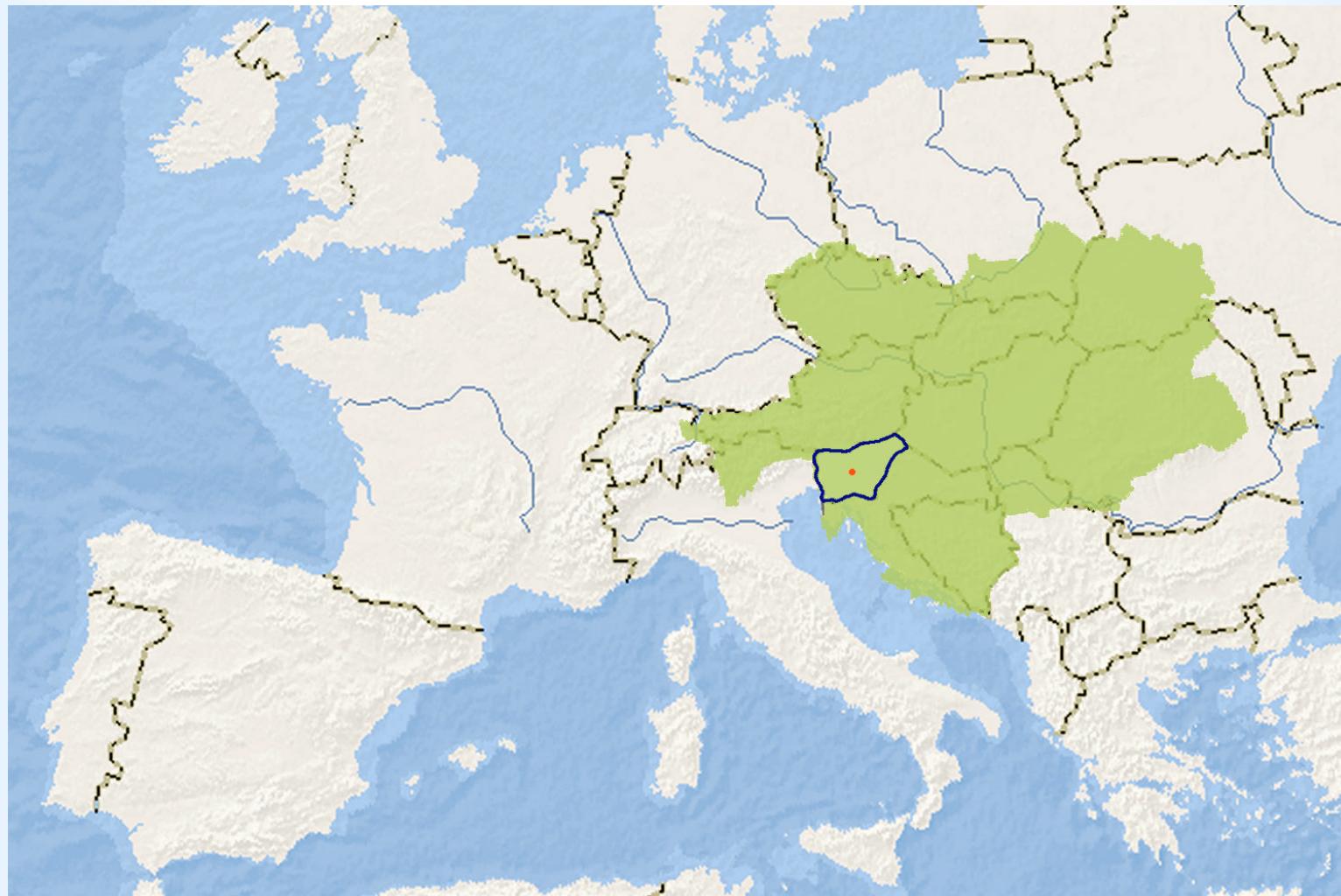
1900 – Austro-Hungarian Empire



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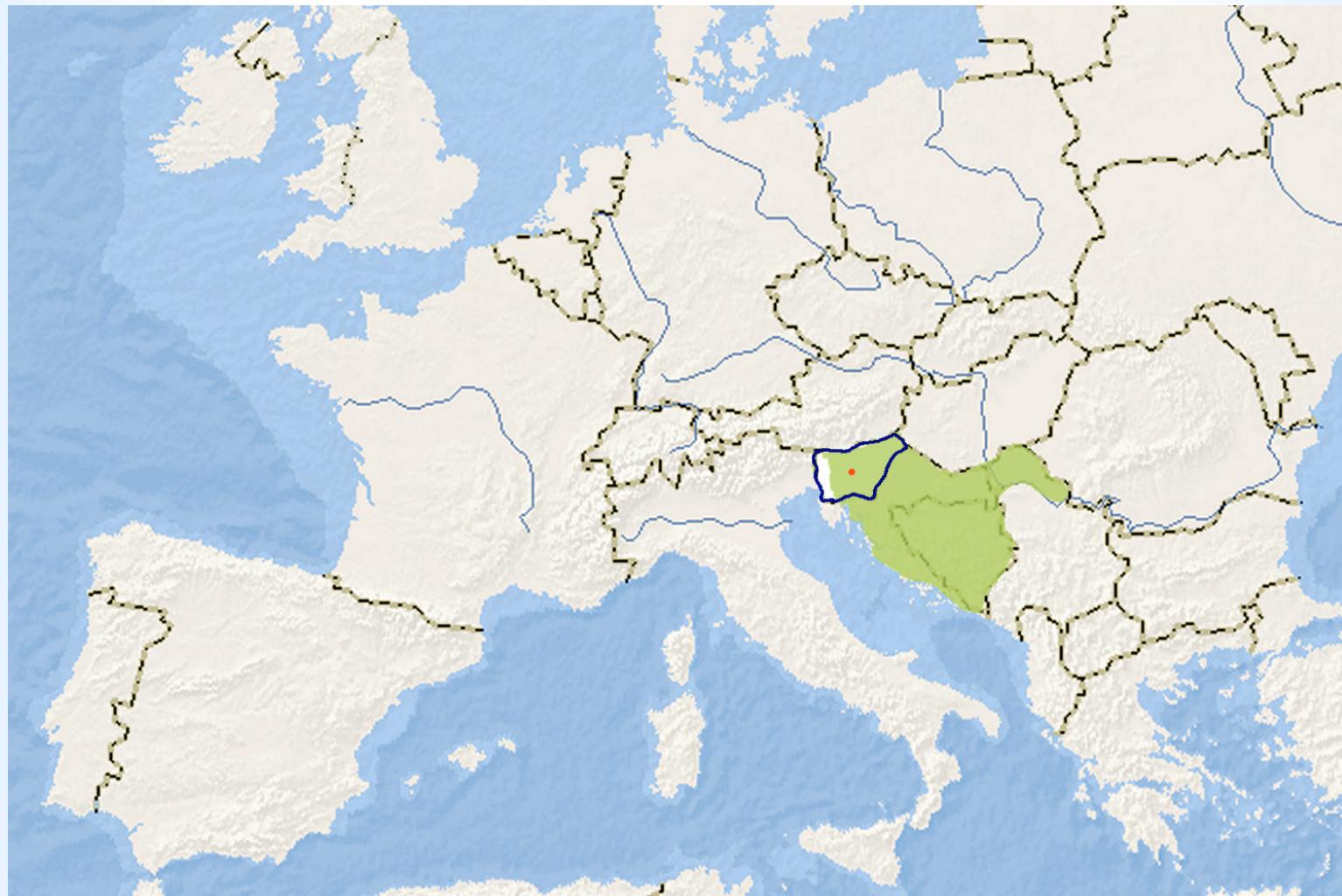
