



DIPUTACIÓN DE ALMERÍA

OVERVIEW OF NATURAL RADIOACTIVITY ISSUES IN DRINKING WATER IN SPAIN



LIFE ALCHEMIA training seminar

3 - 4 March, 2020. Viimsi, Estonia



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First part:

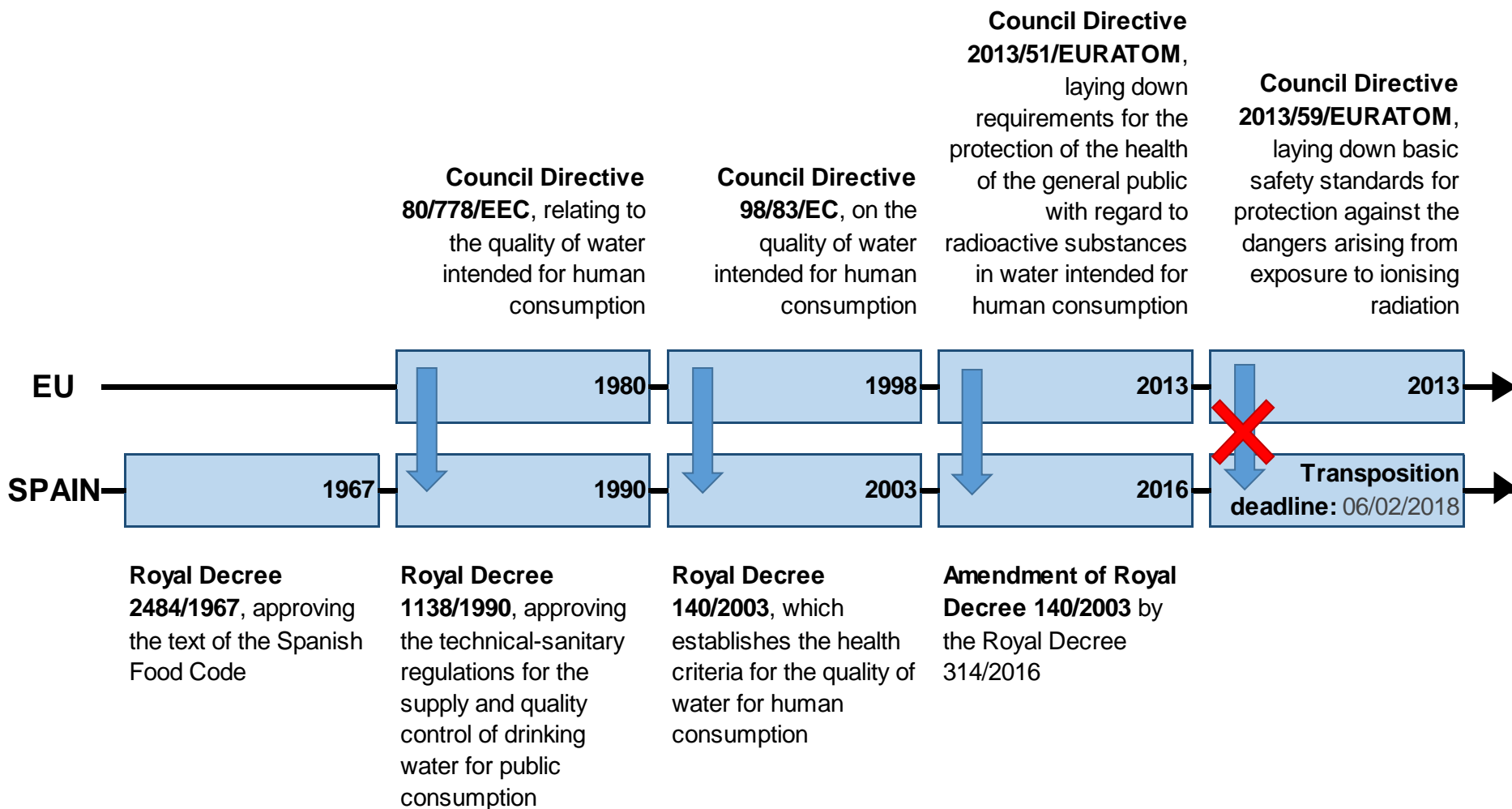
- Fast trip through the Spanish and European legislation
- Analysis of the main radioactivity parameter

