Lessons in River Management from the European Union - Governance and legislative frame

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RNRF Congress on the Mississippi
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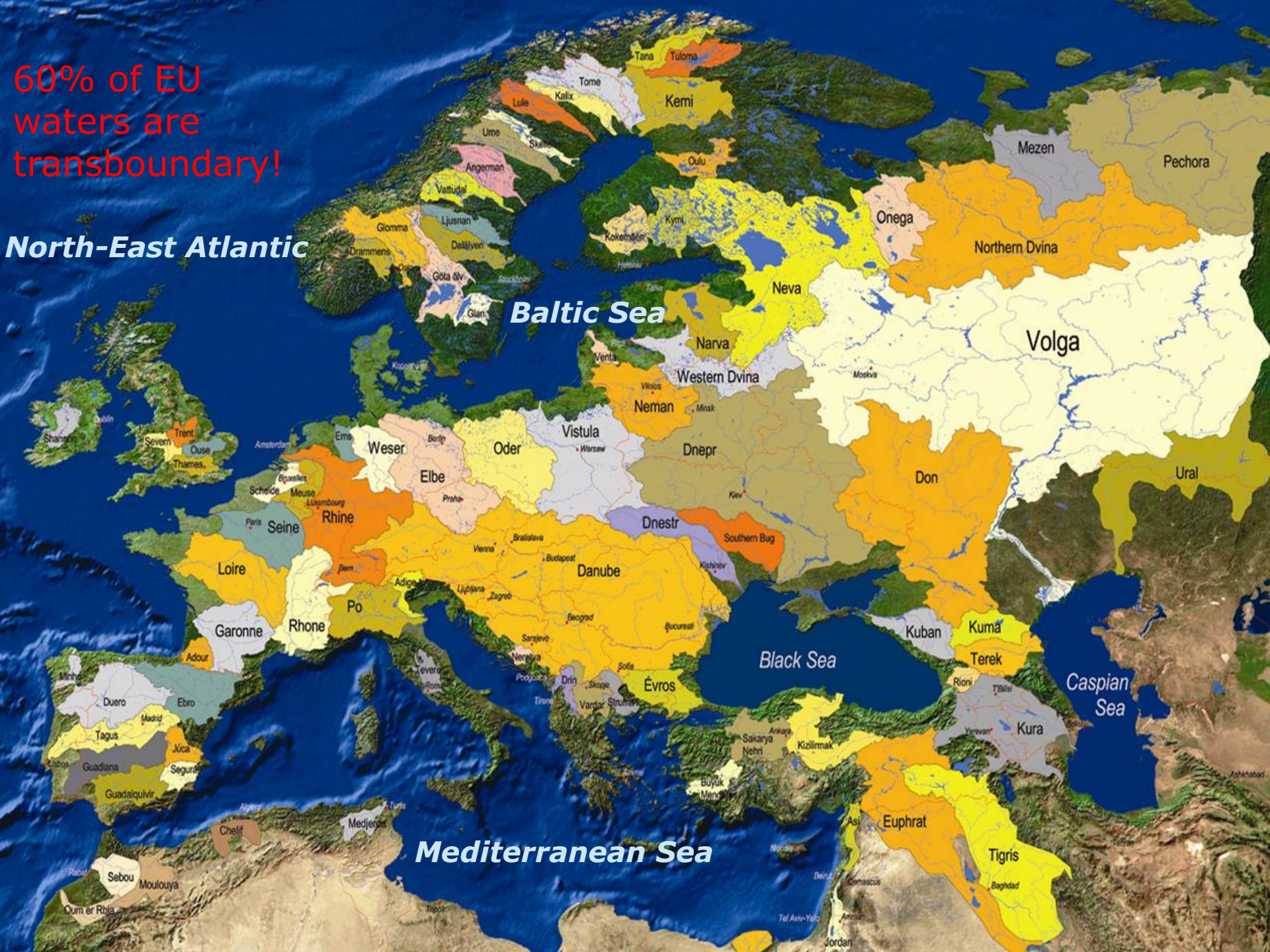
This is about:

- Overview of European rivers, challenges and governance system
- Main policy and legislative tools for river (water) management
- Benefits of an EU wide approach and implementation, vs. fragmentation
- Where we need to improve


60% of EU waters are transboundary!
North-East Atlantic
Baltic Sea
Mediterranean Sea
Black Sea
Caspian Sea
Tana
Tuloma
Torne
Kalix
Lule
Kemi
Ume
Angerman
Vattudal
Oulu
Mezen
Pechora
Onega
Northern Dvina
Glomma
Ljusnan
Dalälven
Kymi
Kokemäen
Drammens
Göta älv
Glan
Neva
Narva
Volga
Venta
Western Dvina
Moskva
Neman
Minsk
Vistula
Weser
Oder
Elbe
Dnepr
Don
Ural
Ems
Berlin
Warsaw
Praha
Kiev
Shannon
Severn
Trent
Ouse
Thames
Amsterdam
Bruxelles
Scheide
Meuse
Luxembourg
Rhine
Paris
Seine
Dnestr
Southern Bug
Bratislava
Vienna
Budapest
Danube
Loire
Bern
Adige
Ljubljana
Zagreb
Po
Garonne
Rhone
Beograd
București
Kishinev
Kuban
Kuma
Terek
Adour
Sarajevo
Neretva
Sofia
Évros
Drin
Skopje
Vardar
Struma
Rioni
Tbilisi
Duero
Ebro
Madrid
Tagus
Júcar
Guadiana
Segura
Guadalquivir
Sakarya
Nehri
Ankara
Kizilirmak
Kura
Yerevan
Büyük Menderes
Asi
Euphrat
Tigris
Baghdad
Damascus
Amman
Jordan
Tel Aviv-Yafo
Chelif
Medjerda
Sebou
Moulouya
Oum er Rbia
Rabat
Algiers
Tunis
Tripoli
Ashkhabad

