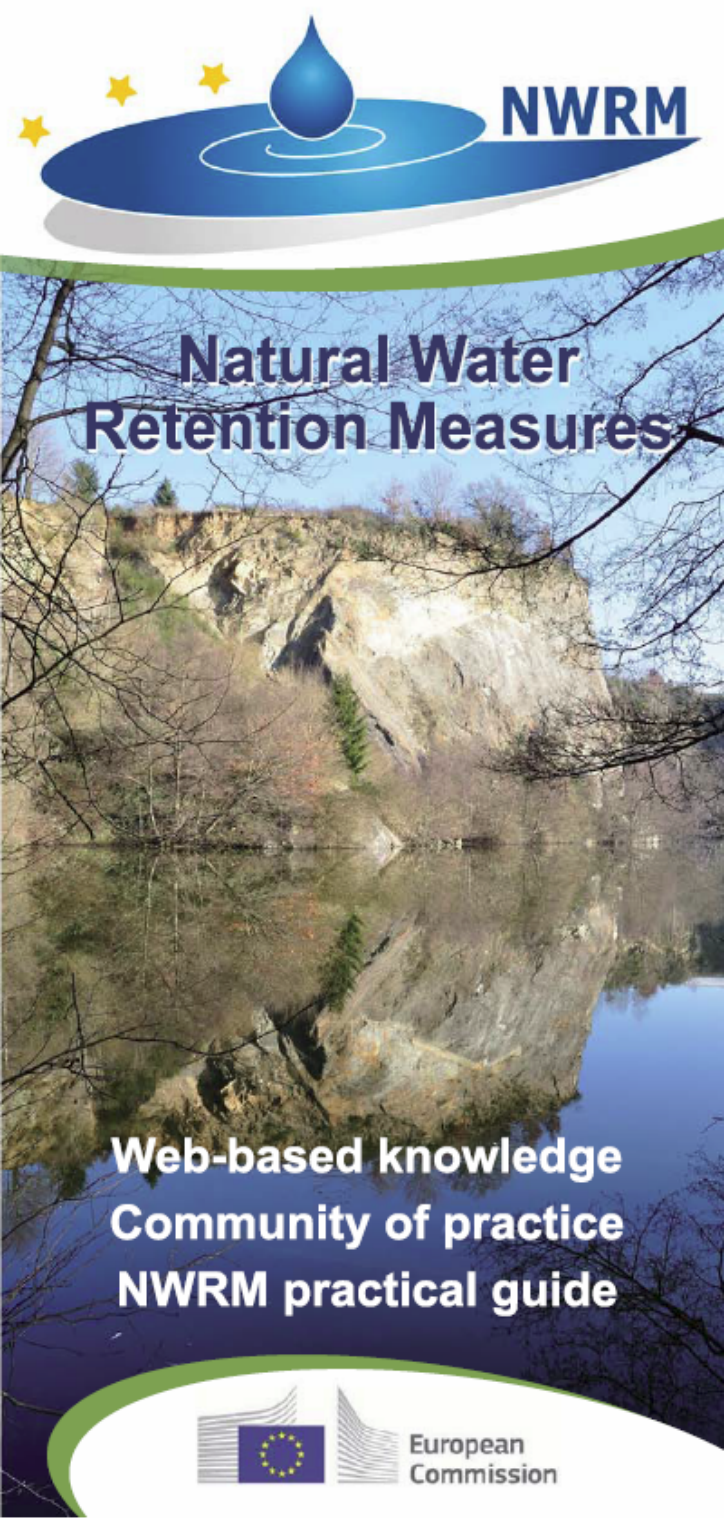


Pilot Project - Atmospheric Precipitation - Protection and efficient use of Fresh Water: Integration of Natural Water Retention Measures in River basin management

Service contract n°ENV.D.1/SER/2013/0010

Working with stakeholders in Spain to implement measures - Who should pay and why?