1914 – Austro-Hungarian Empire



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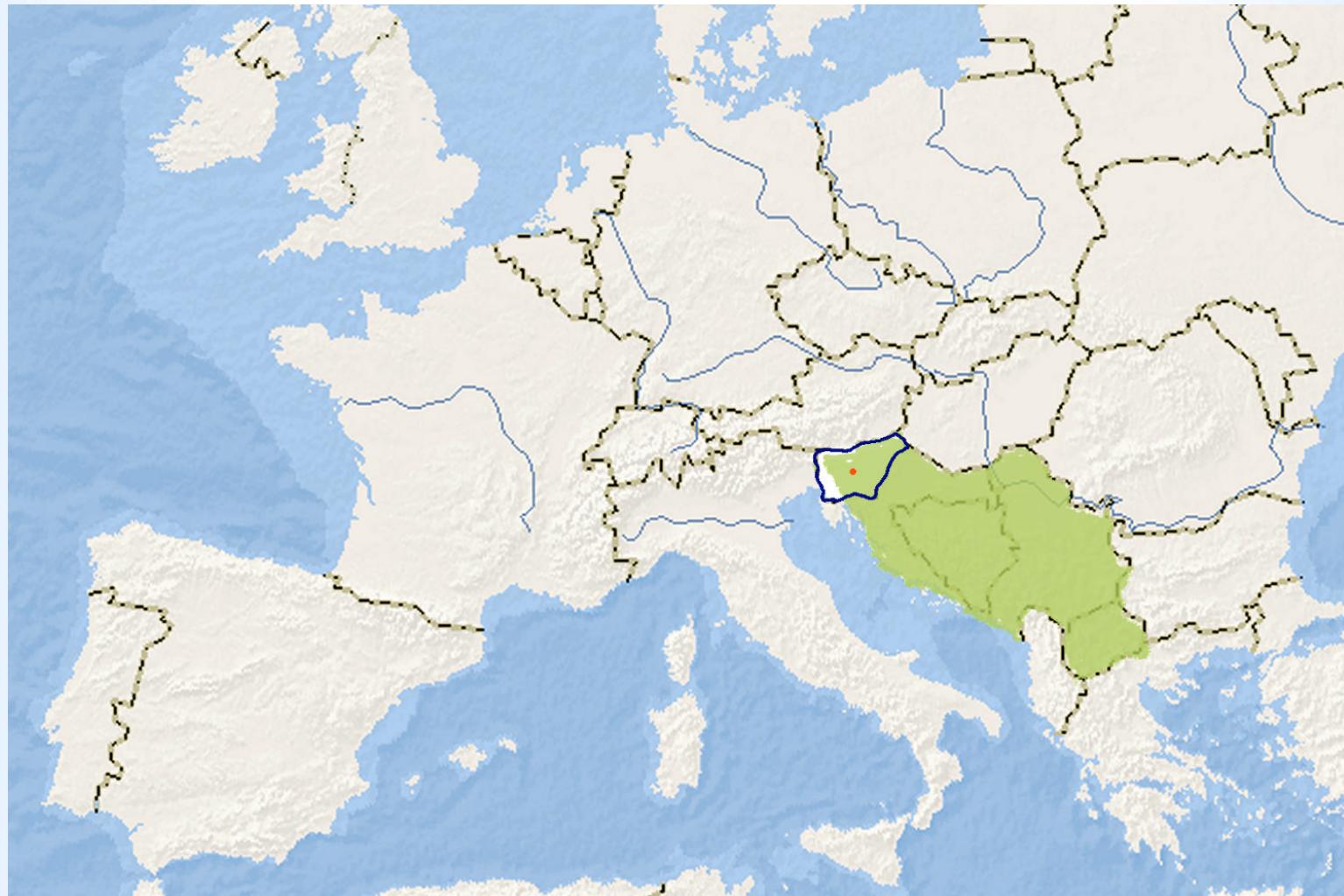
1918 – Slovenia, Croatia, Serbia