Second part:

- Natural radioactivity in Almería
- Problems based on our experience



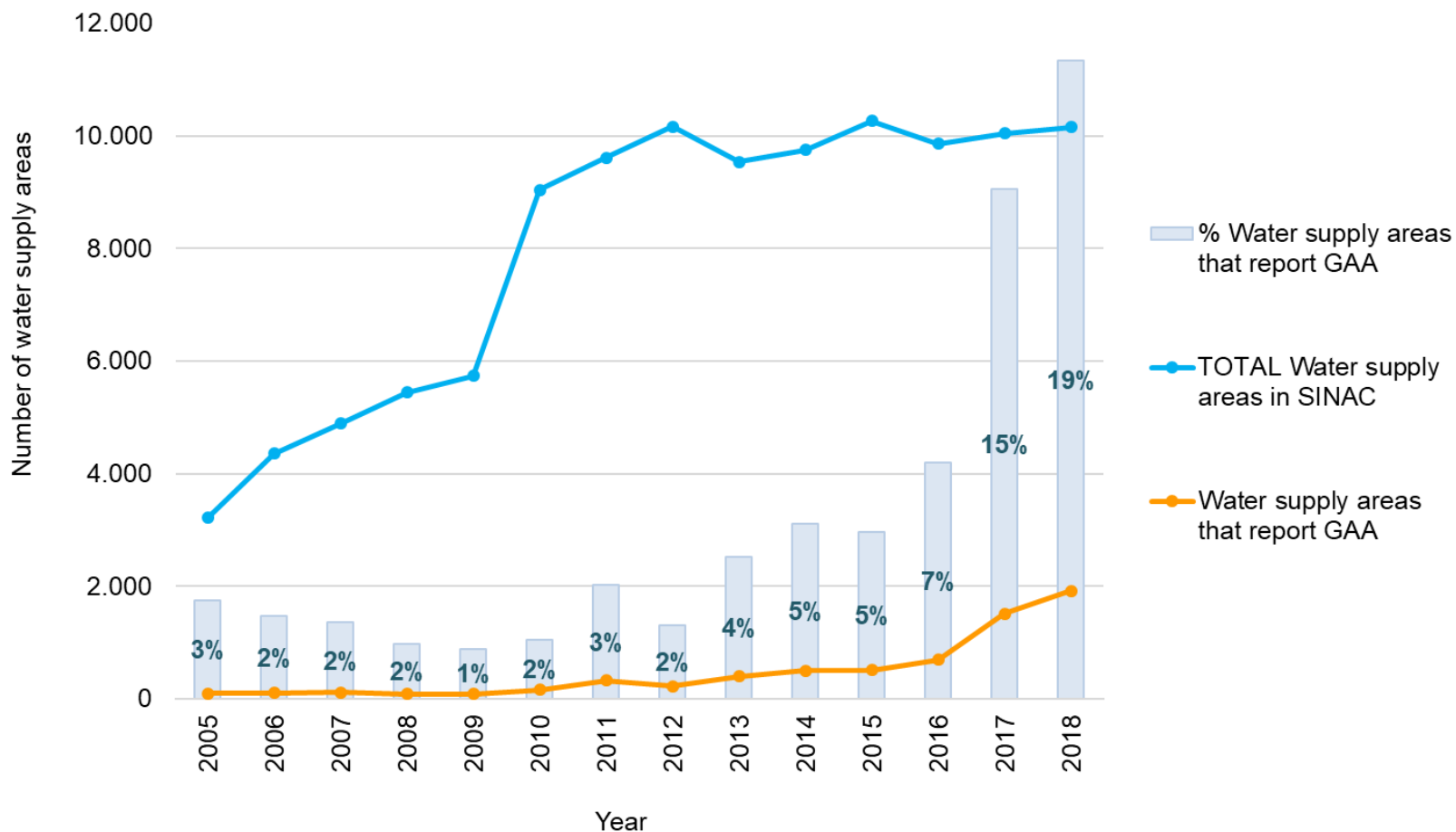
Evolution of legislation in terms of radioactivity