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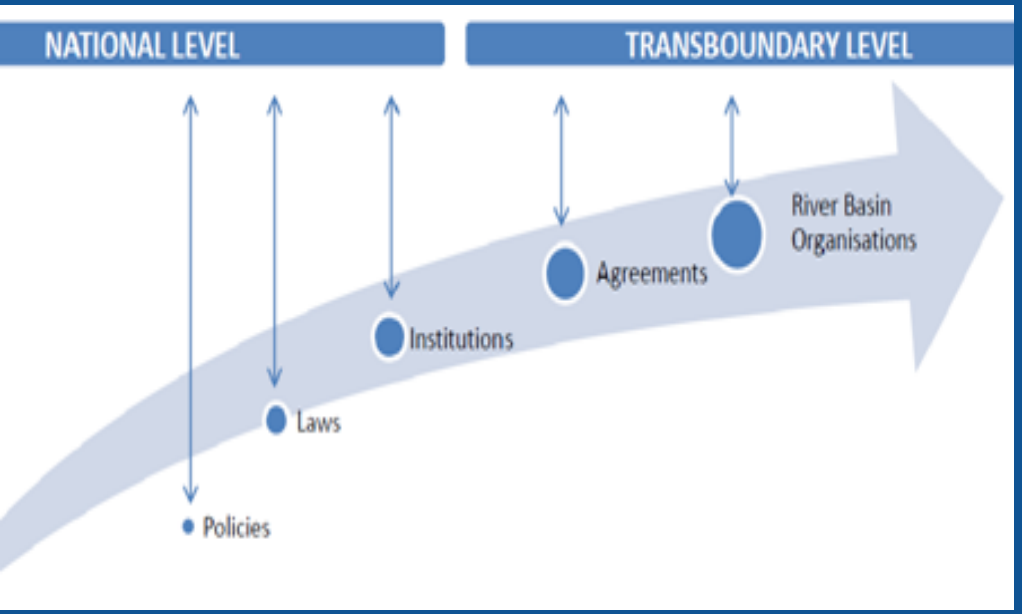
WATER GOVERNANCE

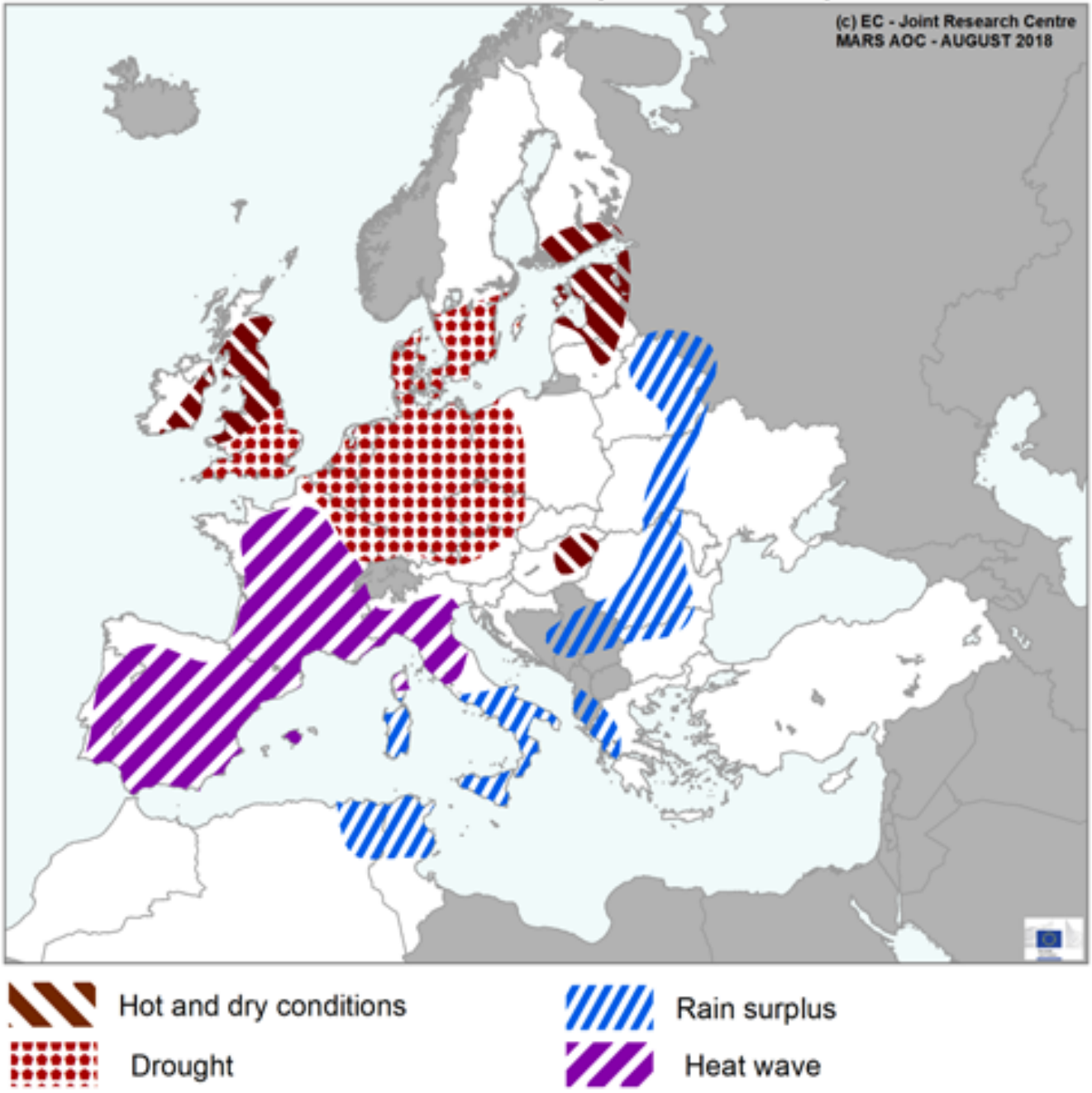


Source: IUCN

Source: NYT, 2019

AREAS OF CONCERN - EXTREME WEATHER EVENTS

Based on weather data from 1 July 2018 until 1 September 2018



Main pressures on water basins

- **Diffuse pollution**
  - Nitrates and pesticides from agricultural activities
- **Point-source pollution**
  - Untreated urban and industrial discharges
- **Hydromorphological alterations**
  - Physical alterations and structural changes
  - Energy production (hydropower), flood protection, inland navigation
- **Water over-abstraction**
  - Over-abstraction and over-use
  - Illegal abstraction