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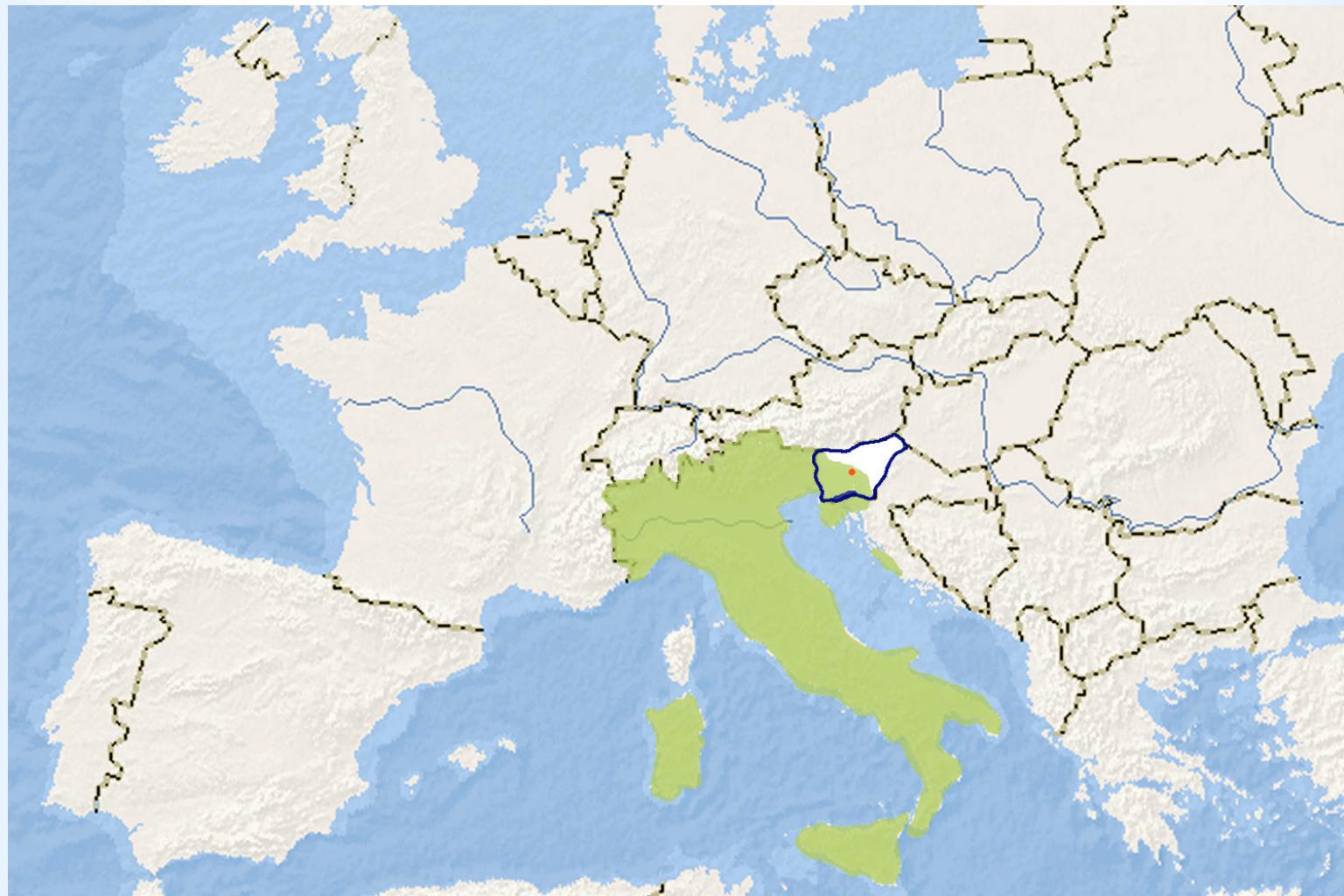
Before 1940 – first Yugoslavia