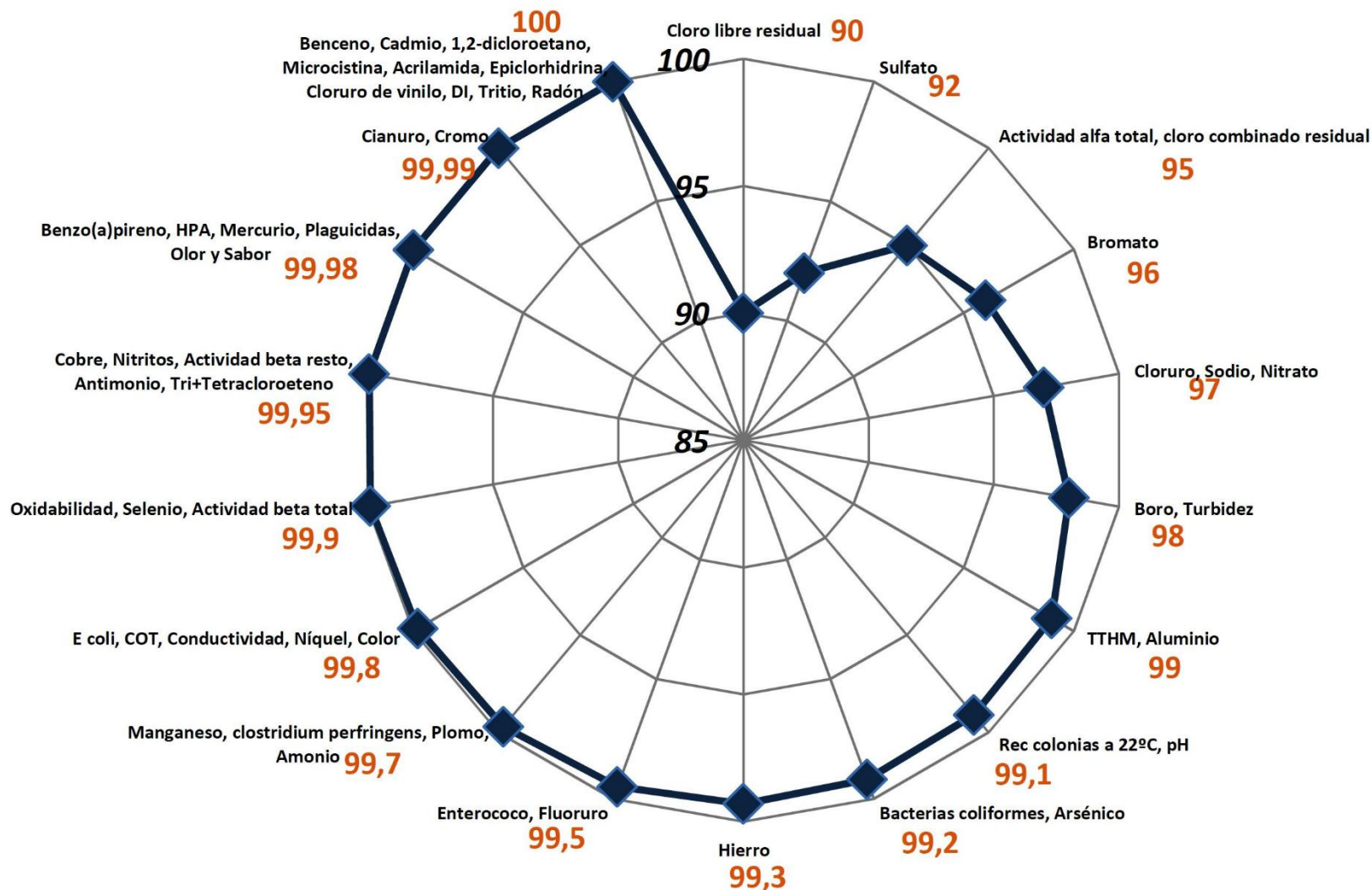
Radioactivity in Spain

Evolution of the water supply areas reporting GAA in Spain