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EU and States:

share of powers and governance

Historical context – [1957- 2019]

- Public awareness of environmental issues in '60s/70s
  - Rachel Carson, Jacques Cousteau, Greenpeace
  - U.S. EPA - Clean Air Act, Clean Water Act, 1972
  - 1972 Stockholm Conference on the Human Environment – acid rain – UNEP
- Environment Action Plans (1973, 1976, 1983) – prevention, polluter pays, rectification at source, mainstreaming
- Major legislation '72-'86
  - Drinking water Directive; dangerous substances, Air – SO2, lead, NO2 (also lead in petrol), Noise, Waste – toxic waste, shipments, Emissions – vehicles, industrial, Birds Directive
  - Environmental impact assessment

Single European Act 1987 - 1989-1991 produced more legislation than previous 20 years!

- Water Framework Directive (2000), Floods Directive (2007)

Division of competences within the EU

The EU has competences conferred on it by the Treaties
Treaties are primary legislation, binding agreements between EU Member States

EXCLUSIVE COMPETENCES

- Trade
- Competition

SHARED COMPETENCES

- Agriculture
- Environment

SUPPORTING COMPETENCES

- Tourism
- Education

Exercise of EU competences, two fundamental principles

Proportionality: *may not go beyond what is necessary to achieve the objectives of the Treaties*

Subsidiarity: *EU may act only if the objective cannot be sufficiently achieved by the EU MS, but could be better achieved at EU level*