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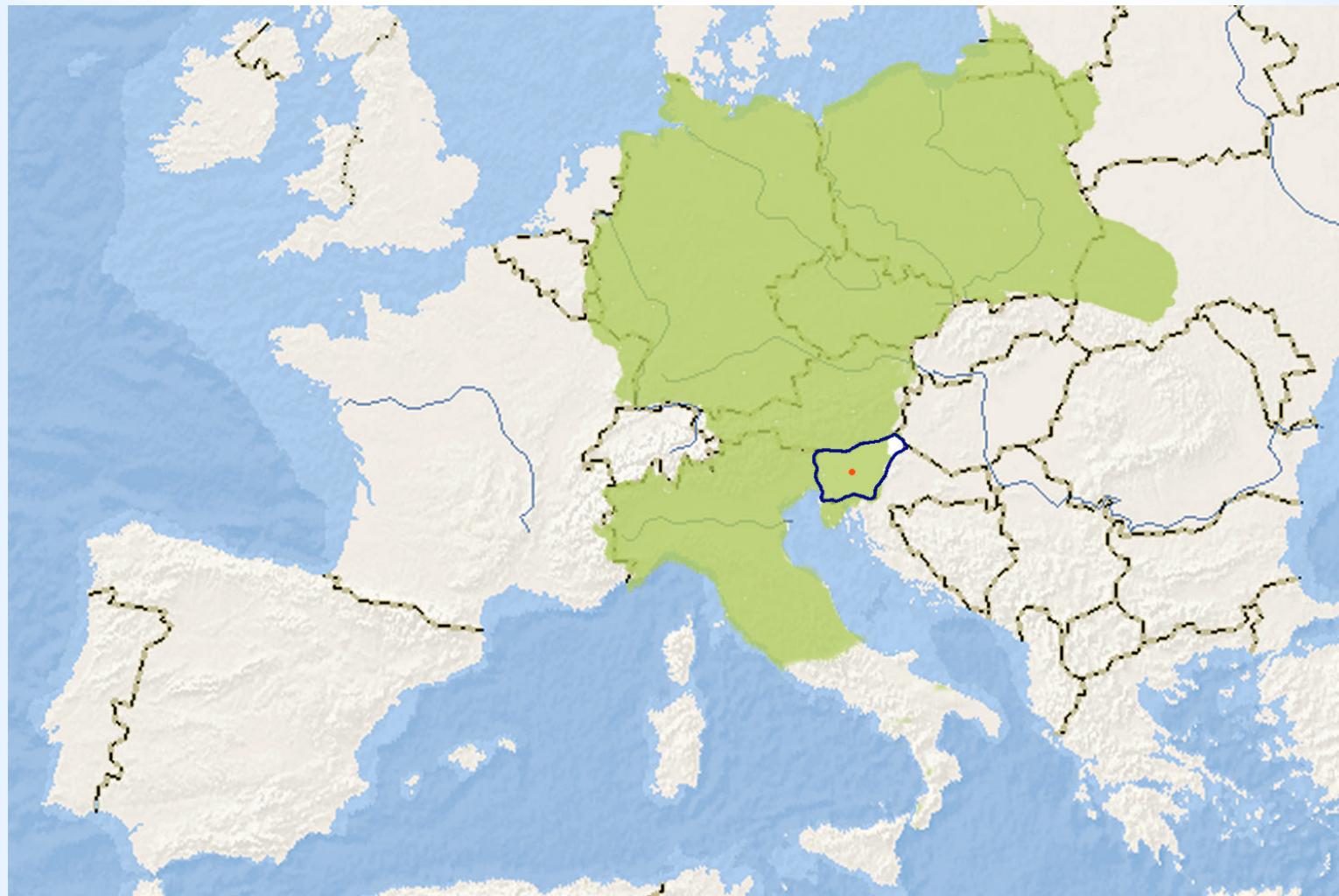
1941-43 Occupation by Italy



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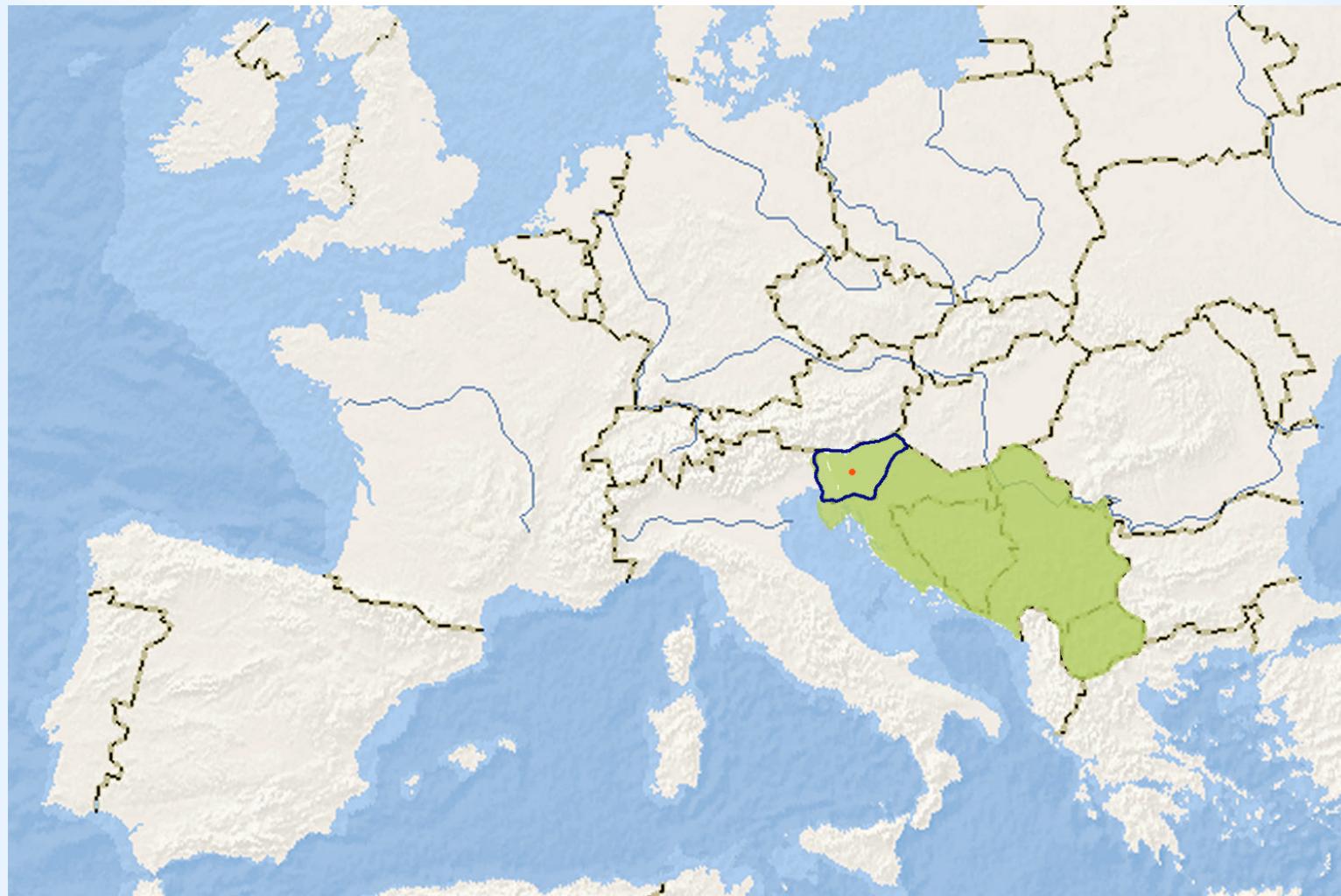
1943-45 Occupation by III Reich