Parameter compliance in 2018



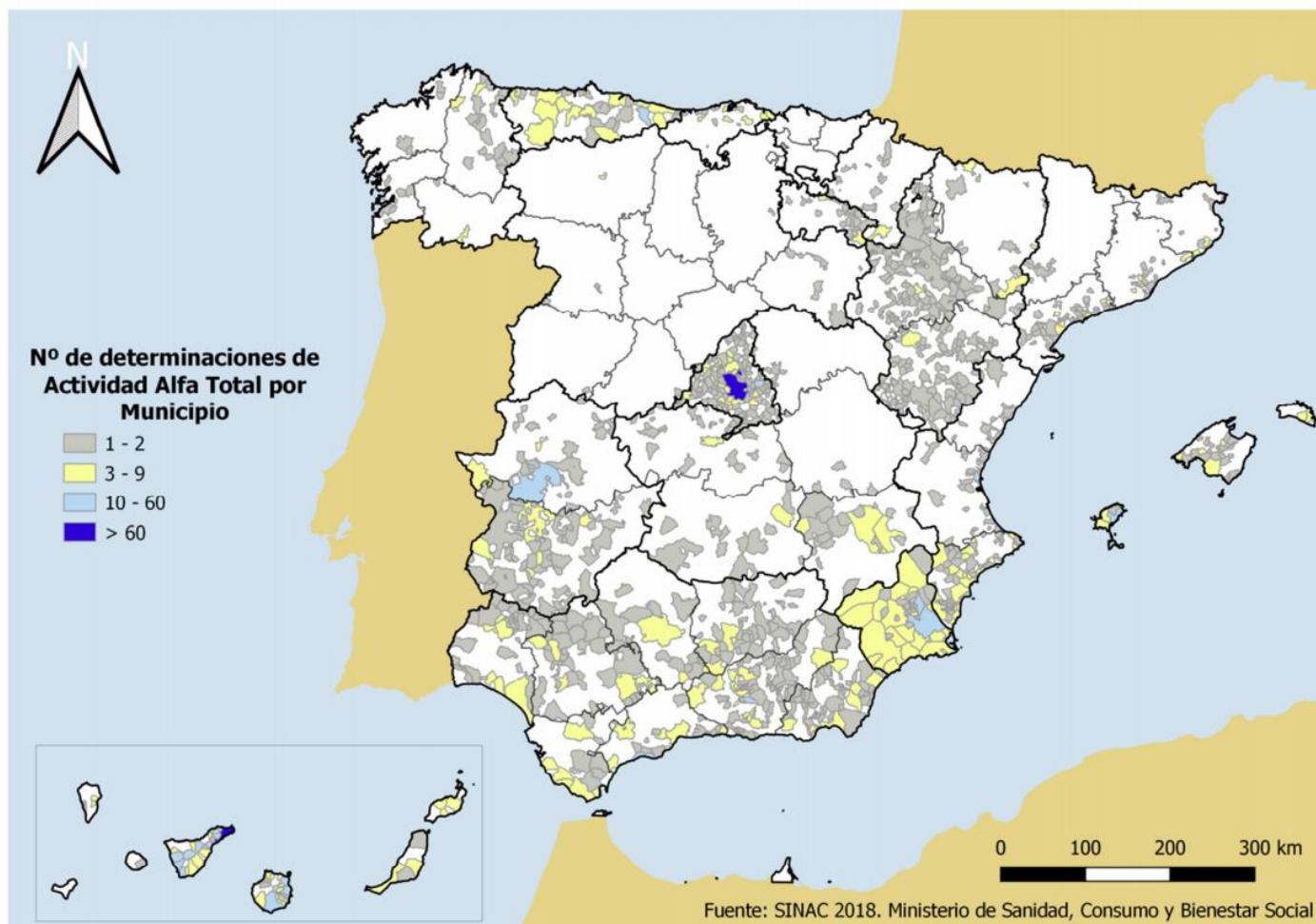


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