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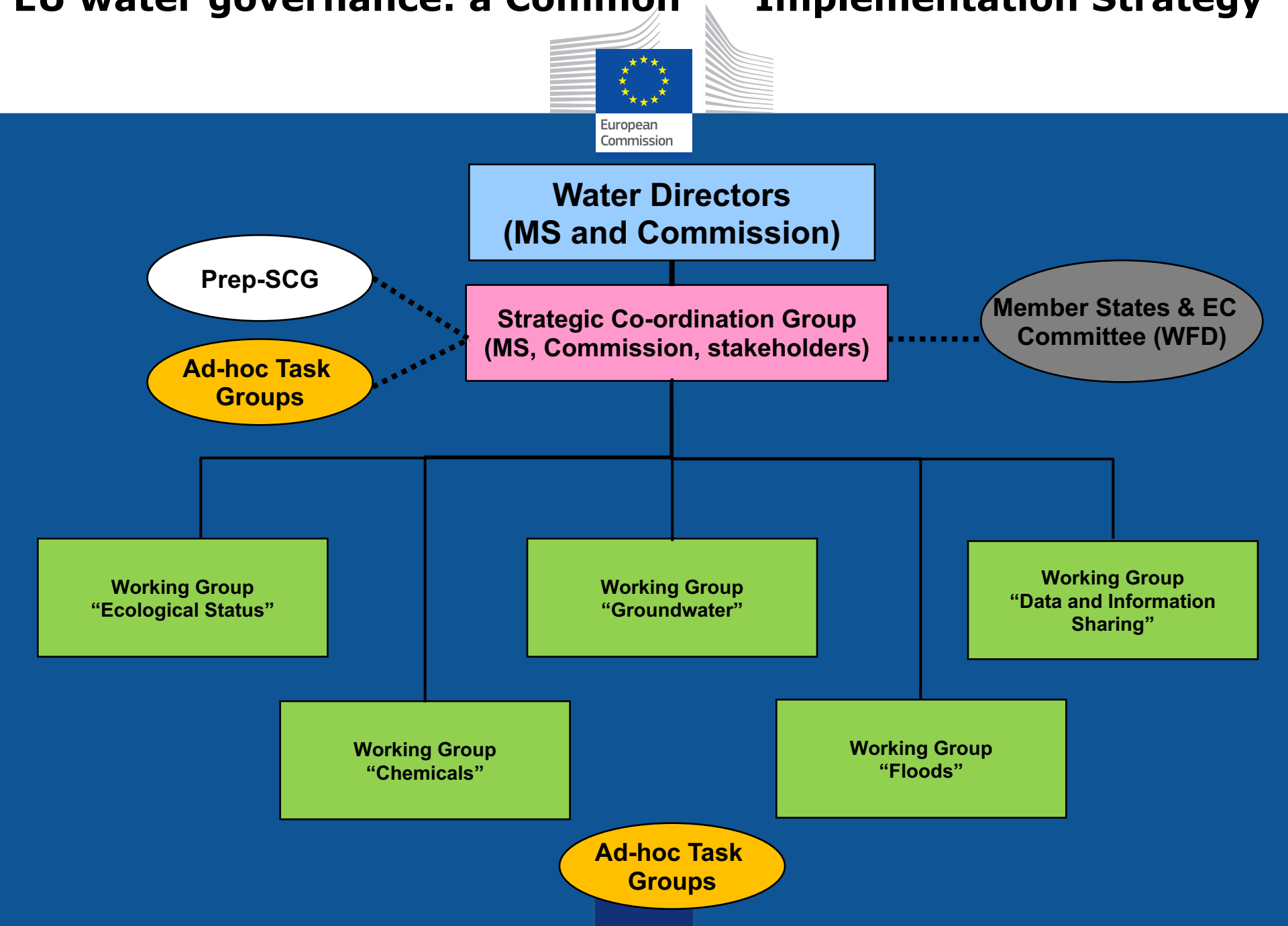
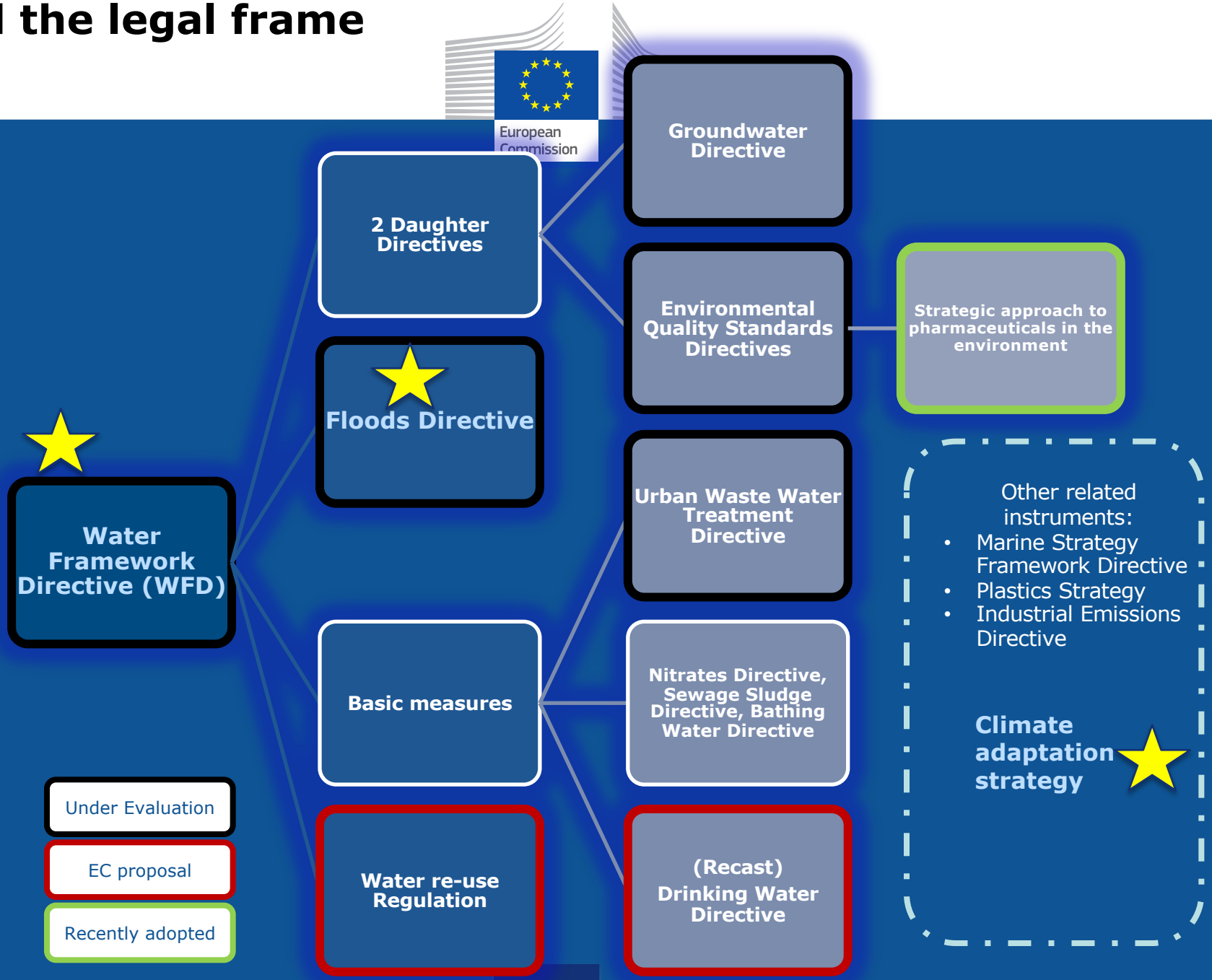
EU water governance: a Common Implementation Strategy



And the legal frame



Climate Adaptation: 2013 EU Strategy

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Priority 1: Promoting action by Member States

Action 1.	Encourage MS to adopt Adaptation Strategies and action plans
Action 2.	LIFE funding, including adaptation priority areas
Action 3.	Promoting adaptation action by cities via the Covenant of Mayors initiative