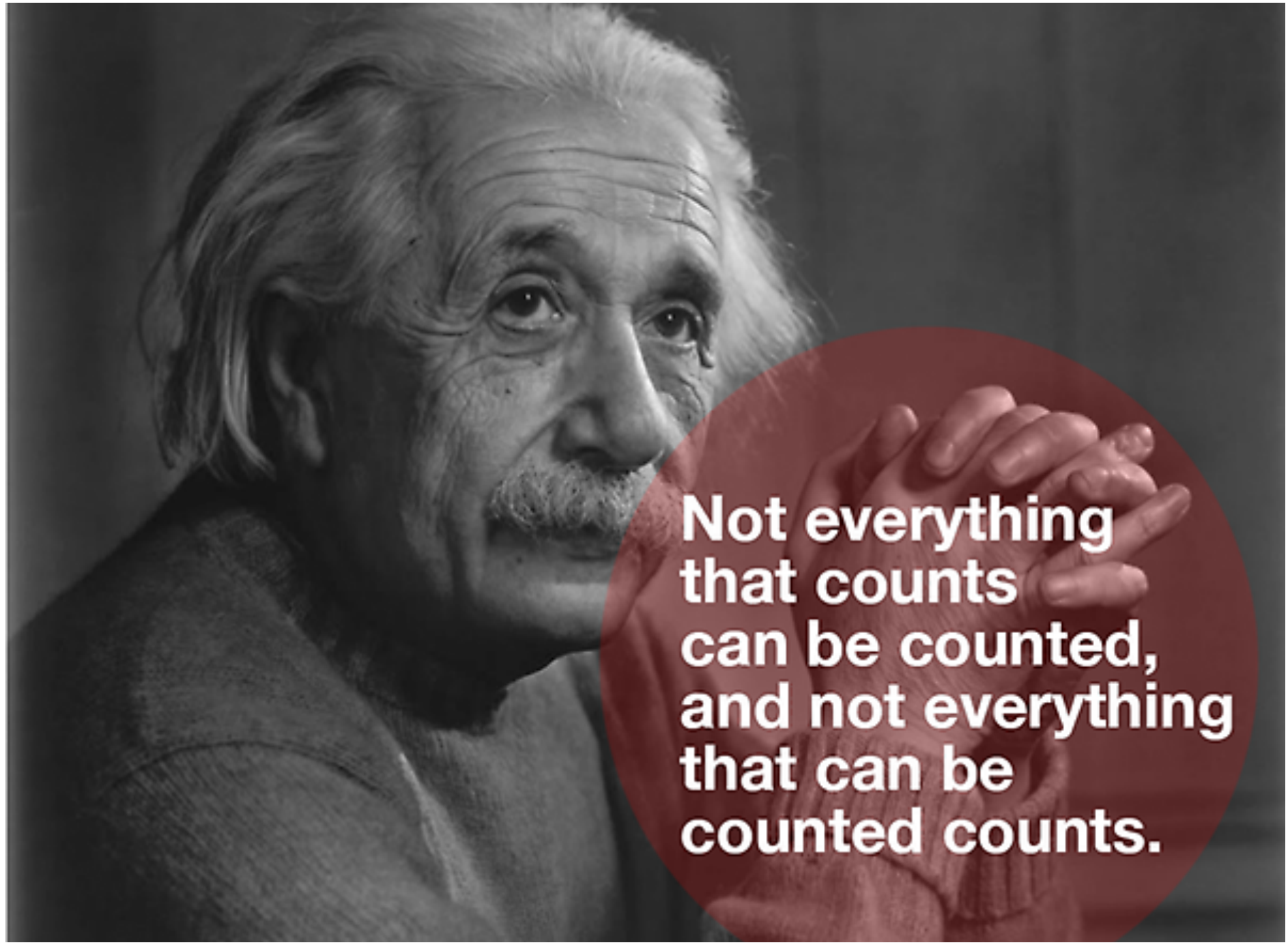
Gonzalo Delacámara

institute IMDEA water

NWRM Baltic Workshop // Gimo (Sweden), June 9th-10th, 2014

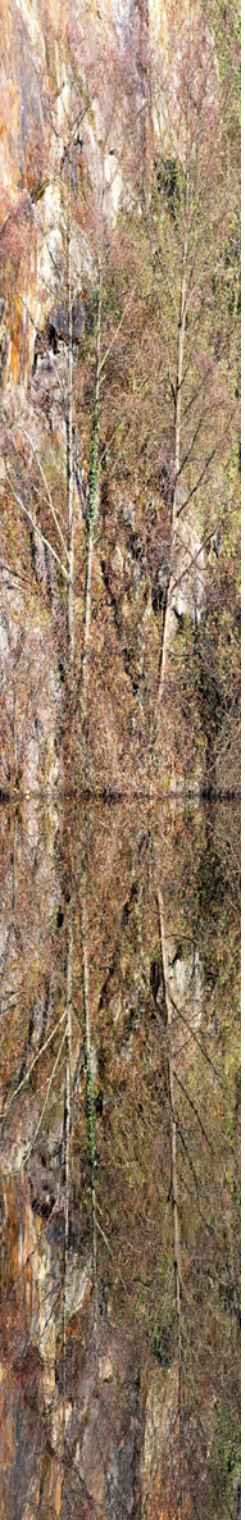
Office International de l'Eau

ACTeon environment


Not everything
that counts
can be counted,
and not everything
that can be
counted counts.

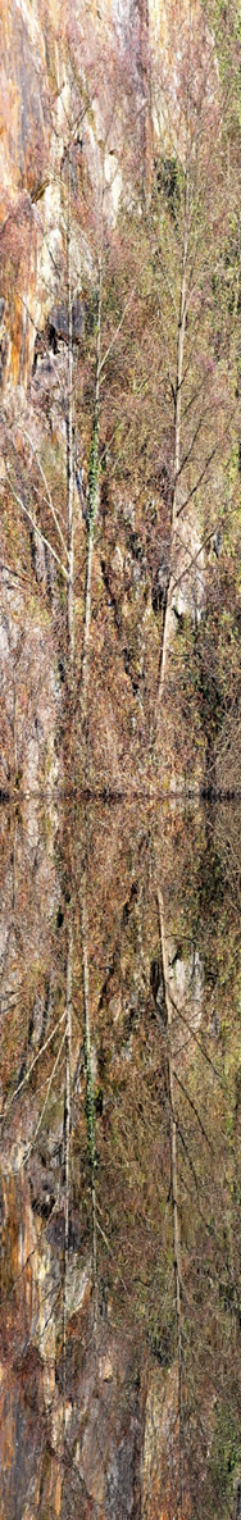
Confluence of Arga and Aragón rivers, Navarre (Northern Spain).