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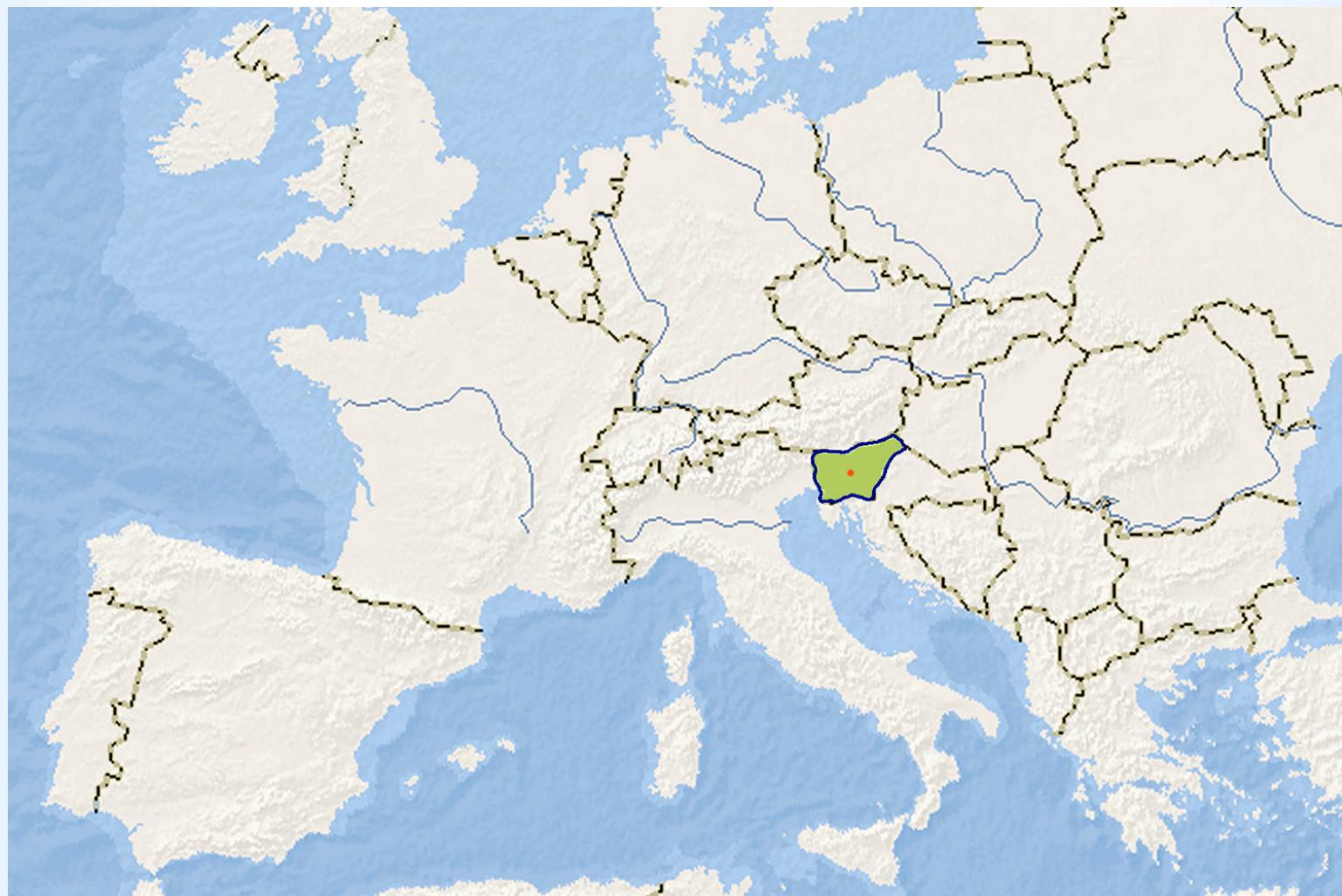
1945-1991 Yugoslavia