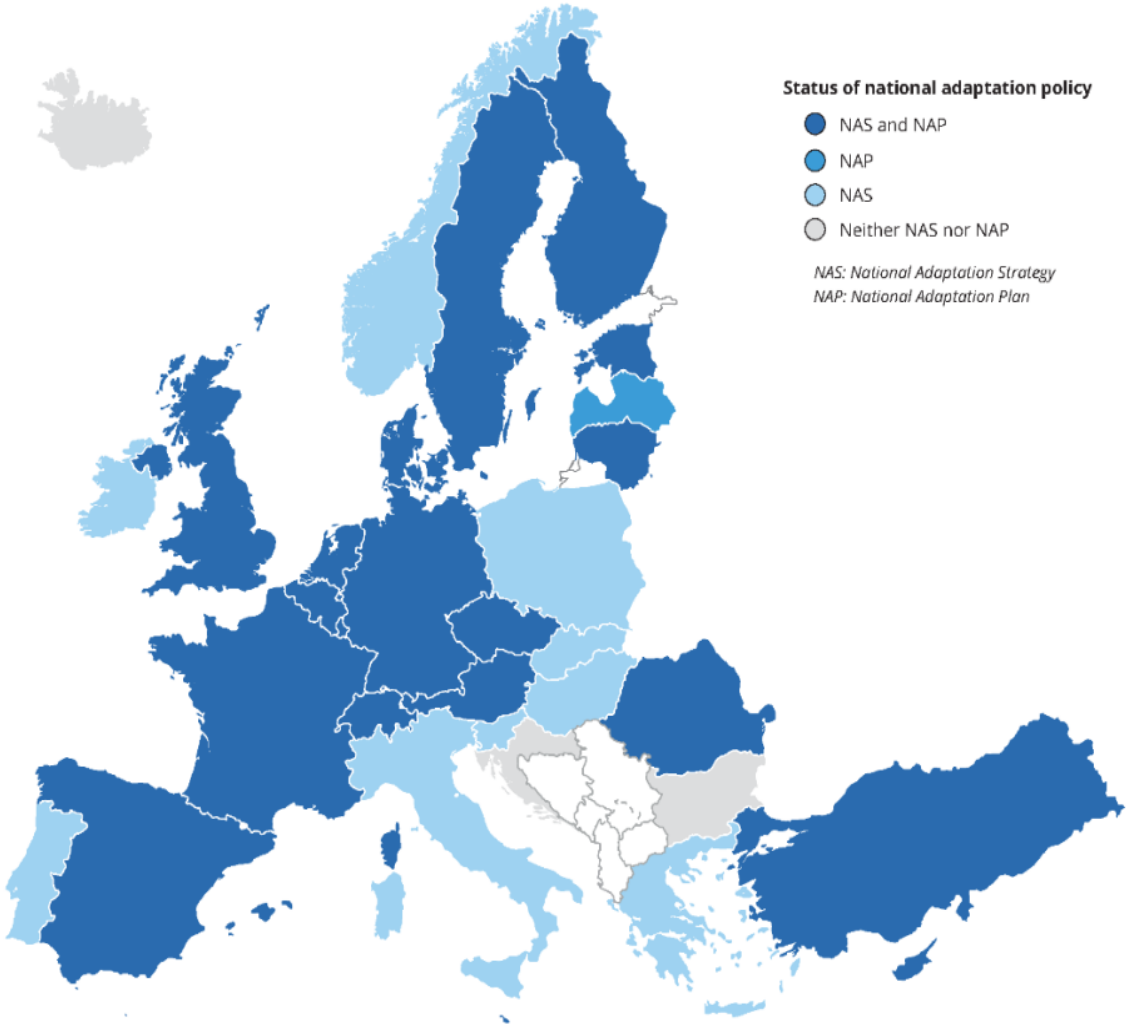
Priority 2: Better informed decision-making

Action 4.	Address knowledge gaps through research
Action 5.	Develop 'one-stop shop' platform for adaptation information in Europe: Climate-ADAPT

Priority 3: Adaptation in key vulnerable sectors

Action 6.	Climate proofing the Common Agricultural Policy, Cohesion Policy, and the Common Fisheries Policy
Action 7.	Making infrastructure more resilient
Action 8.	Promote products & services by insurance and finance markets

Climate change: Most European countries have developed national adaptation strategies and/or action plans



Source: EEA (2018)

+ ***Floods Directive (2007/60/EC) on the Assessment and Management of Flood Risks*** *demands States the production of hazard maps with different scenarios, including one of a probability lower than the HQ100 to take into account more severe impacts.*

+ *Flood management planning is one of the most effective strategies to reduce the vulnerability and increase resilience*

+ *Based on a 6-year review cycle*

What catalysed the FD (2007)?

The devastating August 2002 floods along the Danube and the Elbe rivers caused damage between 15 and 20 billion euros (mostly uninsured)

- ***Purpose**: establish a framework (incl. governance and measures) for the assessment and management of flood risks*
- ***Aim**: reduction of adverse consequences associated with floods*
- ***Approach**: "identify-evaluate-react to risk" in (6-yearly) **cycles**, to account for uncertainties*

FD: based on a risk management cycle

Risk management cycle	***FD's cycle***
Identify →	***P**reliminary **F**lood **R**isk **A**ssessments*
Evaluate →	***F**lood **H**azard and **R**isk **M**aps*
React →	***F**lood **R**isk **M**anagement **P**lans*

- ***First FD cycle 2009-2015 and reporting***
  - 1st PFRAs by December 2011 (reporting to the Commission by March 2012)
  - 1st FHRMs by December 2013 (reporting by March 2014)
  - 1st FRMPs by December 2015 (reporting by March 2016)

- ***Second FD cycle 2016-2021, etc. (there is no sunset clause)***

Next cycle and report in 2027

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Benefits of an EU wide implementation
1/2

- ***One shared terminology**, same requirements across all States*
- ***All types of floods**: fluvial, pluvial, coastal*
- *Opportunity for States to **review** local flood policies and institutional set up*
- *From flood protection (and response) to **prevention,** preparedness and protection*
- *a **river basin wide** approach to risk (downstream effects of upstream measures)*

EU wide implementation benefits
2/2

- *Improved coordination & cooperation (in addition to bilateral agreements and river commissions work)*
- ***Consolidation** of different plans into one reference document (the Flood Risk Management Plan)*
- ***Broader land and environmental aspects** and legislation, including spatial & land use planning, civil protection, insurances, climate change*
- Involve ***stakeholders*** *and development of partnerships, public participation*