Source: Magdaleno, F., 2014. River and floodplain restoration – natural water retention for combined outcomes (CEDEX). Presentation NWRM Mediterranean Workshop, Madrid, January 28th-29th, 2014.



Overflow of the Arga river in the riverine towns of Villada and Burlada in January 2013 (Greater Pamplona, Navarre, Spain)

Source: www.diariodenavarra.es; 16/01/2013.
http://www.diariodenavarra.es/noticias/navarra/pamplona_comarca/2013/01/16/las_inundaciones_alteran_vida_normal_comarca_pamplona_104160_1002.html

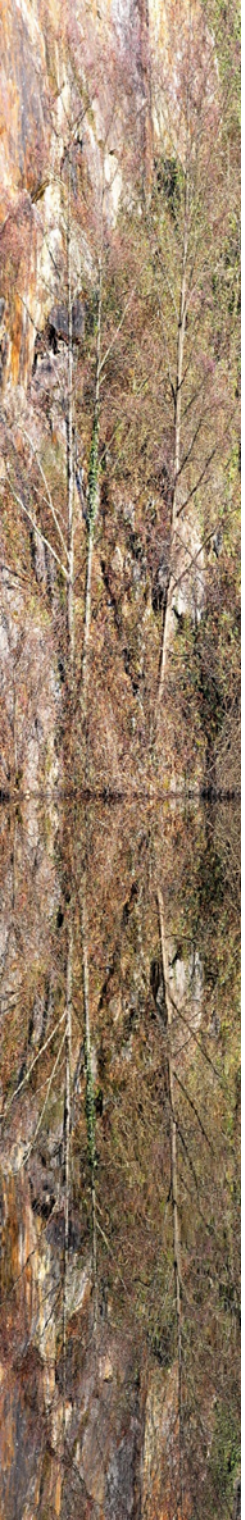


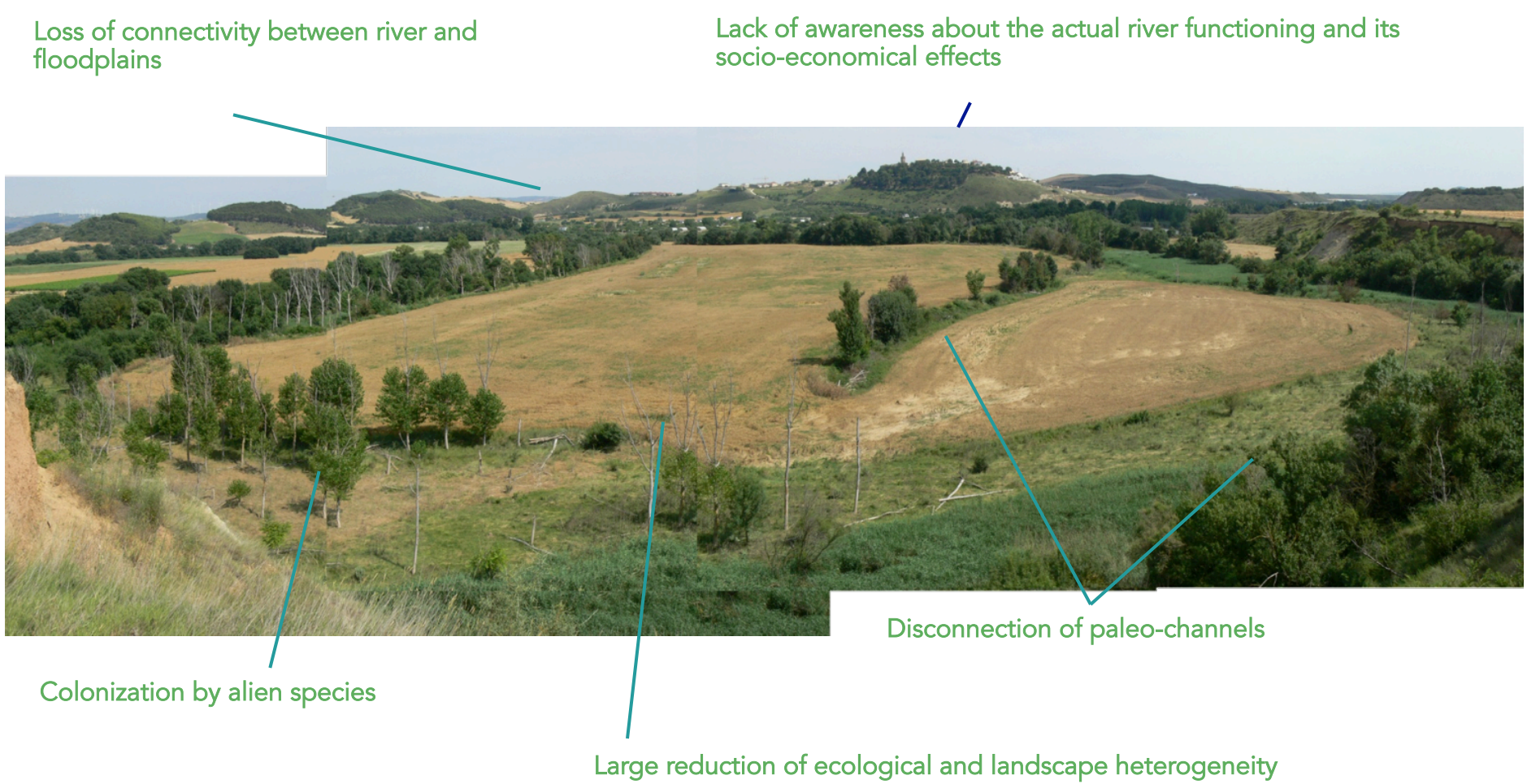
National motorway N-113 flooded due to the overflow of Arga river in June 2013. Navarre (Spain)

