



European water futures until 2050

- Results of the SCENES project

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Scenarios?

- What are scenarios?
- Scenarios are not *forecasts*, or *predictions*
- Scenarios are stories about how the future might unfold (a story what happened in future)
- Scenarios are *credible*, *relevant* and *plausible*
- Scenarios should be surprising to alert policy makers
- Scenarios can be told both in words and numbers





Stakeholder driven!

Large contribution from
the European panel -
participatory process

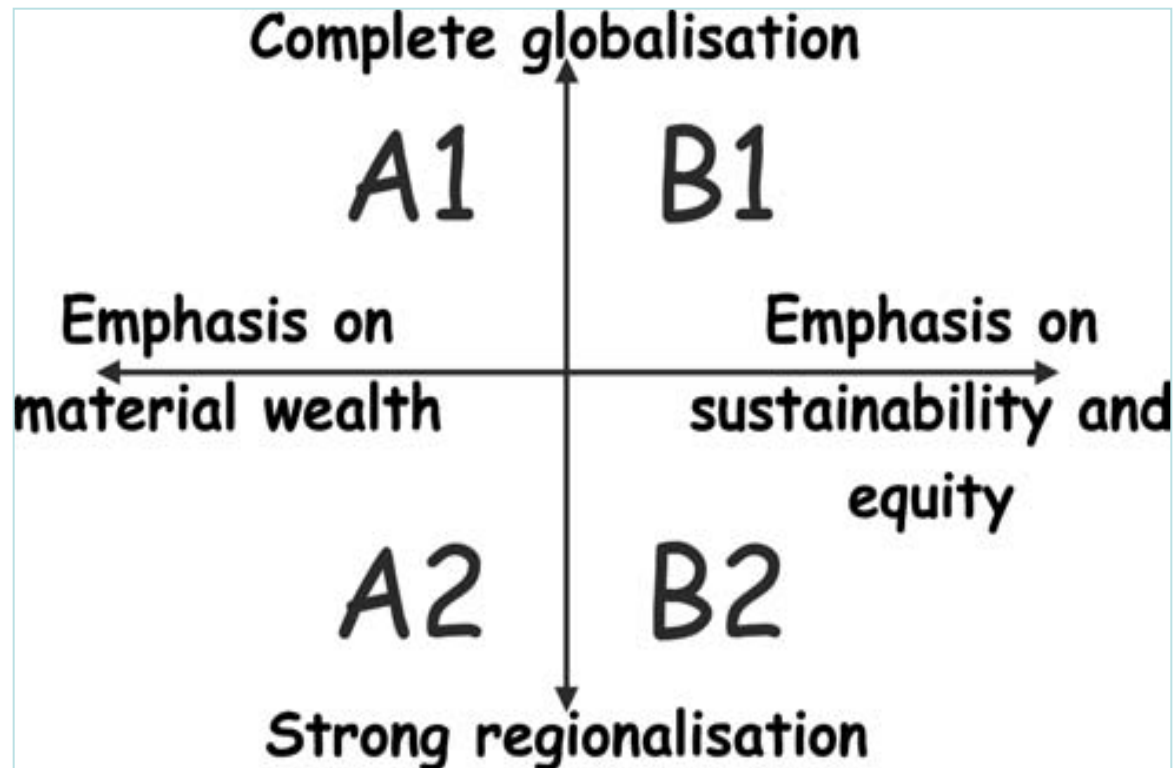


- 1) Qualitative by stakeholder participation - storylines, how drivers will develop
- 2) Quantification by modelling and indicator analysis