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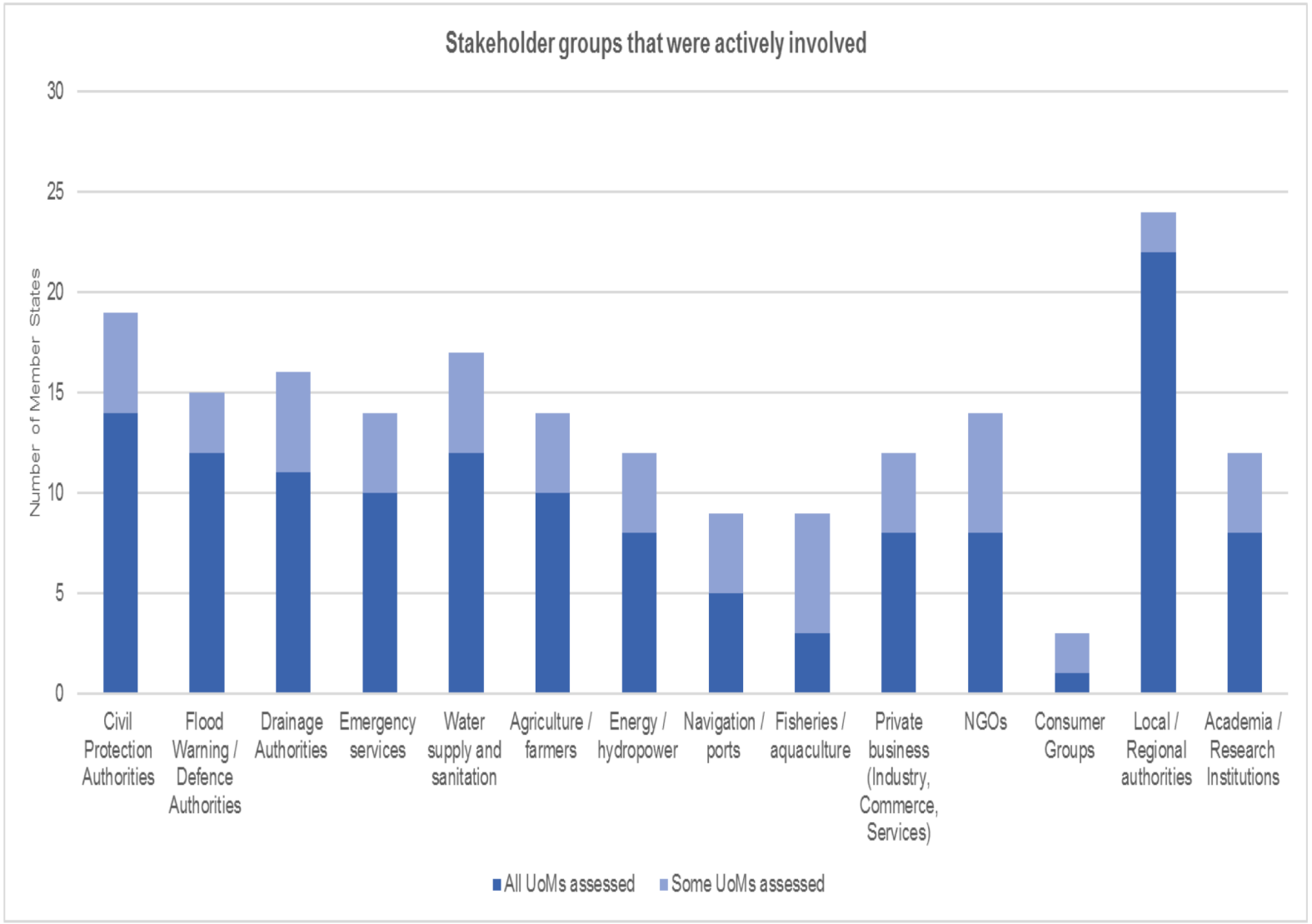

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Water Framework Directive

The first preamble (out of 53) already indicates the overall approach:

"Water is not a commercial product like any other but, rather, a heritage which must be protected, defended, and treated as such"

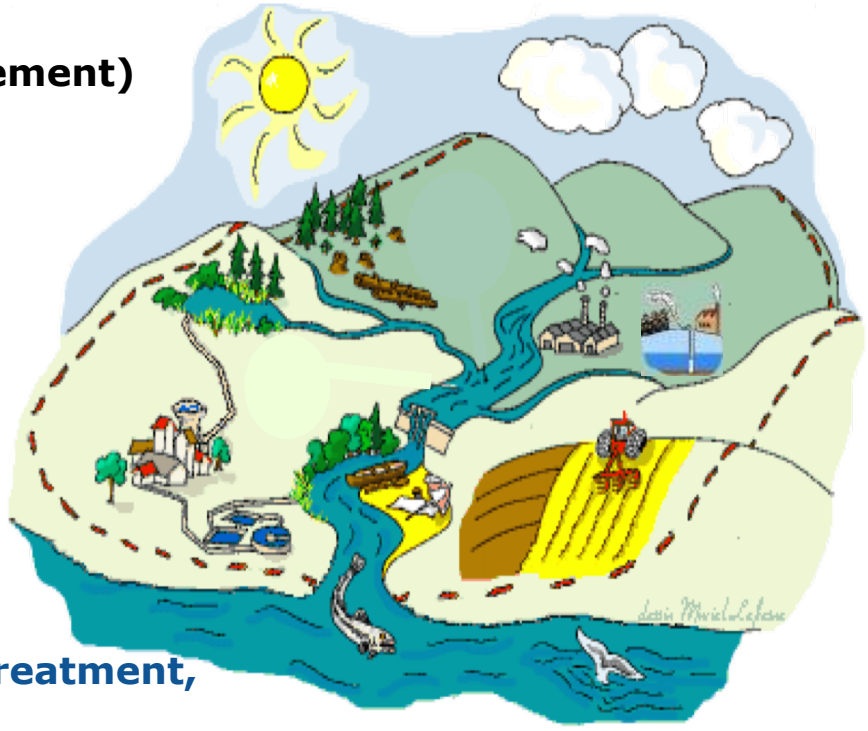
EU Water Framework Directive (since 2000)

- **Scope**
  - **Protection and management of all waters, including rivers, lakes, transitional-, coastal- and groundwater**
  - **Covering all impacts on waters**
  - **The US equivalent is the Clean Water Act**

  (but wider scope and more complex enforcement)

- **Objectives**
  - **Protect and enhance water bodies**
  - **Achievement of good status / potential**
  - **No deterioration**
  - **Exemptions under certain conditions**

- **Tools**
  - **River Basin Management Plans and Programmes of Measures**
  - **Existing legislation: urban waste water treatment, nitrates from agriculture, habitats, etc.**
  - **Public participation**



- **Focus on river basins, reaching good quality of surface and ground waters** (States monitor and report on ecological and chemical status)