Source: www.lainformacion.com; Monday, 10/06/13 - http://noticias.lainformacion.com/medio-ambiente/rios/la-carretera-n-133-pamplona-madrid-cortada-en-castejon-por-las-inundaciones_hCU4EPd05G1eDVCgpgAGd4/

Overflow of Arga river in Pamplona (June 2013. Navarre, Northern Spain)

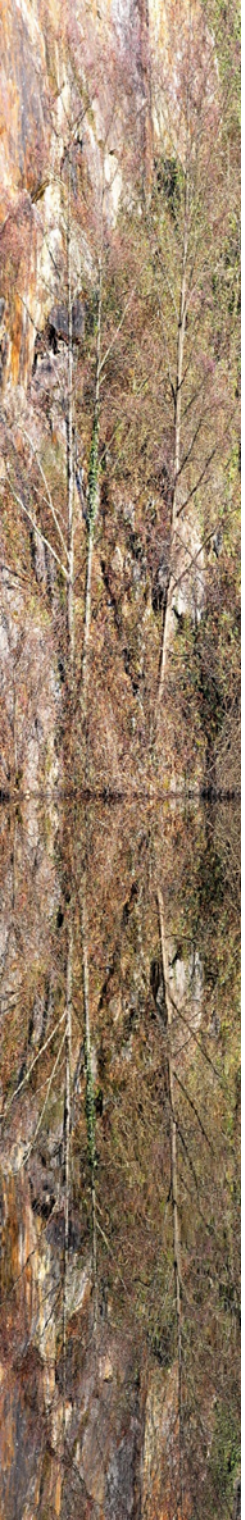
www.lainformacion.com; Sunday, 09/06/13 - http://noticias.lainformacion.com/catastrofes-y-accidentes/inundaciones/el-ayuntamiento-de-pamplona-mantiene-el-nivel-de-alerta-por-las-inundaciones_5H6V18cyyhulxYIOwnSjK2/





Some relevant aspects to be tackled by NWRM in Arga river (Navarre, Northern Spain).

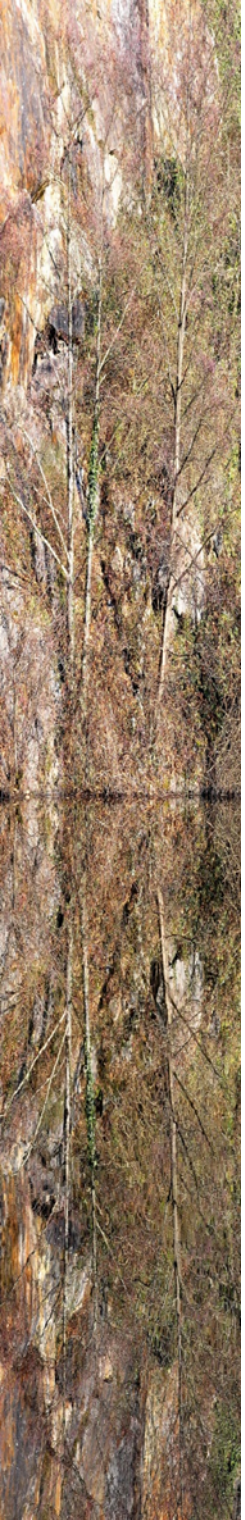
Source: Magdaleno, F., 2014. River and floodplain restoration – natural water retention for combined outcomes (CEDEX). Presentation NWRM Mediterranean Workshop, Madrid, January 28th-29th, 2014.



Nº	Nombre
1	Soto Serdilla (Funes)
2	Plaso de Funes
3	Soto Gil y Ramalhondo (Peralta, y Funes)
4	Soto Arriba (Peralta)
5	Soto La Muga Sur (Peralta)
6	Soto La Muga Norte (Peralta, y ligeramente Falces)
7	El Solillo (acueducto) (Peralta)
8	Santa Eulalia (Peralta)
9	Acceso a Peralta
10	Falces Sur. Margen izquierda
11	Falces Sur. Margen derecha
12	Falces Norte. Margen izquierda
13	Falces Norte. Margen derecha
14	Acceso a Falces
15	Villafranca. Margen izquierda
16	Funes. Margen derecha
17	Solocontiendas (Marcilla)
18	Motarón (Marcilla)
19	Puente Autopista (Marcilla)
20	Soto Torres (Marcilla)
21	El Estajado, La Cueva y Soto Lobera (Marcilla y Caparroso)
22	Soto del Puente (Caparroso)
23	Caparroso
24	Soto Marcón y Cidacos (Caparroso)
25	Plantaciones
26	Compras y compensaciones