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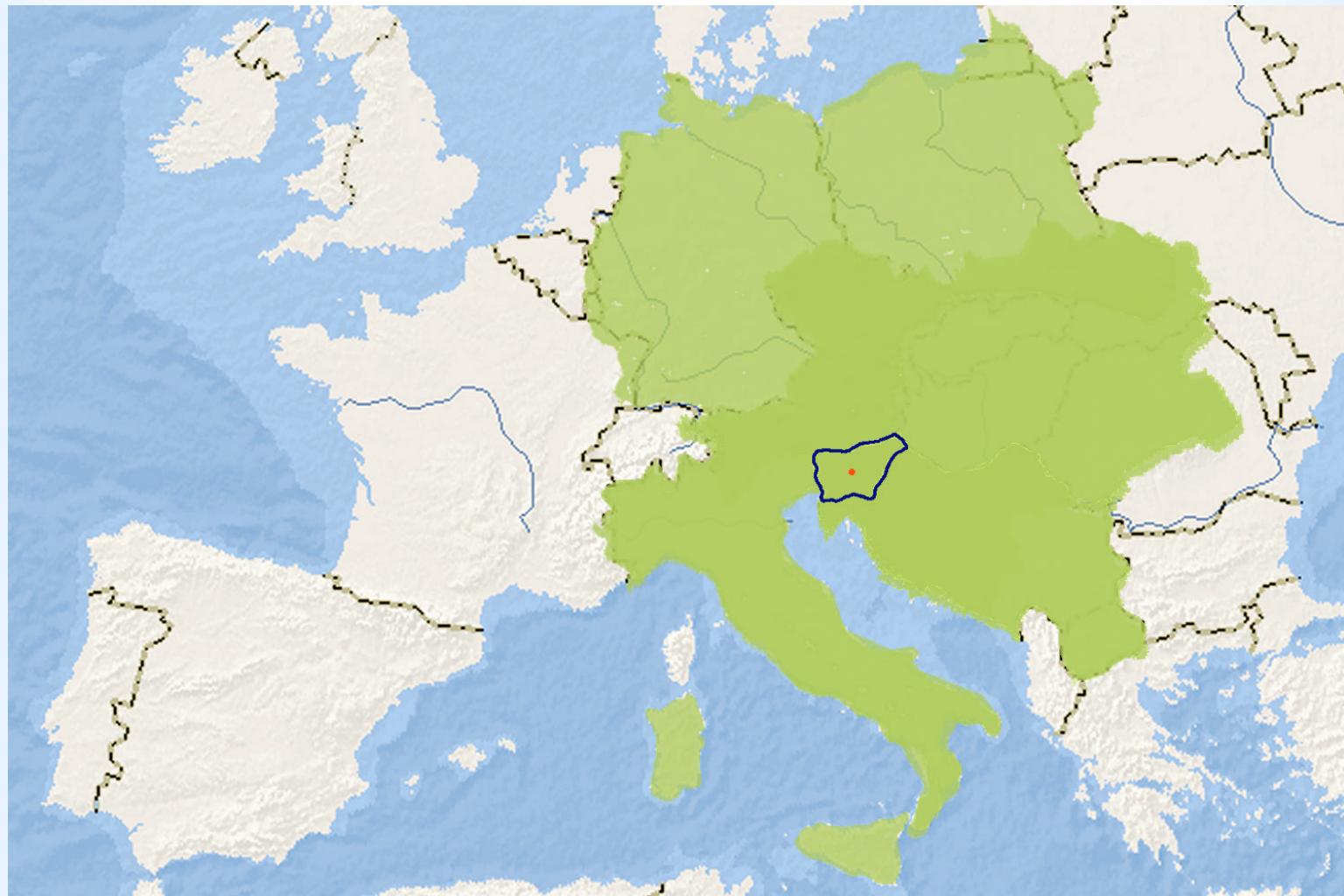
1991 -> Slovenia



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In the last century ...



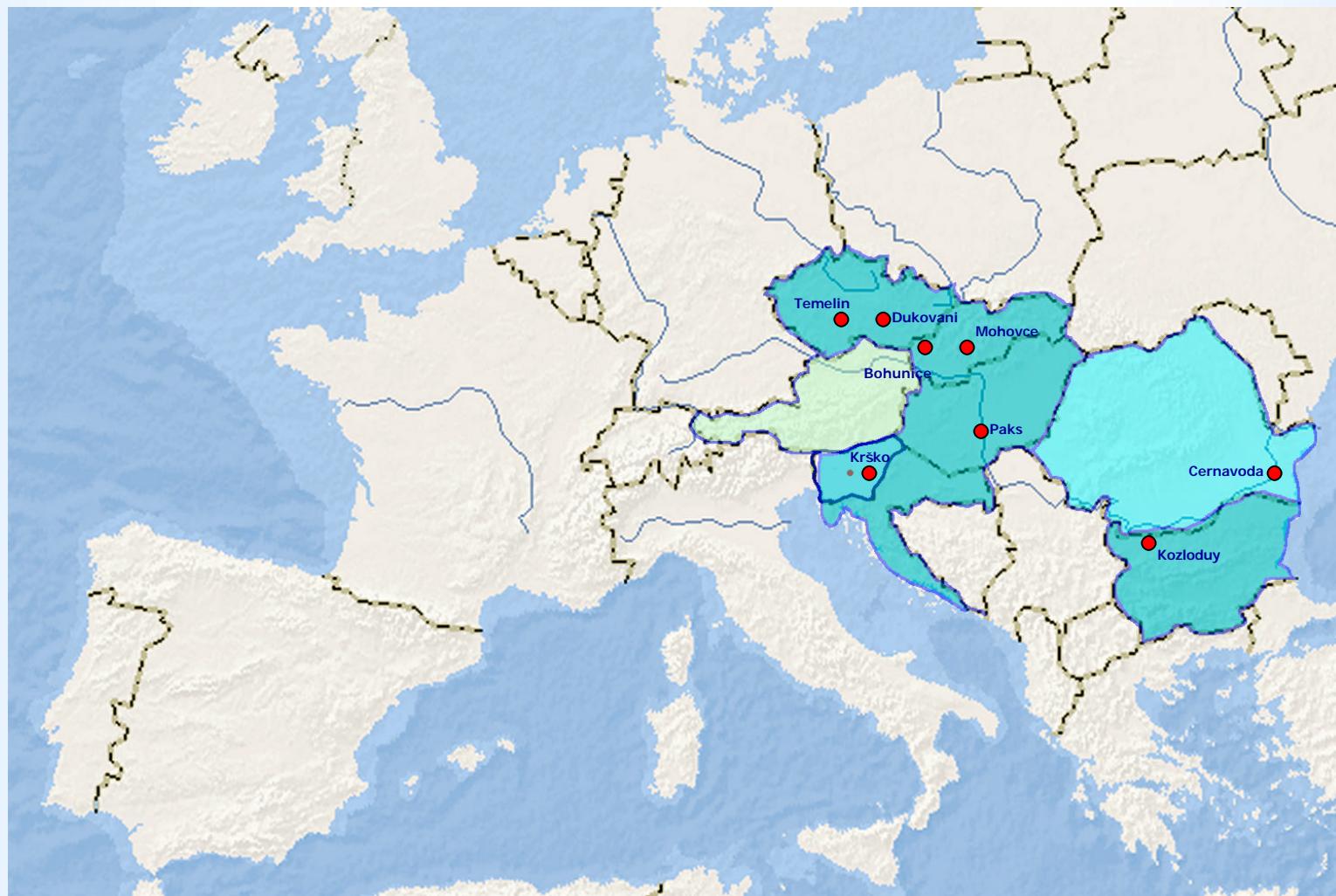
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The size of the common regional problem