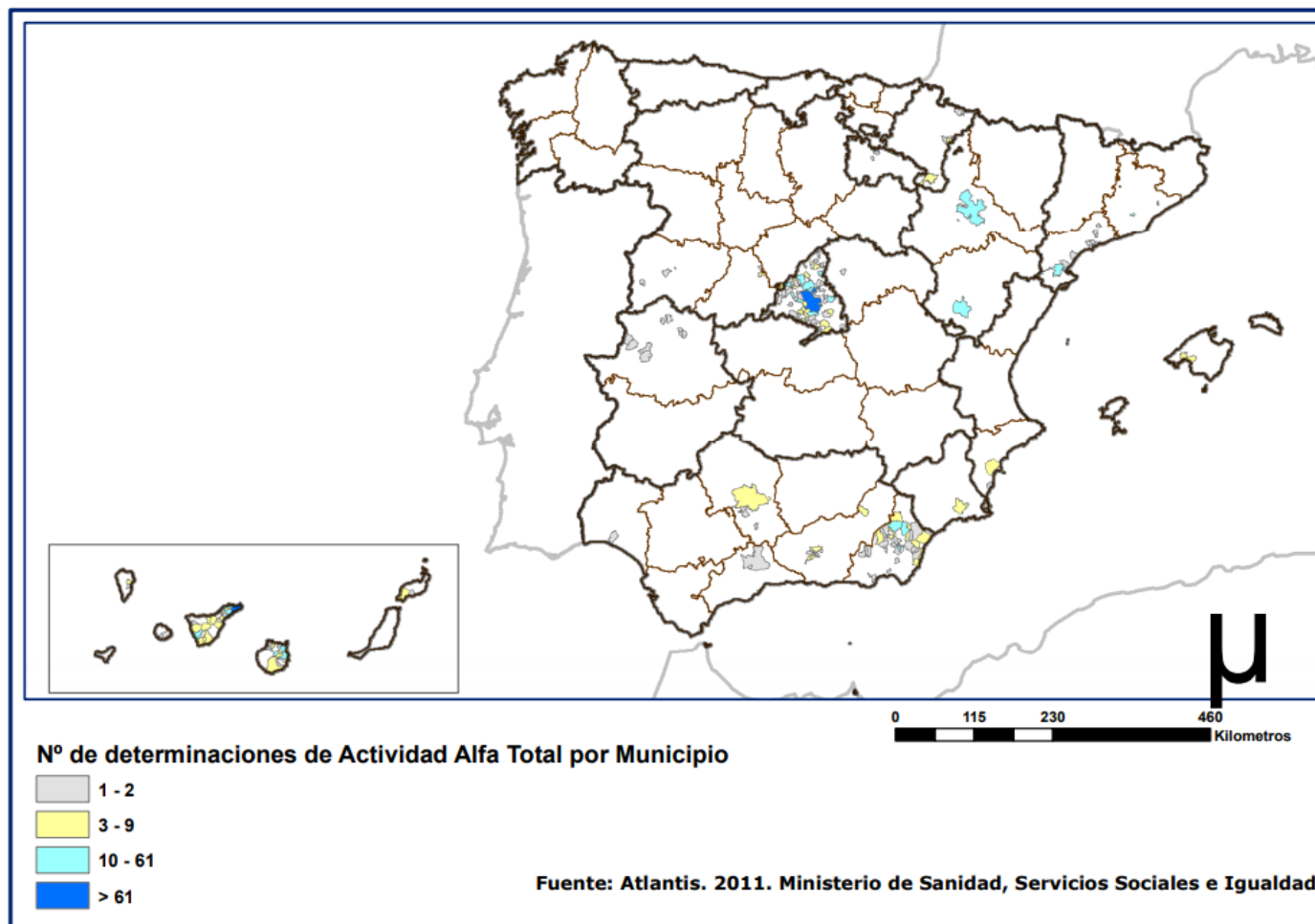
LIFE ALCHEMIA - LIFE16
ENV/ES/000437. With the support of
the EU's LIFE Programme.