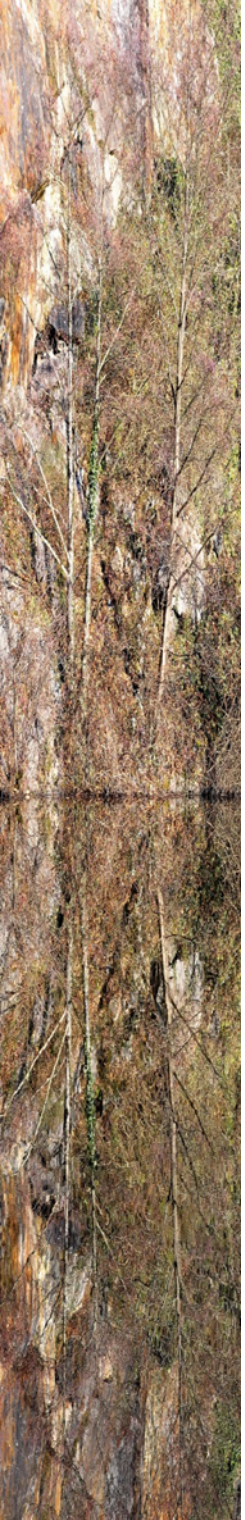
Feasibility study of alternatives for restoration measures for flood protection in the confluence of Arga and Aragón rivers (MINK territory Life+ project).

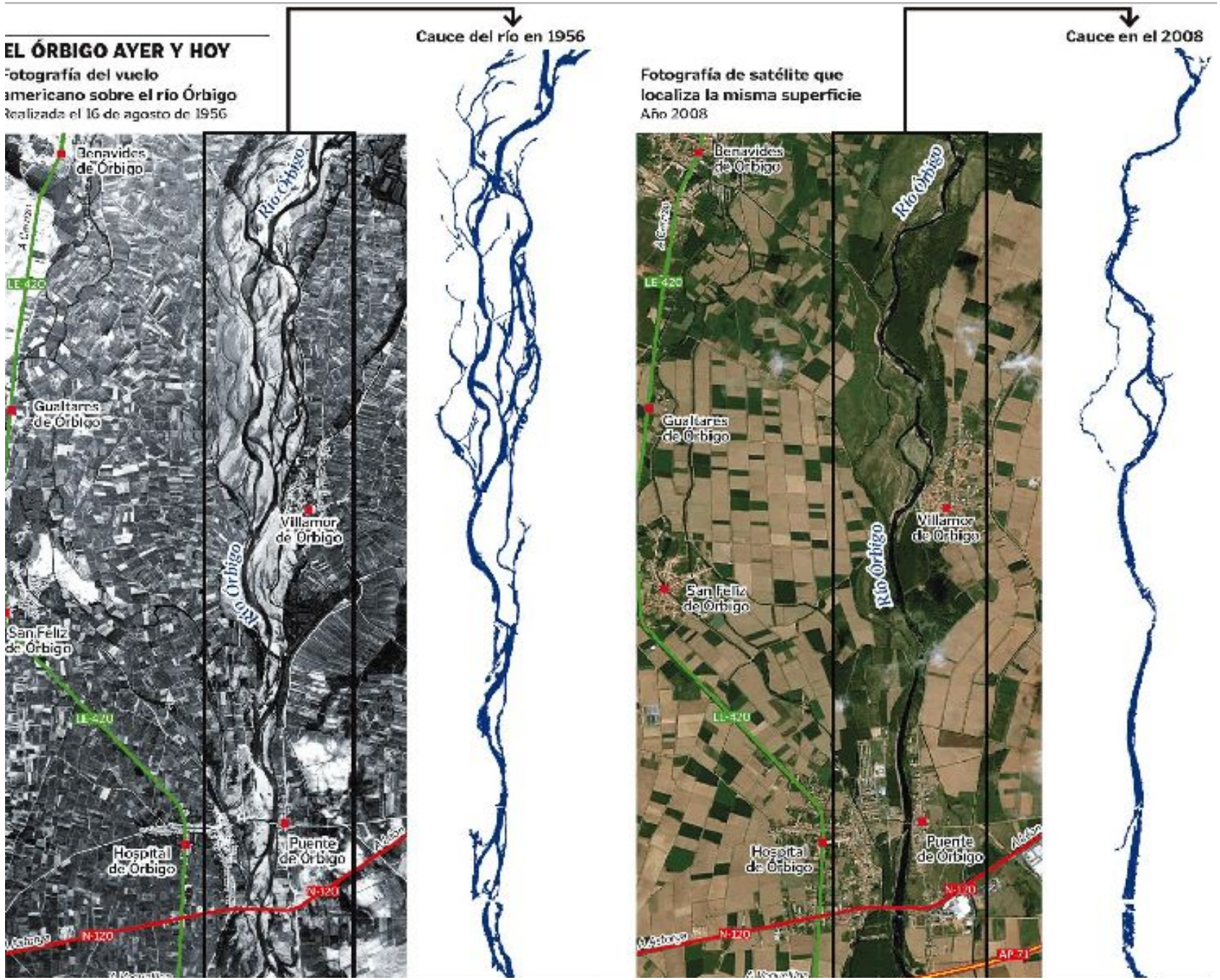
Source: Government of Navarre, CEDEX and Gestión Ambiental viveros y Repoblaciones de Navarra, S.A.



Overflow of Arga river; Plantío meander (January 15th, 2010. Navarre, Spain)

Source: Government of Navarre





Órbigo river channel in 1956 and 2008. Effects of channelization and alteration of the river hydromorphology.