Theoretical region



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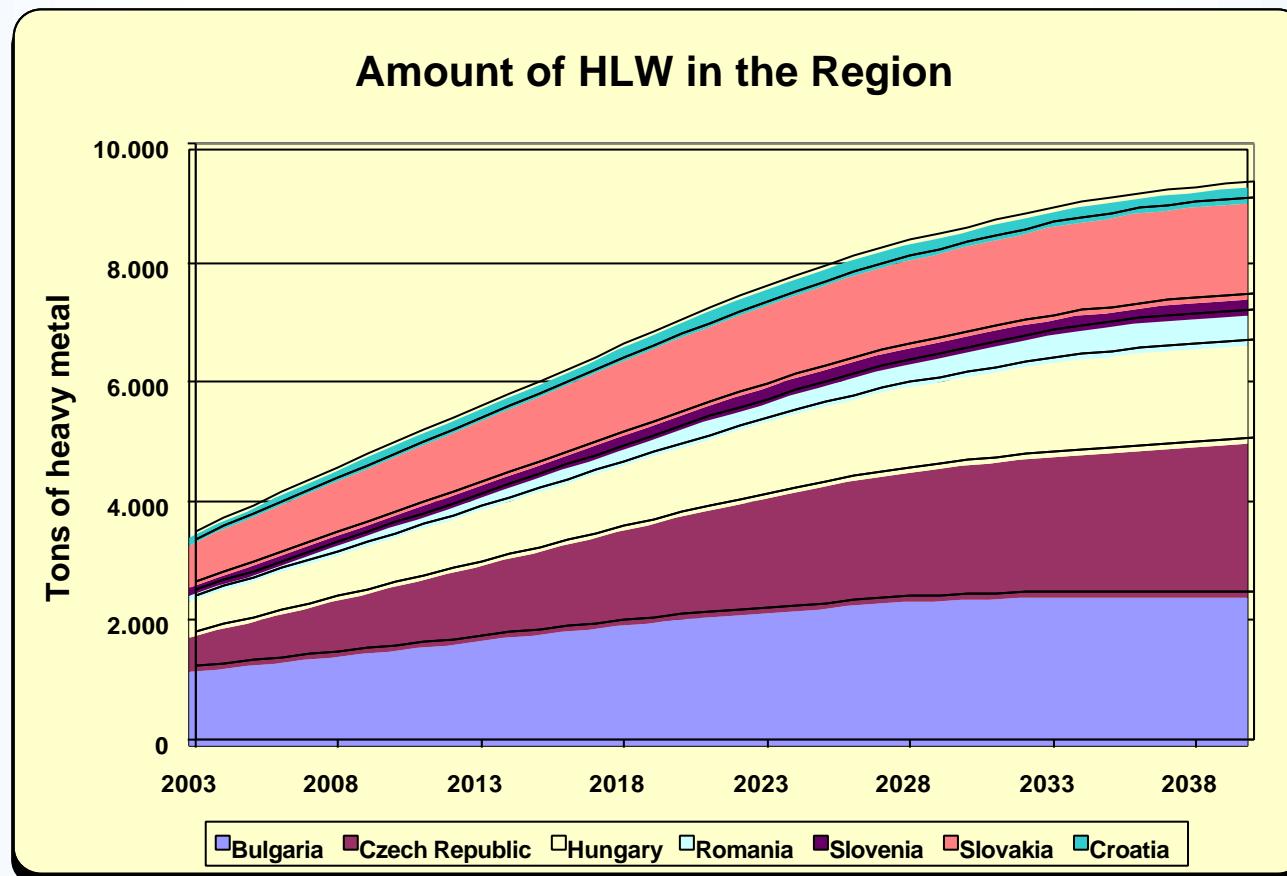


Estimate of HLW quantities

- Simple model based on amounts in NPP Krško:
 - 20 years
 - 86 TWh produced
 - 260 t of heavy metal accumulated
 - assuming 72% efficiency, 40 year life time
 - not taking into account the burn-up
 - **~0,019 ton/year/MW**
- Just for preliminary discussions
- Needs to be **thoroughly** elaborated!