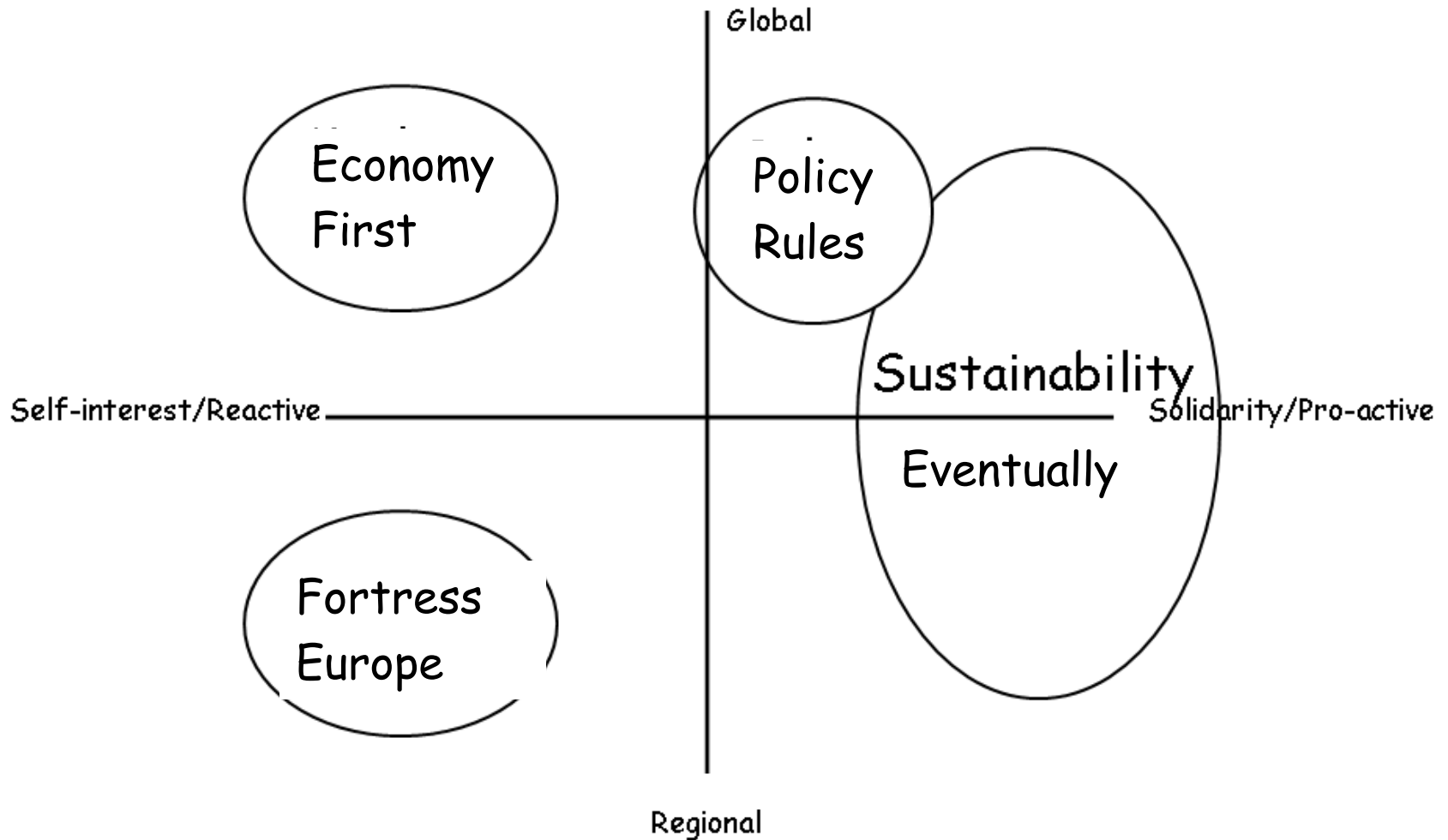


Climate scenarios





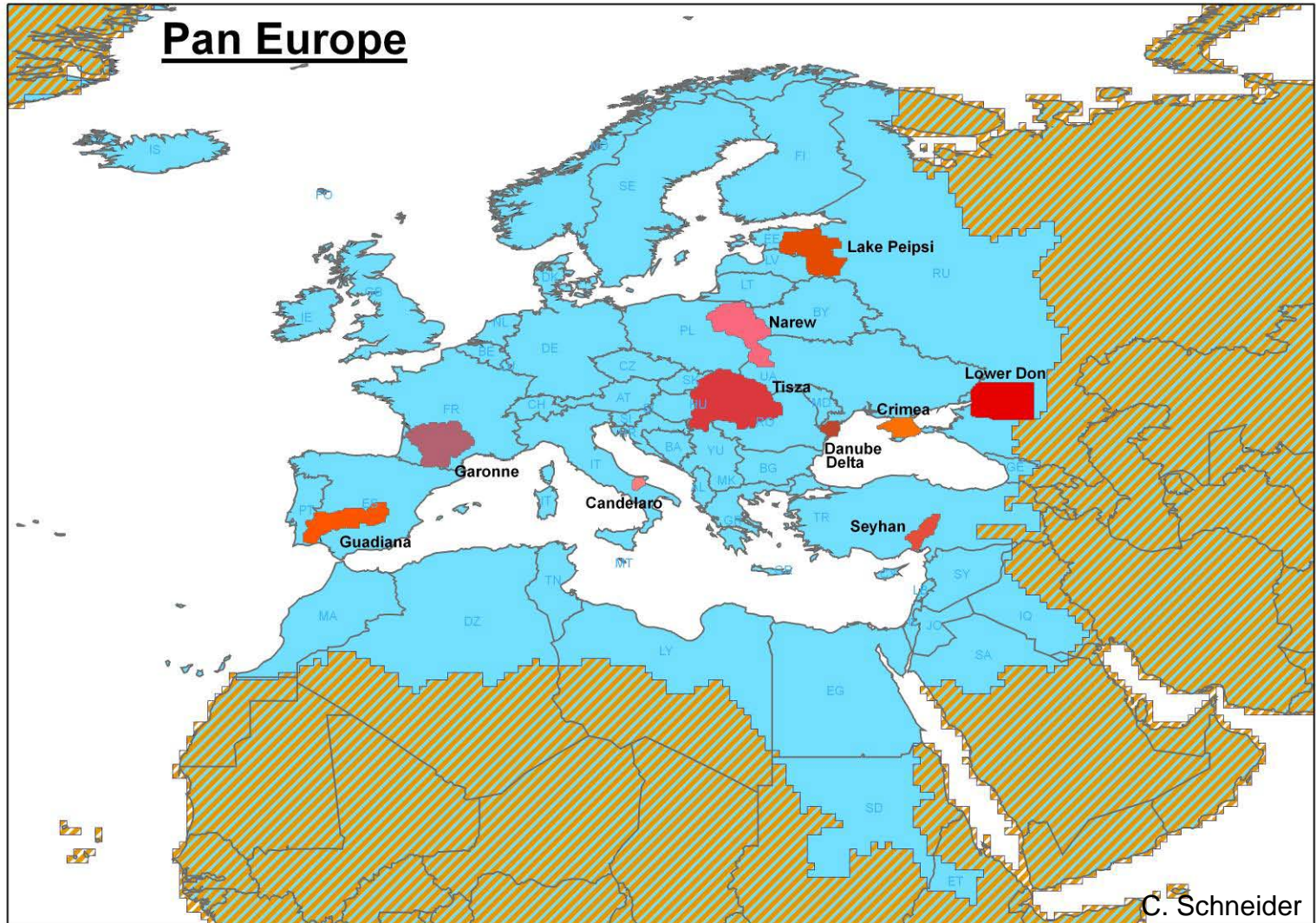
Water Scenarios



K. Kok (WU)



Pan-Europe with Pilot Areas representing Case Study Regions





Regional scale





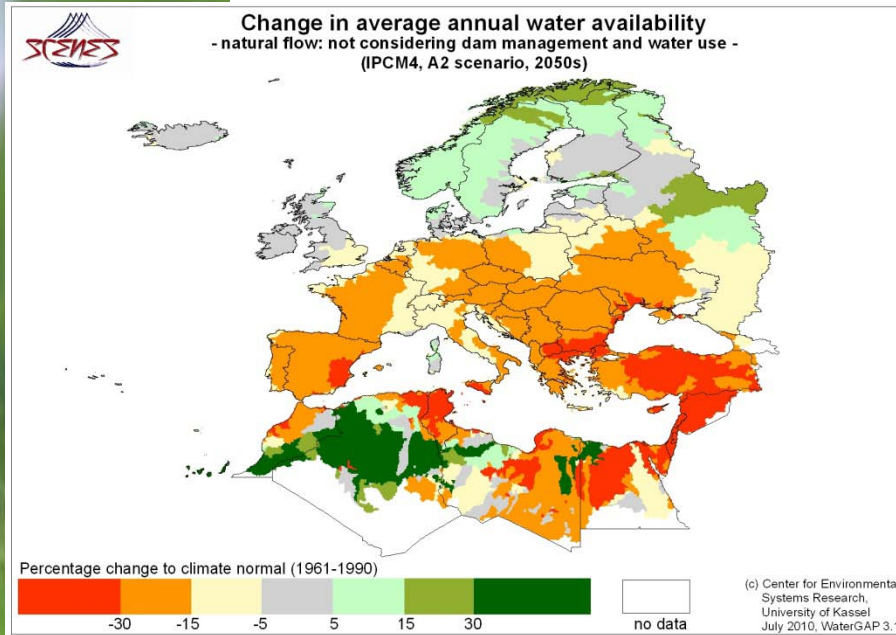
Future water resources