- **Improved governance**
  - **Working together for sustainable water management**
  - **Cooperation amongst sectors and on a trans-boundary level**

- **Integrated river basin management**
  - **Balance environmental protection and economic development, comprehensive assessment of water environment and socio-economic needs**
  - **Abandoning unsustainable practices and repairing damage**
  - **Improving the environment in the most cost-effective way**

Status Assessment: Monitoring programs

Examples for monitoring parameters relevant for WFD status assessment:

- **Water flow** (volume and level or rate)
- **Pollution parameters** (e.g. organic and nutrient pollution, chemicals and pesticides)
- **Biological parameters** (aquatic flora and fauna, e.g. fish stocks and macro-invertebrates)
- **Hydromorphological elements** (e.g. river continuity and morphology)
- **Groundwater**: Chemical and quantitative parameters

Courtesy to ICPDR:
https://www.icpdr.org/flowpaper/viewer/default/files/nodes/documents/icpdr_jids3-public_report.pdf

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But what about … enforcement?

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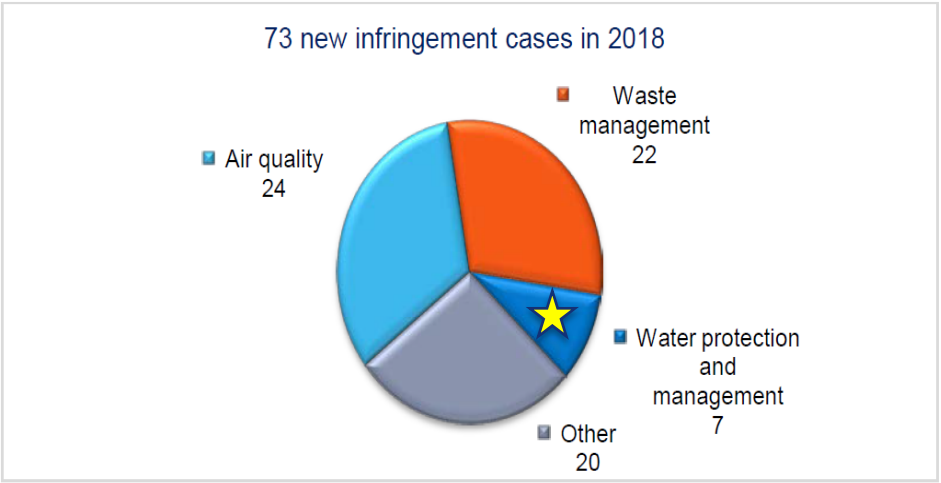
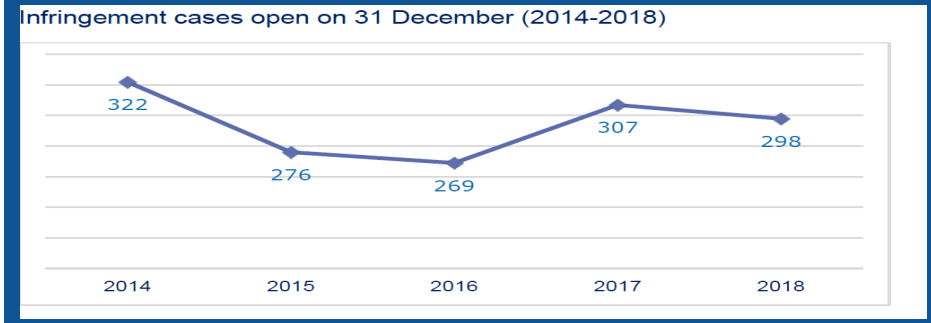
Environmental legislation

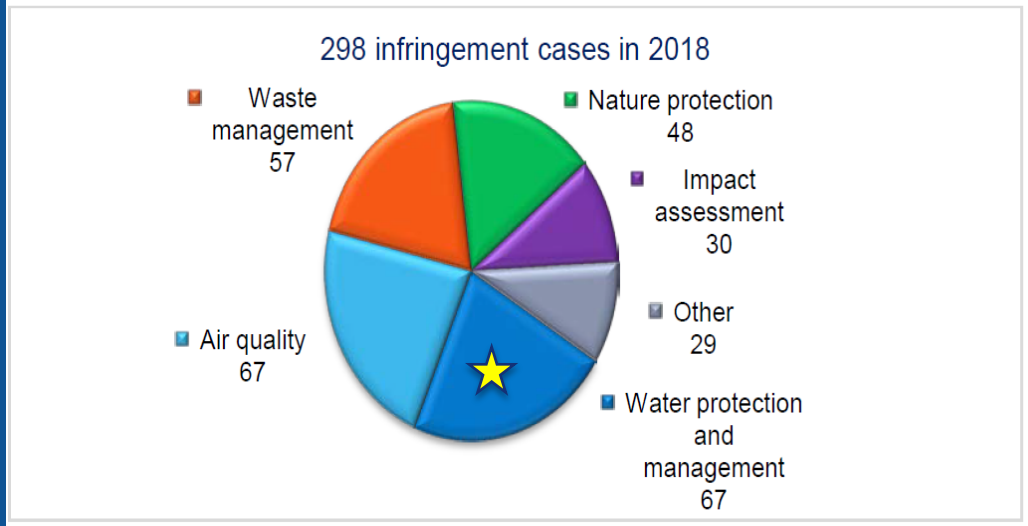
New infringement cases opened in 2018: main policy sectors