Amount of HLW in the Region



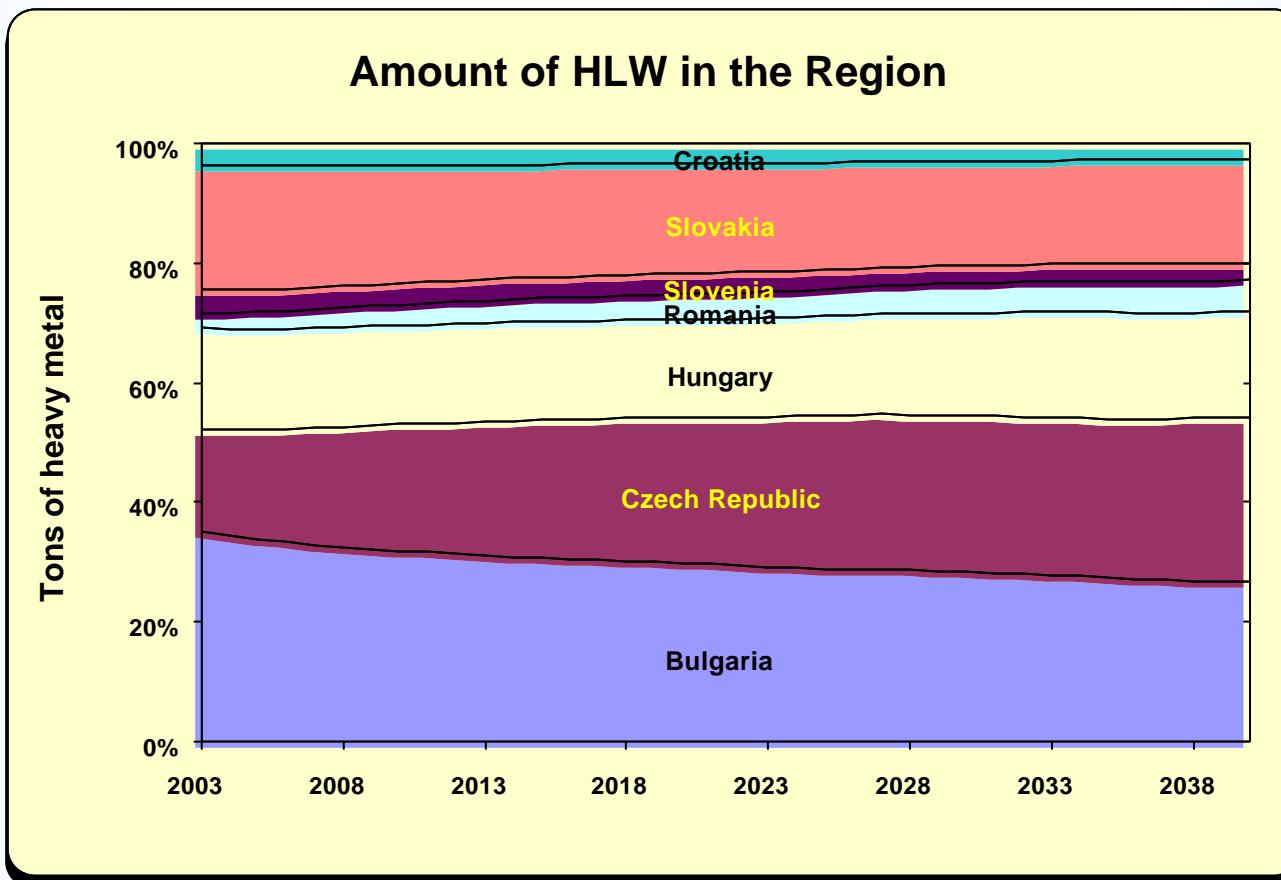


Amount of heavy metal (tonnes)

	2003	2040
Bulgaria	1.229	2.489
Czech Republic	594	2.593
Hungary	596	1.640
Romania	87	492
Slovenia	134	256
Croatia	134	256
Slovakia	725	1.629
TOTAL Region:	3.500	9.355



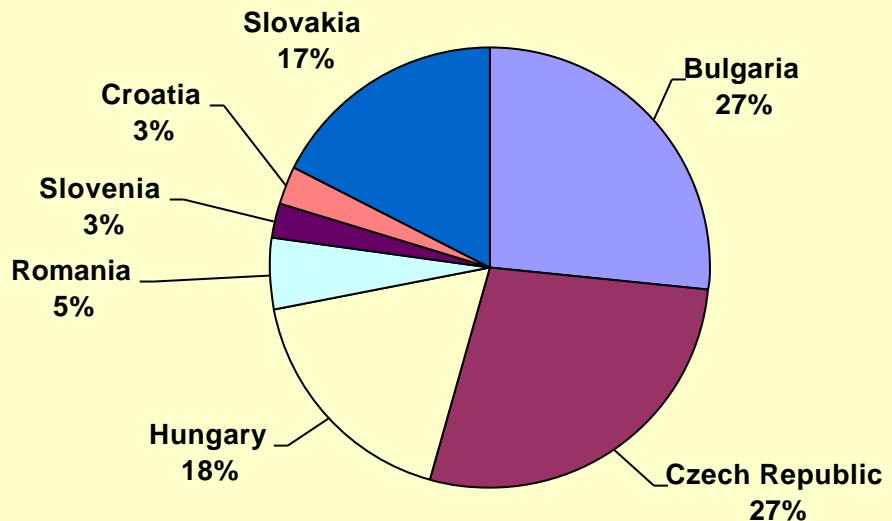
Percentages





Percentages in 2040

Amounts of HLW in 2040





What are we talking about?

Cost of the disposal: 1000 – 2000 EUR/kg

which means

9 – 20 billions Euro
for the whole region



Basic problem

Public Acceptance



Why would anybody take it?

To solve his own problem

and to get

Revenue



How should we continue



Basic rule

Each country joining the “club” should assure at the very beginning:

**YES,
WE WOULD BE WILLING TO HOST THE
REGIONAL HLW REPOSITORY!**



Way to the repository

Definition of the problem

Possible solutions

Cabinet site studies

Several sites selected

Field investigations

Final bidding

Site selection

Detailed site investigation

Licensing

... or something like that!

Operating repository



Who should do it?

- Commercially driven enterprise
- International enterprise should be created or hired
- Under the strict control of investors
- Investors
 - Whoever is in charge in individual countries
 - In Slovenia: The State through the Agency for Radwaste Management



Can it be done?

That it not the right question?

Something must be done!

Regional HLW Repository is the most
rational solution