Source: Duero River Basin Authority (Confederación Hidrográfica del Duero, CHD).

Poplar crops in the Órbigo River Basin (Castille and León, Spain)

Source: Rodríguez I., Santillán J.I., Huertas R., Ortega L., 2012. The Órbigo River Restoration Project and its implications in flood risk prevention. (WGF Thematic Workshop: Stakeholder Involvement in Flood Risk Management. 17, 18 April, 2012. Bucharest-Romania. Session 4: Working with institutional stakeholders and other sectors, in particular in land use)

Poplar crops are compatible with flooding episodes. Órbigo River Basin (Castille and León, Spain)

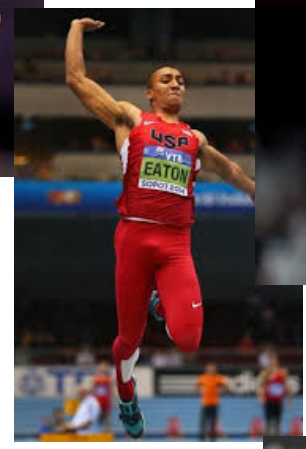
Source: Duero River Basin Authority (Confederación Hidrográfica del Duero, CHD), 2013. River Órbigo Restoration Project.

Stormwater tank in Pozuelo de Alarcón, Greater Madrid (150m long, 60m wide and 5m tall). Source: www.munimadrid.es

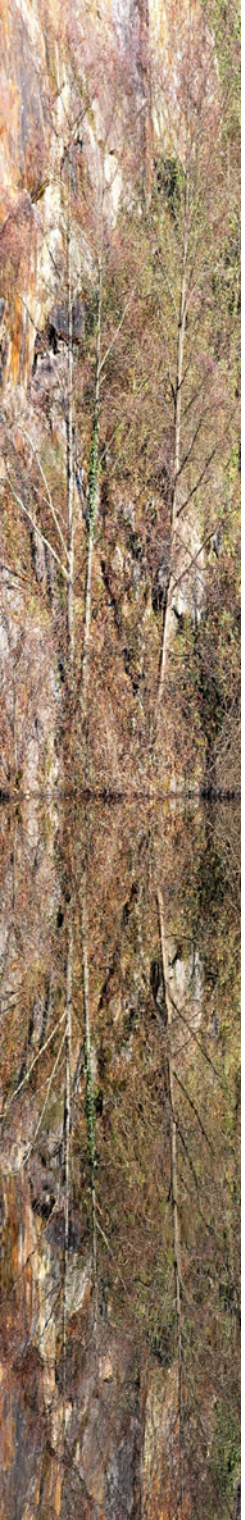
Stormwater pipe in Arroyofresno, Madrid. Source: www.madrid.es

Why do NWRM hardly ever seem to be cost-effective…

… even when they are? (Ashton Eaton vs. Usain Bolt, a parable by Carlos M. Gómez)

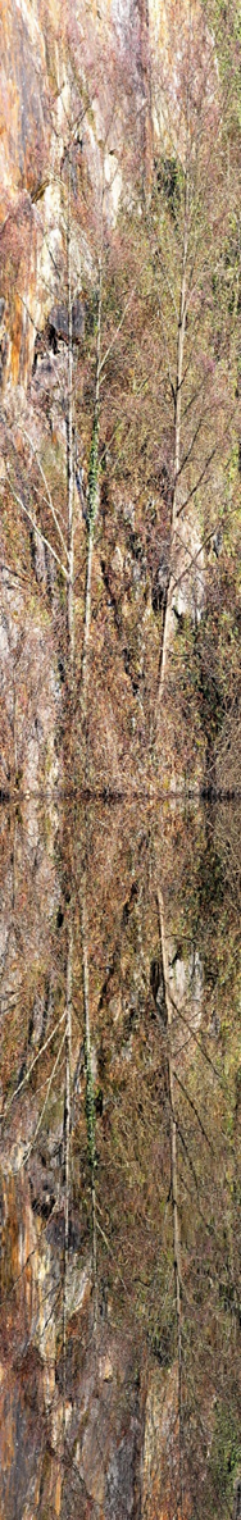


Bottom line // a fair comparison between a specialist and a multipurpose measure should be based on more than one criterion.



Does a NWRM help if your baby is crying? Are NWRM to blame when the soup cools down?

- Catchment scale is of paramount importance – individual measures may have little effect; it is rather the cumulative effect of (a set of) measures that is relevant when factoring in benefits.
- Challenges: when it comes to assess the performance & effectiveness of NWRM, benefits are often widespread – quite often interventions in one place (i.e. upstream) may generate benefits elsewhere (i.e. downstream). In the Baltic region it is observed that cost-effectiveness is a matter of choosing the right system boundaries rather than merely a monetary question.
- This also has implications in terms of relevant (direct & indirect) benefits: NWRM provide multiple benefits way beyond water retention. In the Baltic (water abundant), water retention is an ancillary benefit of measures serving other purposes. If some benefits are overlooked, NWRM would not seem cost-effective (i.e. lack of incentives for engagement).
- Valuing benefits is a challenging issue – currently evidence on effectiveness mostly refers to design conditions, not actual performance.
- Building a strong evidence base is key to inducing changes in policy processes and public awareness.