Number of analysis of gross alpha activity per municipality (2018)






Number of analysis of gross alpha activity per municipality (2011)



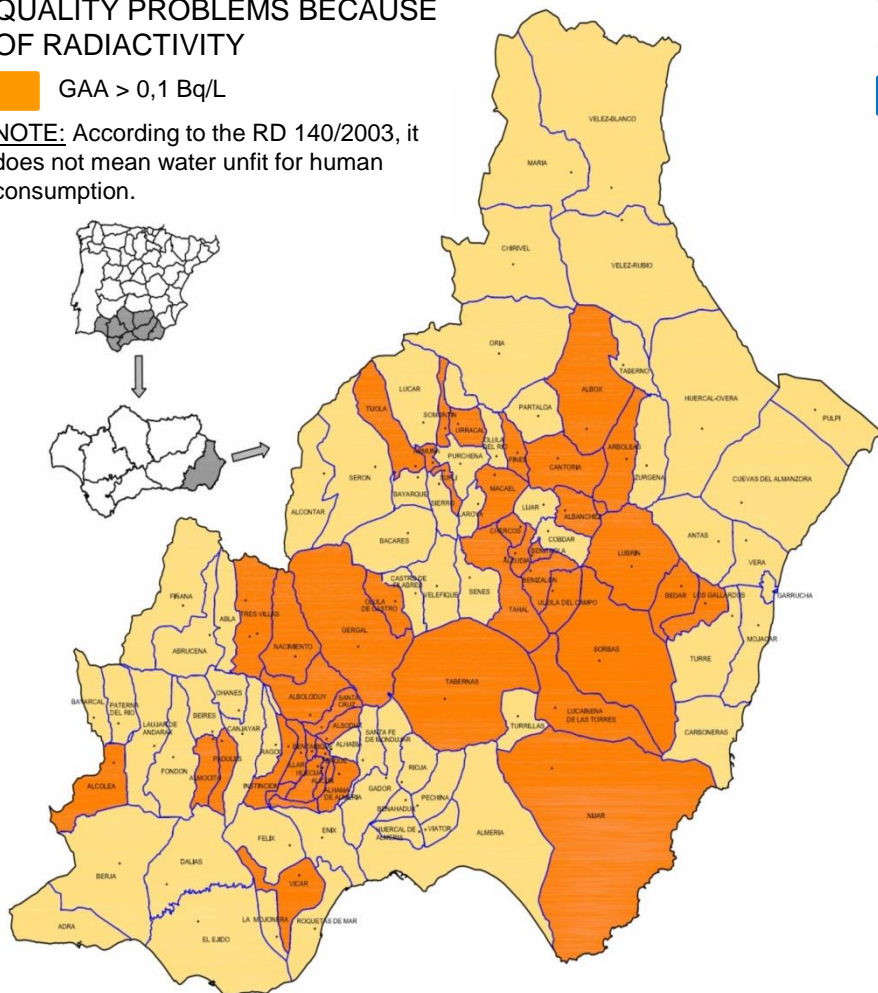


What have we done since 2003?