- Climate change will have an impact on:
 - Future water availability

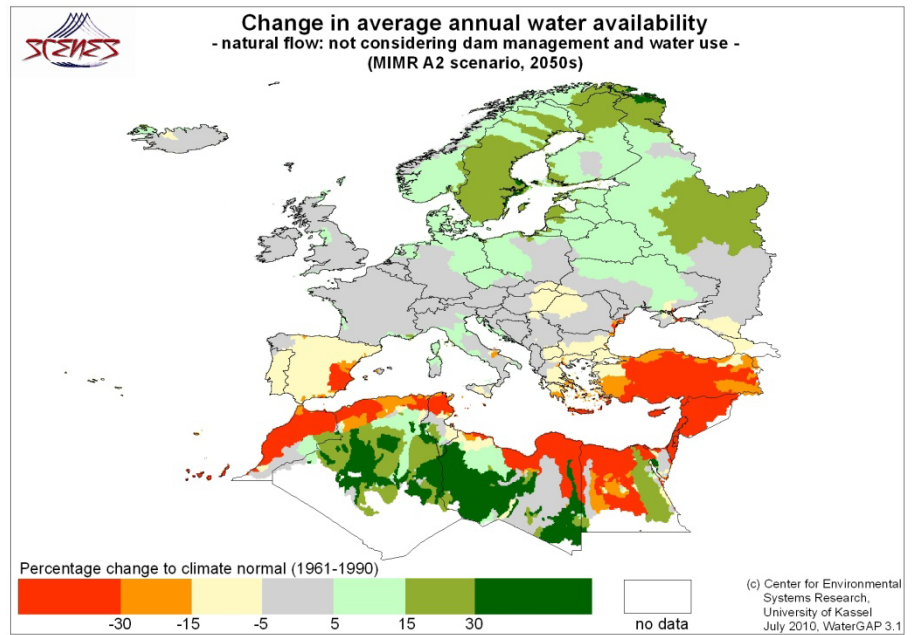




Average annual water availability change 2050 from current (climate only)

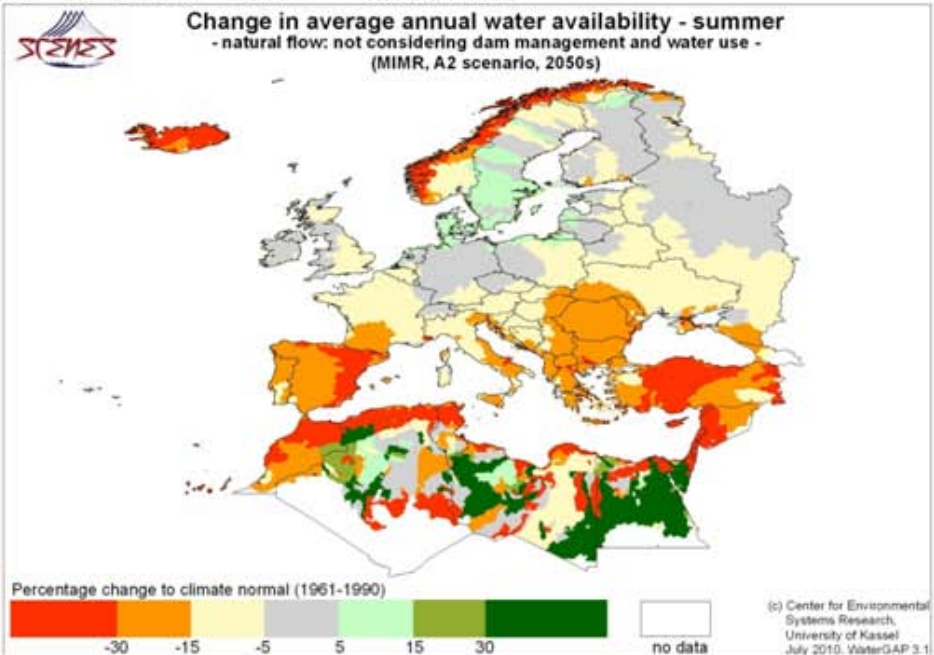
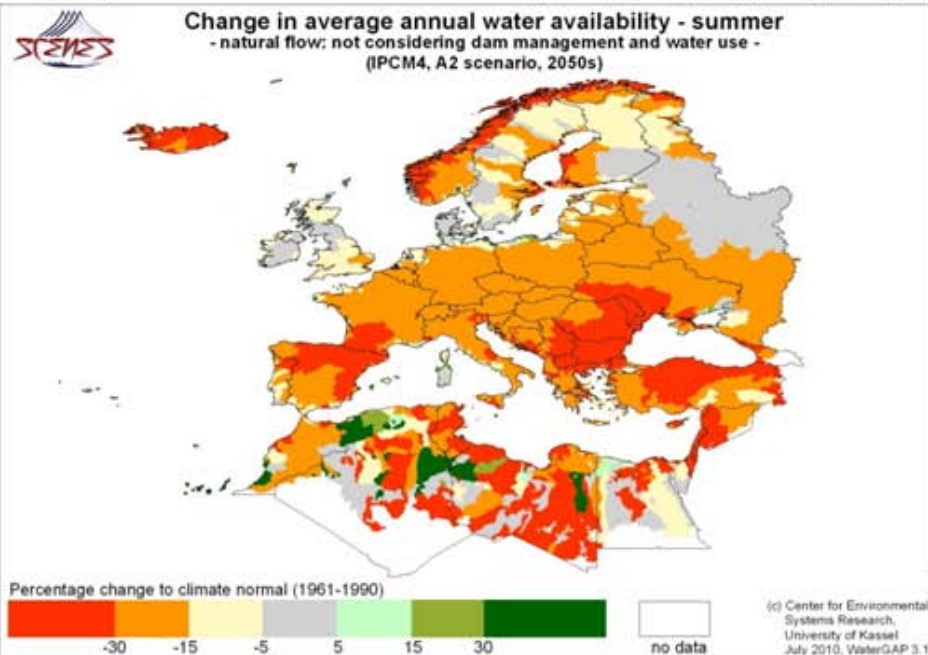
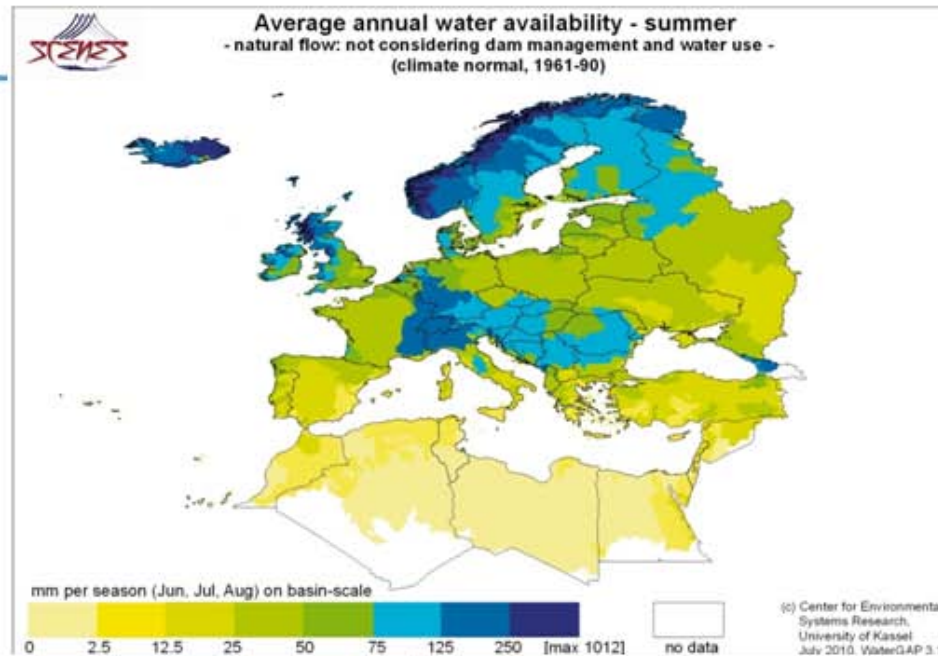