The need to go beyond (financial) project appraisal

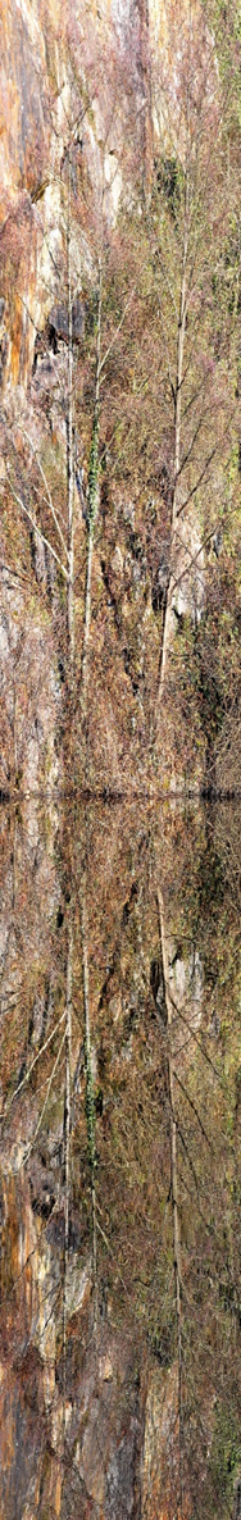
- Avoiding self-indulgence – NWRMs are good in themselves because they serve to restore aquatic ecosystems and thus the biophysical flows of ecosystems services they deliver.

But

- Self-evidence of advantages tends to ignore the **opportunity cost** of the resources implied and the existence of alternatives that may serve the same purpose.

- Besides its rationale for restoration (and emulation of natural functions) NWRM need to be **judged against its potential contribution to other objectives** as stated in the WFD, FD, EU 2020 Biodiversity Strategy, Climate Change Adaptation Strategy, CAP reform…).

- Properly designed and implemented NWRM represent **opportunities that need to be adapted for the purposes of water management**.



It’s (almost) all about incentives

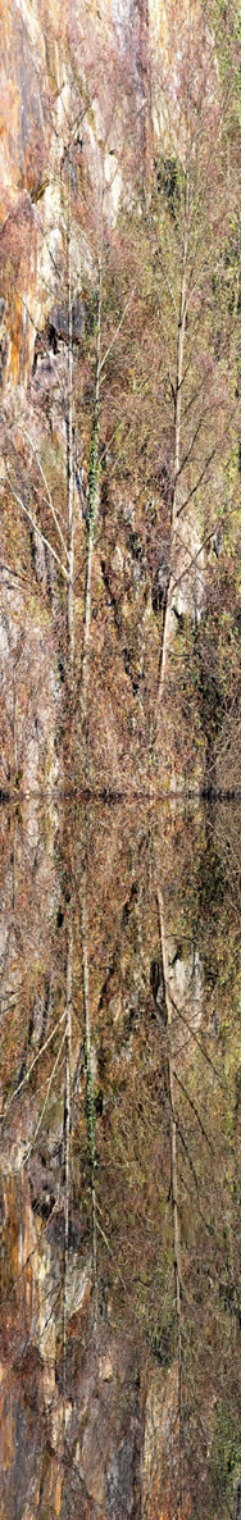
- Prevailing incentives favour the maintenance of the *status quo* (in semi-arid water scarce areas, such as Spain, **incentives to retain water** are weaker than in relatively water abundant areas, such as the Baltic countries).

- A NWRM might be rational from an overall cost-benefit perspective but still non-appealing for those in charge of implementing it. Voluntary acceptance, in forestry and agriculture, requires **properly designed economic incentives** - The CAP reform (CAP pillar 1: greening but also RDP) can be one example (more: ESIF // partnership agreements; CCA & DRR; R&TD and innovation funds; LIFE; EIB).

- If NWRM’s benefits are not public goods (non-rival and non-excludable) **how could beneficiaries pay for them?**

- The cost-recovery issue: if in addition to water management, NWRM serve many other purposes **how should these measures be financed?**

- Can **payment for environmental services** be based upon public information and *ex-post* evaluation?