2018 data

Infringement cases open on 31 December 2018: main policy sectors

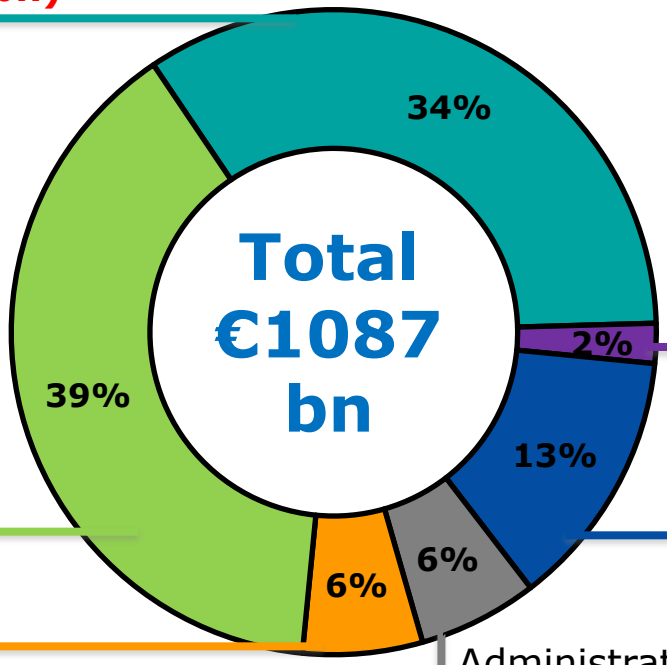


EU budget 2014-2020 - expenditure

Unanimously approved by all Member States, consent of European Parliament

Economic, social and territorial cohesion (371.4 bn)

Security and citizenship (17.7 bn)



Competitiveness for growth and jobs (142.1 bn)

Administration (69.6 bn)

Global Europe (66.3 bn)

Sustainable Growth: Natural Resources (420 bn)

Total budget for 2019:

€166 bn

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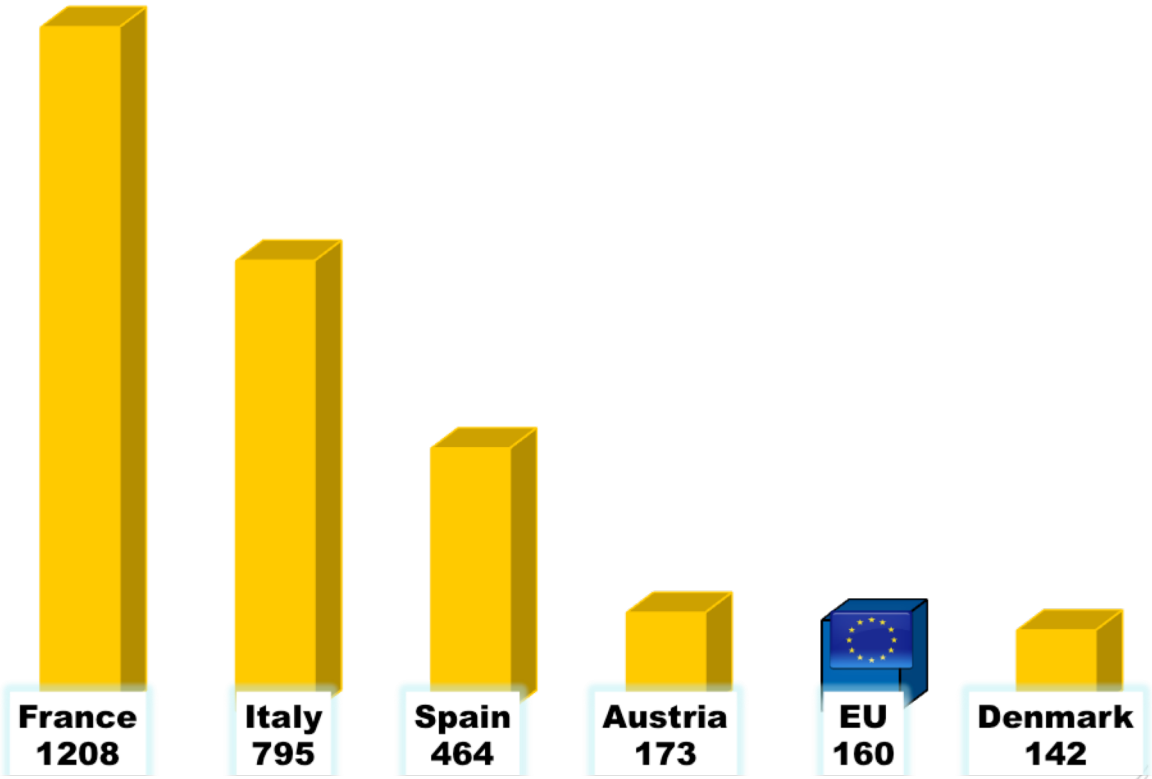
EU annual budget
compared to some EU Member States' budgets

for the year 2018 in € bn
[EU 28 GDP 2018 Euro 16 billion]



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Where to improve

- EU Water deterioration halted
- **BUT** Only 40% of surface water bodies and 74% of groundwater bodies in good status
- Significant progress in reducing pressures
- Better monitoring, more transparent information
- More integrated water management in place
- Significant investments made

- Slower progress than expected (2027 just over 7 years away)
- Long-standing problems: agriculture, hydromorphology, persistent chemicals
- Uneven implementation, uneven monitoring across States
- New problems: pharmaceuticals, micro-plastics, climate change
- The price for water is still not 'right'
- Legislation could be more efficient and streamlined

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Additional considerations: OECD

Four key trends observed in many OECD countries with strong implications on water management :

i) **Territorial reforms,** such as the reorganisation of municipalities and regions, influence how roles and responsibilities are assigned to new authorities for different water management functions

ii) **Fiscal consolidation** raises concerns on **"who will pay for what"** to renew infrastructure assets, ageing in most OECD countries and no longer rely only on public spending. How to bring forward innovating financing mechanisms at different scales, property developers, long term institutional investors?

iii) **Digital reforms** and increasing interconnectedness already have implications on accountability in water management, triggering new ways to organise local public services at the appropriate scale;

iv) The **crisis of trust from citizens** in their governments implies to rethink role of citizens in water policy to secure social and political acceptability and address the water risks' awareness gap

EU/US collaboration: remote sensing

Copernicus #Sentinel2 infrared image, 2018

Envisat image, 2007