IPCM4



MIMR

Water availability - summer





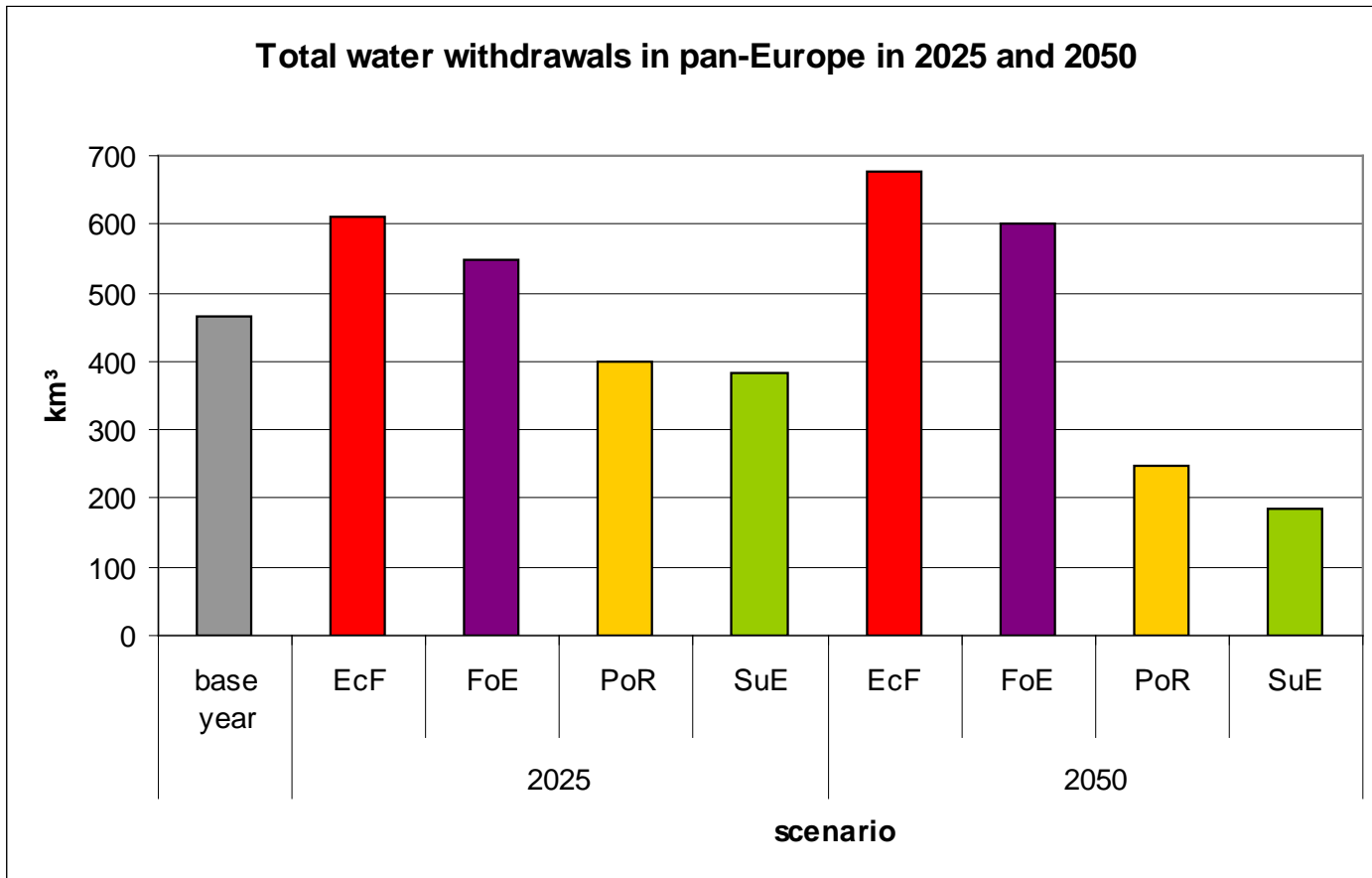
Future water resources

- Climate change will have an impact on:
 - Future water availability
- Socio-economic drivers (e.g. economies, demography , agriculture, technological development) will have a direct impact on:
 - Future water uses