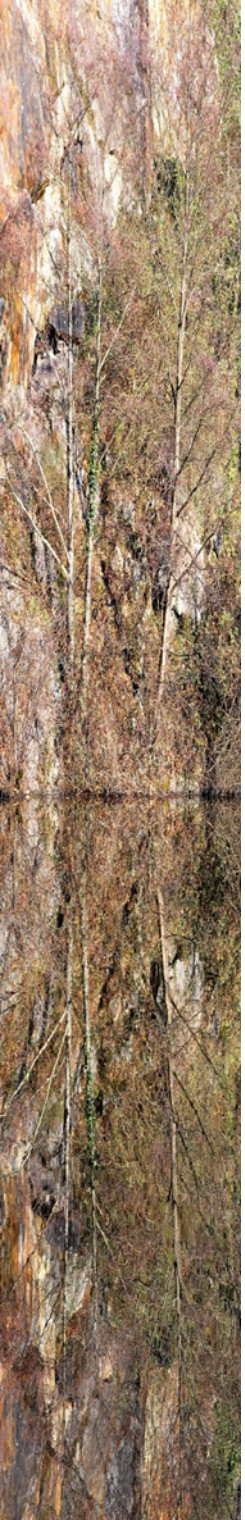


Please, bear trade-offs in mind

3.4 Crop practices Change in [%] from the baseline 2030 scenario For water stress change in [days per year] from				
	Fast flow [%]	Evapotrans. [%]	Groundw. recharge [%]	Water stress [d per year]
N. Scandinavia	0.0	0.0	0.0	-0.1
S. Scandinavia	-0.3	0.1	0.0	-0.5
Baltic	-1.1	0.4	-0.8	-1.4
Denmark/N.Germany	-2.5	1.0	-1.9	-3.0
Odra/Vistula	-1.1	0.6	-2.1	-2.0
Elbe to Ems	-1.2	0.7	-1.4	-2.0
Rhein to Schelde	-0.9	0.6	-0.5	-2.0
GB	-0.9	0.5	-0.7	-1.2
Irland/N.Ireland	-0.3	0.2	0.0	-0.9
France Atlantic	-2.2	1.0	-1.6	-2.6
Danube	-1.9	0.8	-2.4	-1.8
Iberia Atlantic	-1.1	0.7	-1.1	-0.9
Iberia Mediterranean	-1.4	0.6	-1.7	-0.7
France Mediterranean	-0.5	0.3	-0.3	-1.0
Po	-1.2	0.7	-0.8	-1.8
Corsica	-0.2	0.1	0.0	-0.5
Sardinia	-1.5	0.7	-0.6	-1.2
Sicily	-3.4	1.3	-2.5	-2.3
South Italy	-1.7	0.9	-0.7	-1.8
Adige/Balkan	-0.5	0.4	-0.1	-1.2
Greece/Evros	-1.8	0.8	-1.4	-0.9

1.2 Afforestation in mountainous areas Change in [%] from the baseline 2030 scenario For water stress change in [days per year] from				
Region	Fast flow [%]	Evapotrans. [%]	Groundw. recharge [%]	Water stress [d per year]
N. Scandinavia	-0.2	0.0	-0.1	1.0
S. Scandinavia	-0.5	0.2	-0.2	0.4
Baltic	-0.5	0.2	-0.6	0.6
Denmark/N.Germany	0.2	0.0	-1.3	0.4
Odra/Vistula	-0.1	0.1	-0.3	0.6
Elbe to Ems	-1.1	0.4	-0.9	0.4
Rhein to Schelde	0.0	0.0	-0.2	0.6
GB	0.4	-0.5	0.0	0.6
Irland/N.Ireland	1.5	-0.8	0.1	0.6
France Atlantic	-0.3	0.2	-0.4	0.3
Danube	-0.3	0.2	-0.4	1.2
Iberia Atlantic	-0.1	0.1	-0.3	0.4
Iberia Mediterranean	-0.4	0.2	-0.3	0.3
France Mediterranean	-1.0	1.3	-0.3	0.5
Po	0.0	0.1	-0.1	0.7
Corsica	0.9	-1.0	-0.1	2.2
Sardinia	1.2	-0.5	0.1	2.0
Sicily	0.3	-0.1	0.0	0.6
South Italy	-0.2	0.3	-0.3	0.8
Adige/Balkan	0.0	0.1	0.0	0.3
Greece/Evros	-0.2	0.1	-0.1	0.4

Source. JRC (2012) Evaluation of the effectiveness of Natural Water Retention Measures: Support to the EU Blueprint. to Safeguard Europe's Waters



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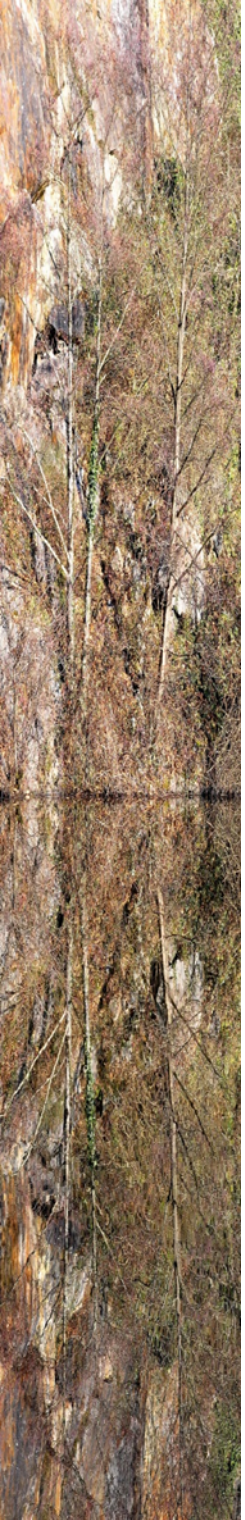

Making it happen – institutional insights

- Implementation of NWRMs requires breaking up the **institutional silos** at all levels (EU, National and sub-national levels) – Remember examples from Germany!!!
- Besides the purposes of water management, NWRM are outstanding opportunities for a **better coordination of different sectoral policies** including land planning, rural development, agricultural policy, climate change adaptation, etc…
- **Cooperation between the private and the public sector** – different areas are required to coordinate objectives and reduce the compliance costs through the simultaneous attainment of different policy objectives.
- Is there an **institutional lock-in** in water management? Do prevailing institutional setups and incentives favour traditional water management measures instead of innovative NWRM?
- What changes in institutions would be required in order to allow for new innovative instruments such as **payment for environmental services or performance-based subsidies**?