QUALITY PROBLEMS BECAUSE OF RADIOACTIVITY

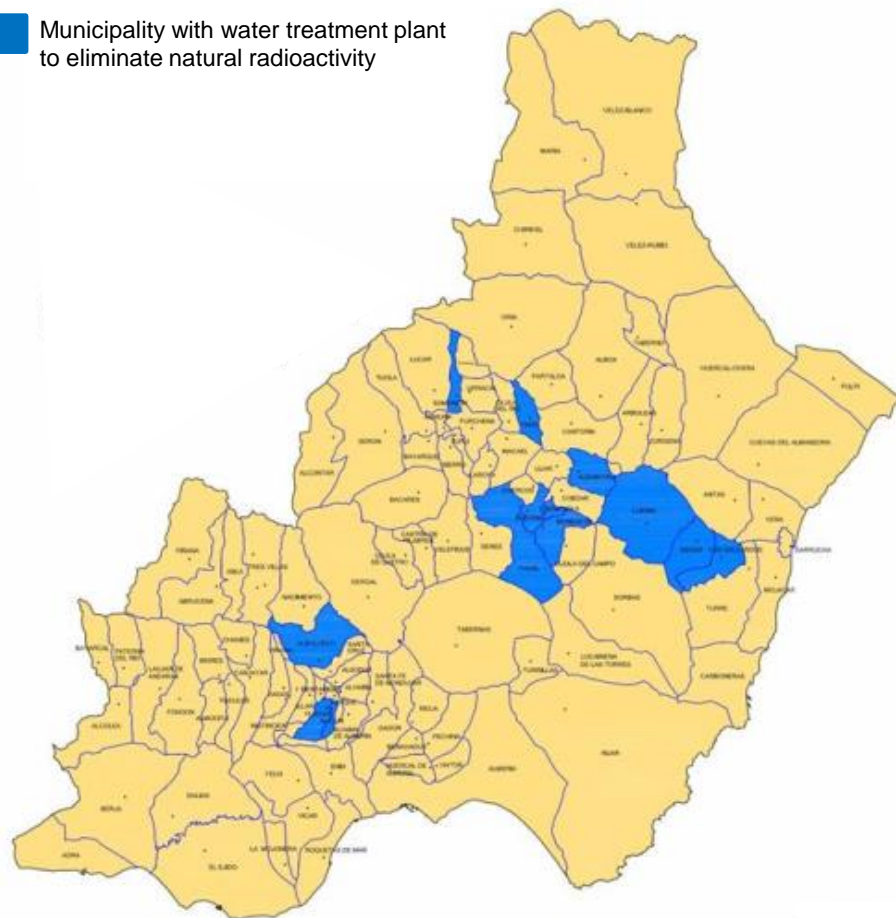
 GAA > 0,1 Bq/L

NOTE: According to the RD 140/2003, it
does not mean water unfit for human
consumption.



WATER TREATMENT PLANTS SITUATION

 Municipality with water treatment plant
to eliminate natural radioactivity





Need to eliminate radioactivity

Past



Present



Advanced filtration system using reverse
osmosis plants
(sand filter + microfiltration + R.O)



Problems based on our experience:

- High consumption of water resources
- Technology of elimination: not specific
- Complex management of rejection
- High costs of exploitation
- Shelf life of installed equipments and substitution of membranes and filters
- Difficulties of exploitation



- Need to optimize the consumption of water resources



1,5 – 1,8 L

are required to produce

1 L



Problems based on our experience:

- High consumption of water resources
- Technology of elimination: not specific
- Complex management of rejection
- High costs of exploitation
- Shelf life of installed equipments and substitution of membranes and filters
- Difficulties of exploitation



- Recommendable to reduce the rejection

DWTP	REJECTION
Benizalón	34%
Alicún	39%
Alcudia de M.	38%
Huécija	40%
Alboloduy	42%

The reduction of rejects will mean the reduction of operating and investment costs



Problems based on our experience:

- High consumption of water resources
- Technology of elimination: not specific
- Complex management of rejection
- High costs of exploitation
- Shelf life of installed equipments and substitution of membranes and filters
- Difficulties of exploitation



- Need to reduce costs of water purification

Past cost



0,13 €/m³



Present cost



0,65 €/m³



Problems based on our experience:

- High consumption of water resources
- Technology of elimination: not specific
- Complex management of rejection
- High costs of exploitation
- Shelf life of installed equipments and substitution of membranes and filters
- Difficulties of exploitation



- Substitution of consumables and difficult exploitation





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DE ALMERÍA

[CENTRO
TECNOLÓGICO] **CARTIF**



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VIIMSI



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European Project Life+

Presupuesto total: 1.523.450 €

Contribución europea: 803.960 €

Duración del proyecto: 02/10/2017 - 31/12/2020





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THANK YOU FOR YOUR ATTENTION



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European Project Life+
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Presupuesto total: 1.233.450 €

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