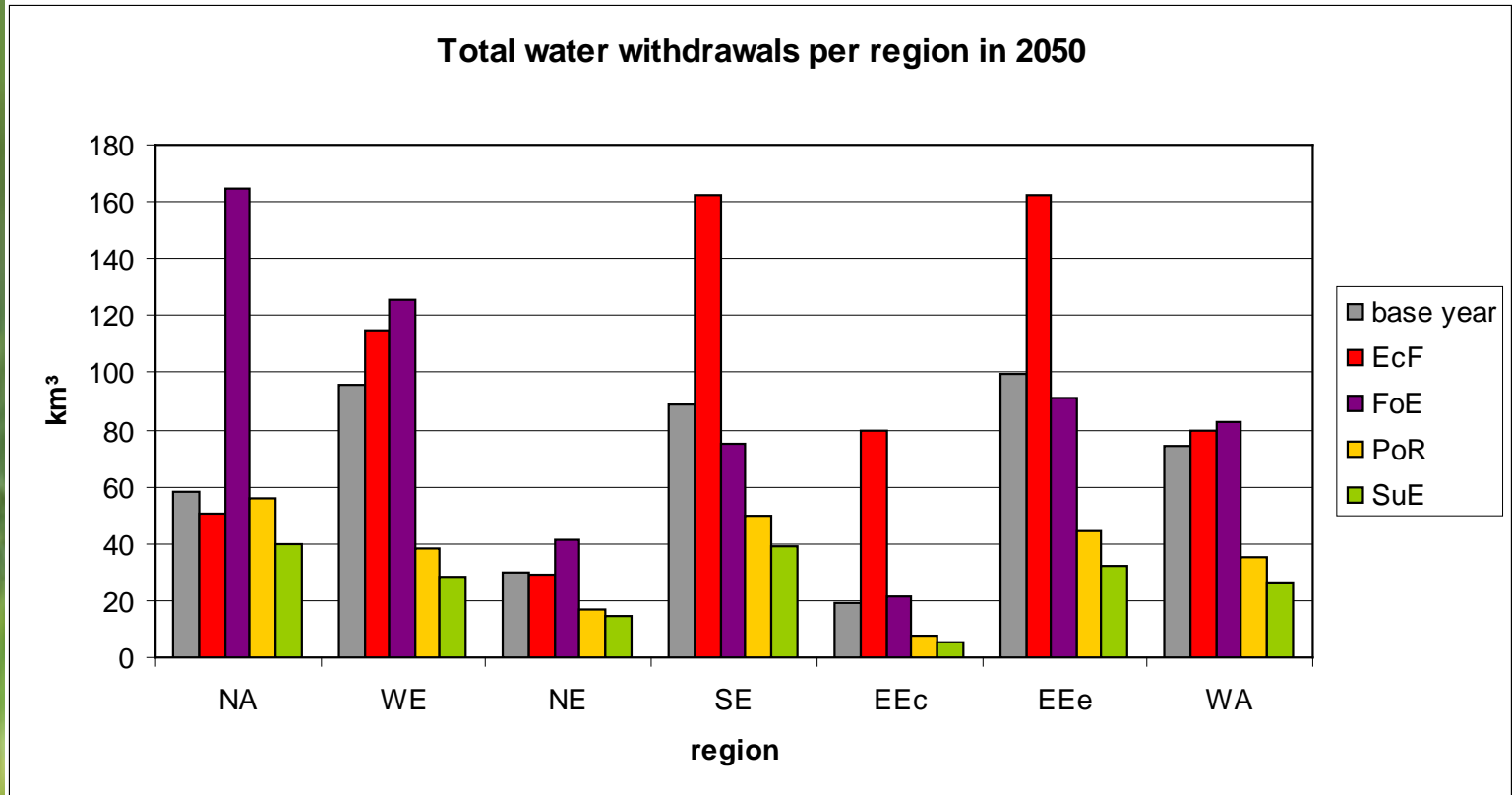




Future water uses ... are expected to increase or decrease depending on scenario



Future water uses





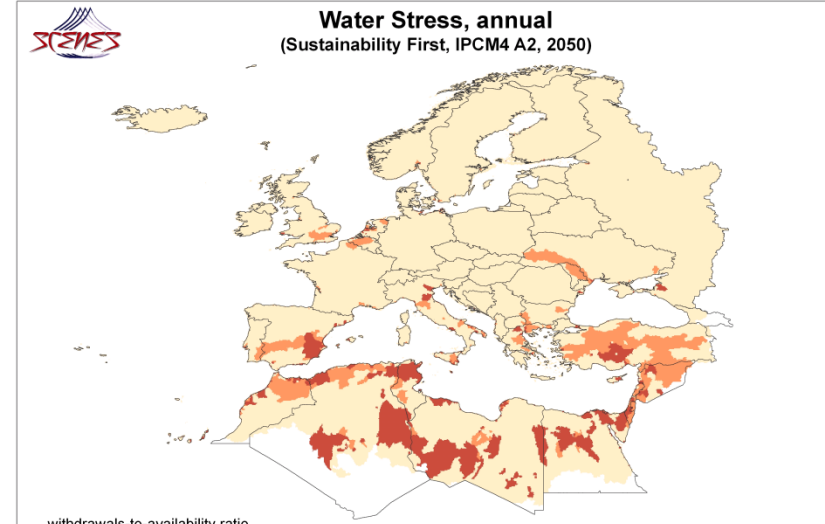
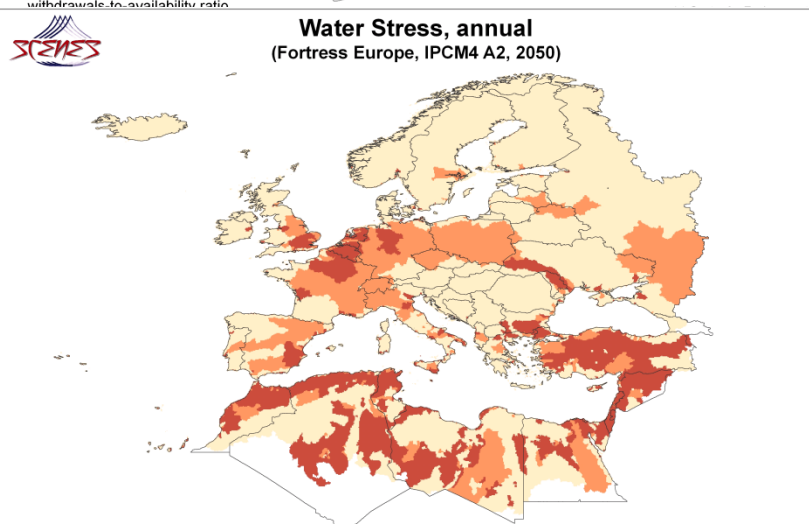
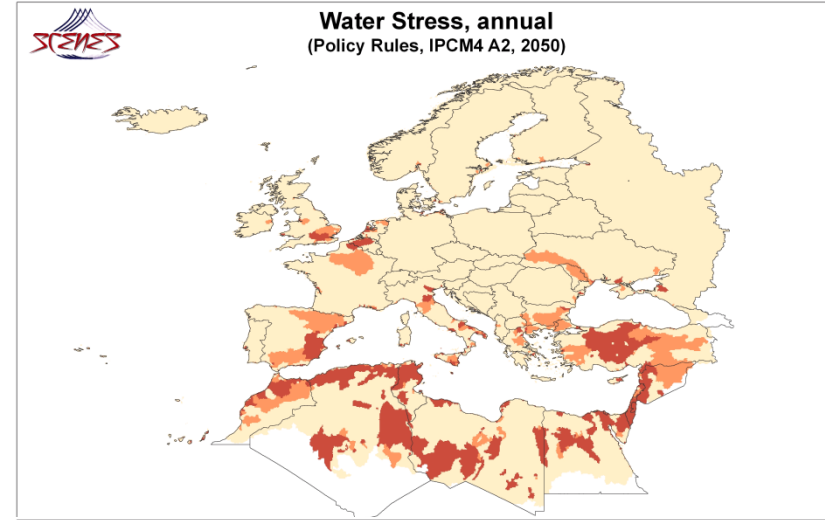
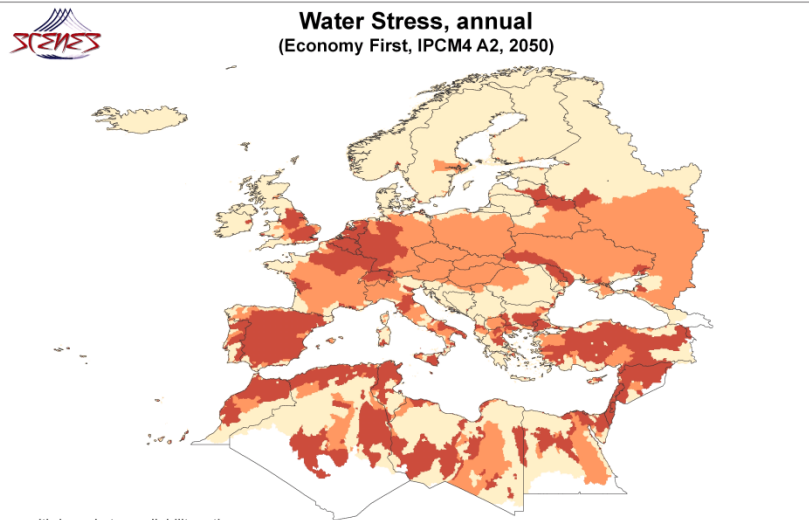
Impacts

Indicator analysis

Different issues are important in different regions



Water stress



withdrawals-to-availability ratio

0 - 0.2	0.2 - 0.4	more than 0.4
[low water stress]	[mid water stress]	[severe water stress]



(c) Center for Environmental
Systems Research,
University of Kassel,
July 2010 - WaterGAP 3.1

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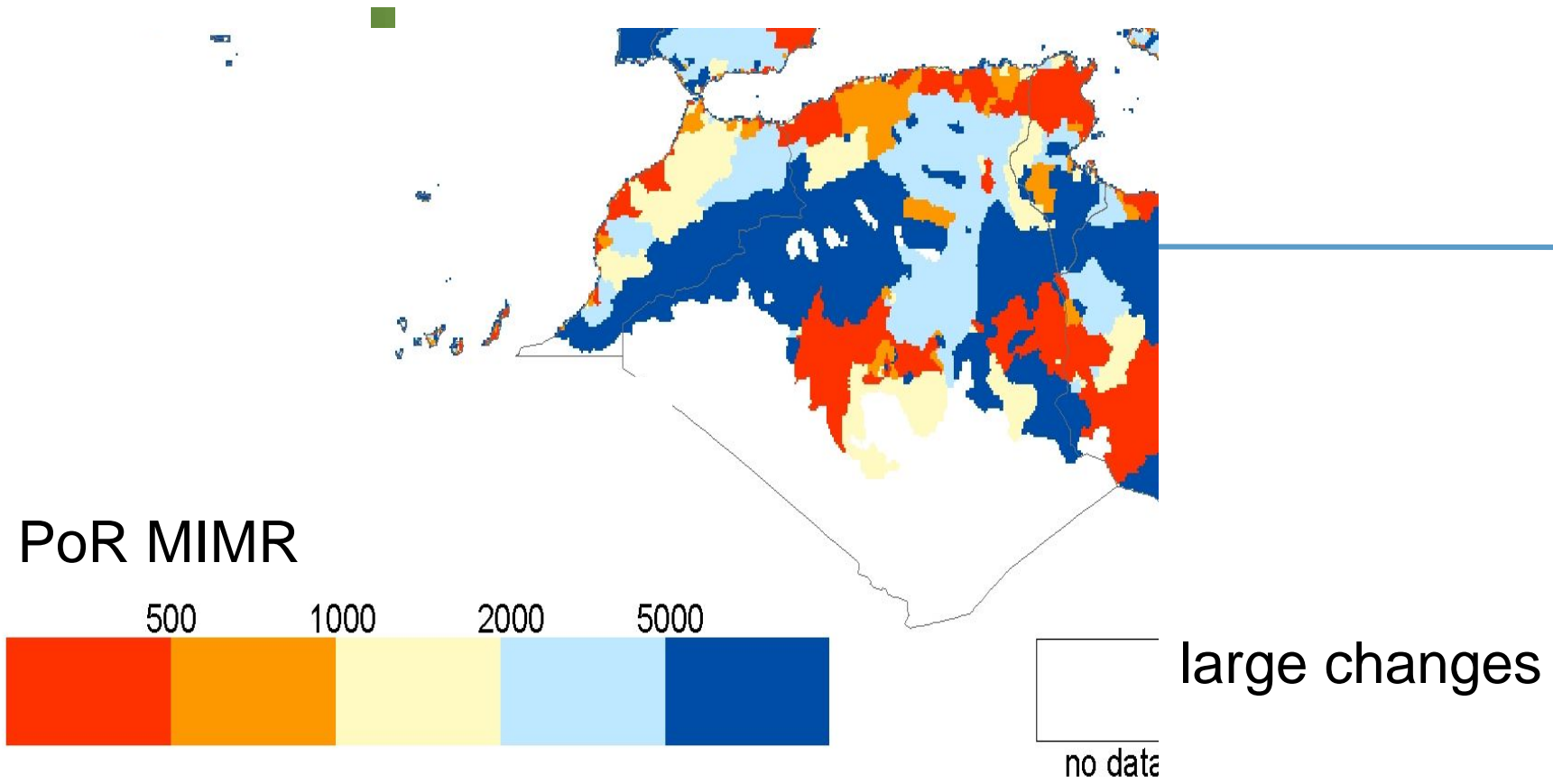


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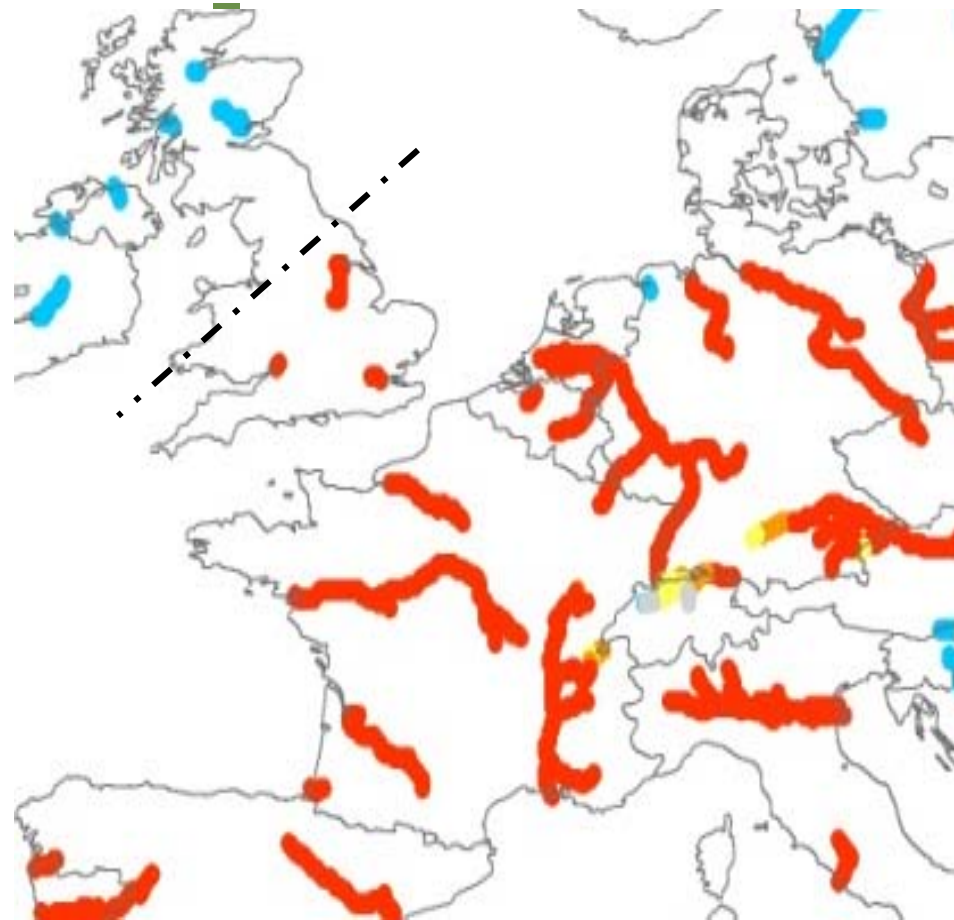
North Africa

low domestic water availability along the coast





Western Europe



high extra
demand for
cooling water

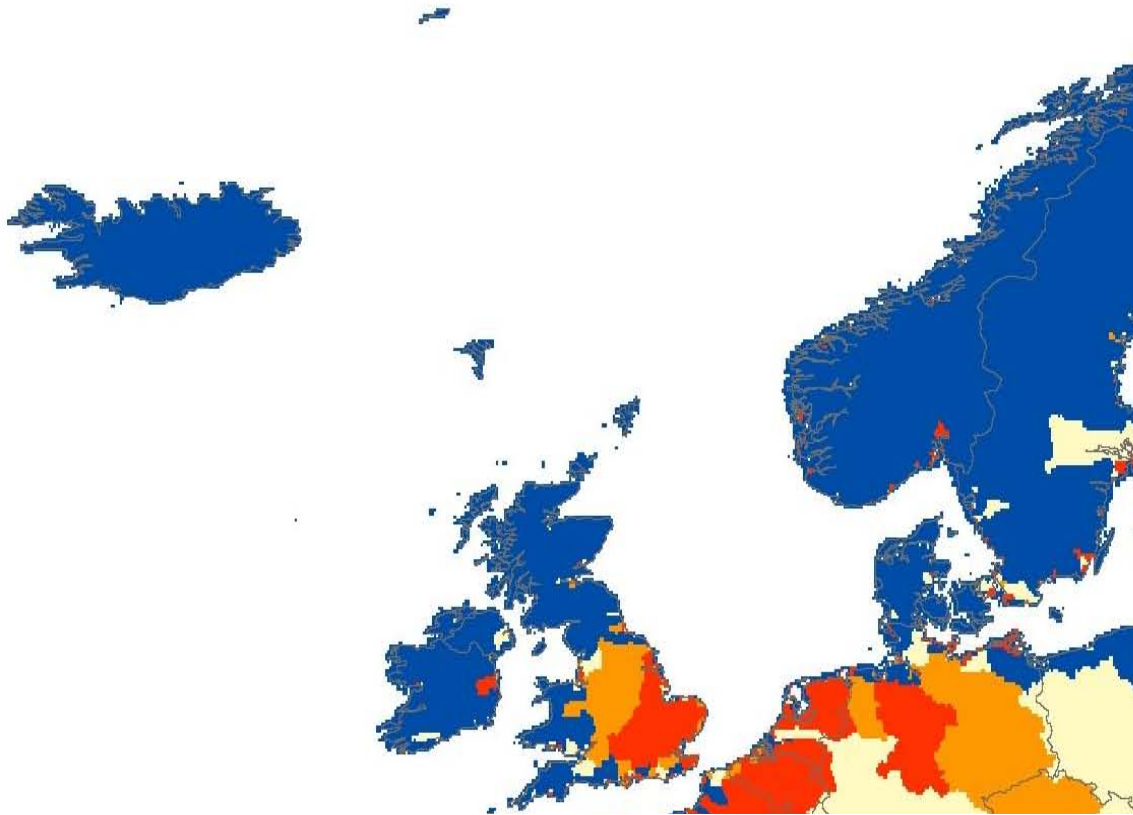


PoR MIMR

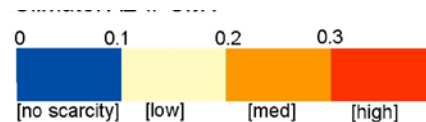
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Future of European Waters Conference, 24/25 March, 2011
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Northern Europe



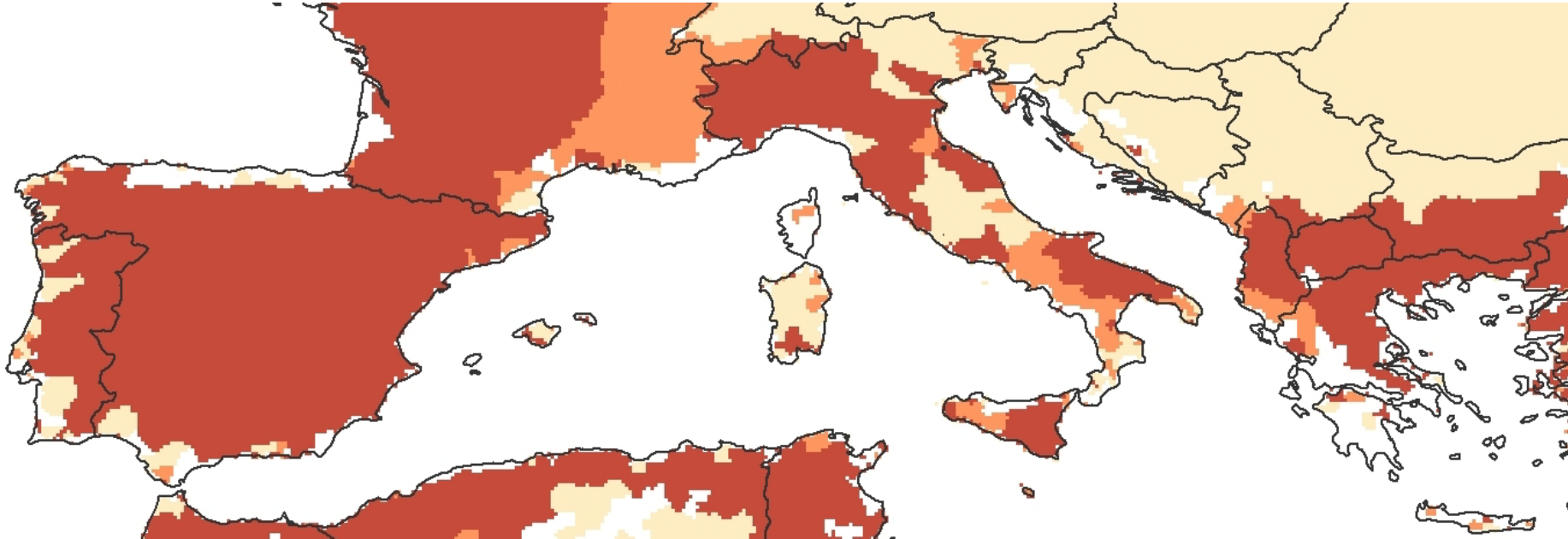
EcF IPCM4



No water scarcity except SE UK



Southern Europe



irrigation-withdrawals-to-availability ratio





Eastern Europe east



medium to high
impacts on river
ecosystems



SuE IPCM4

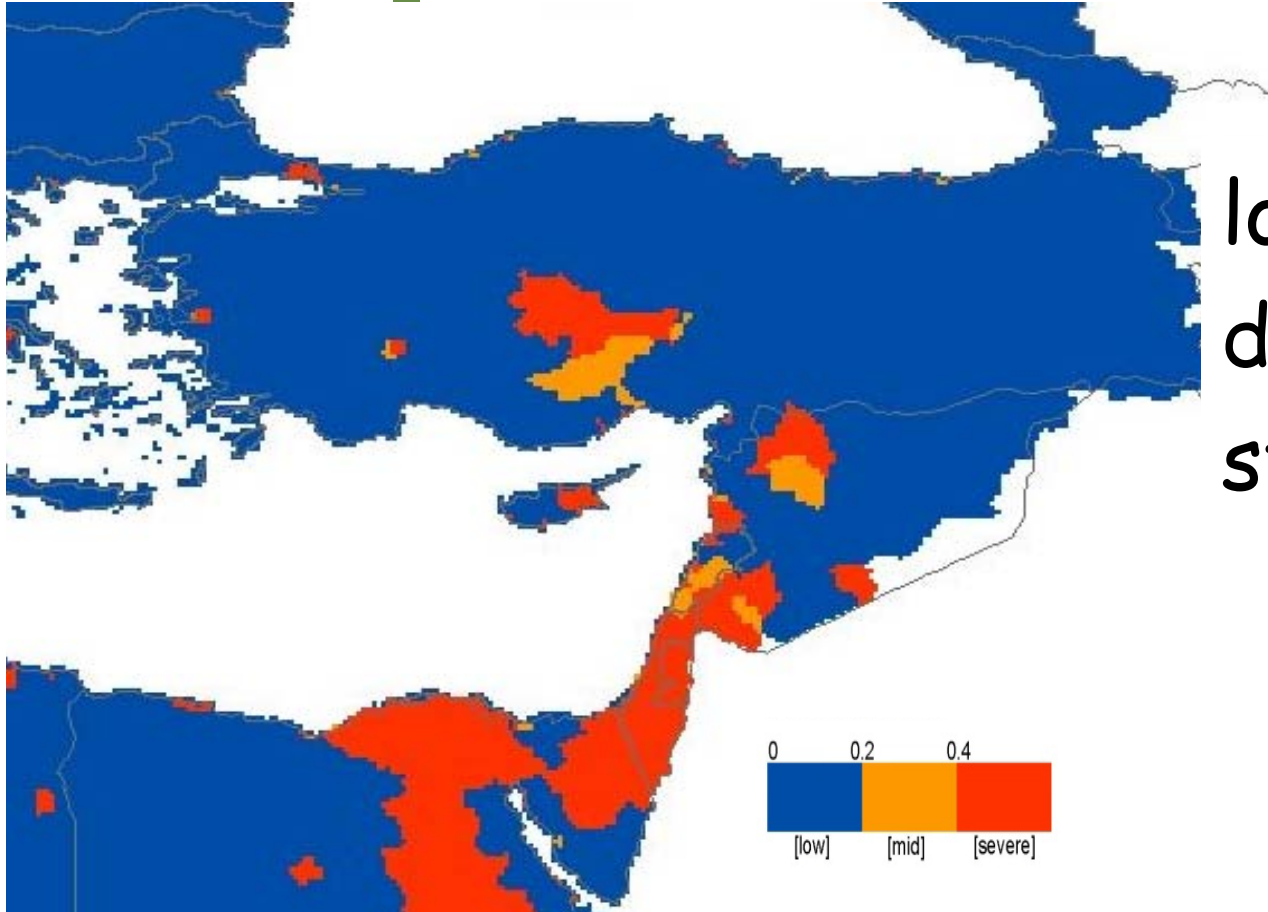
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West Asia

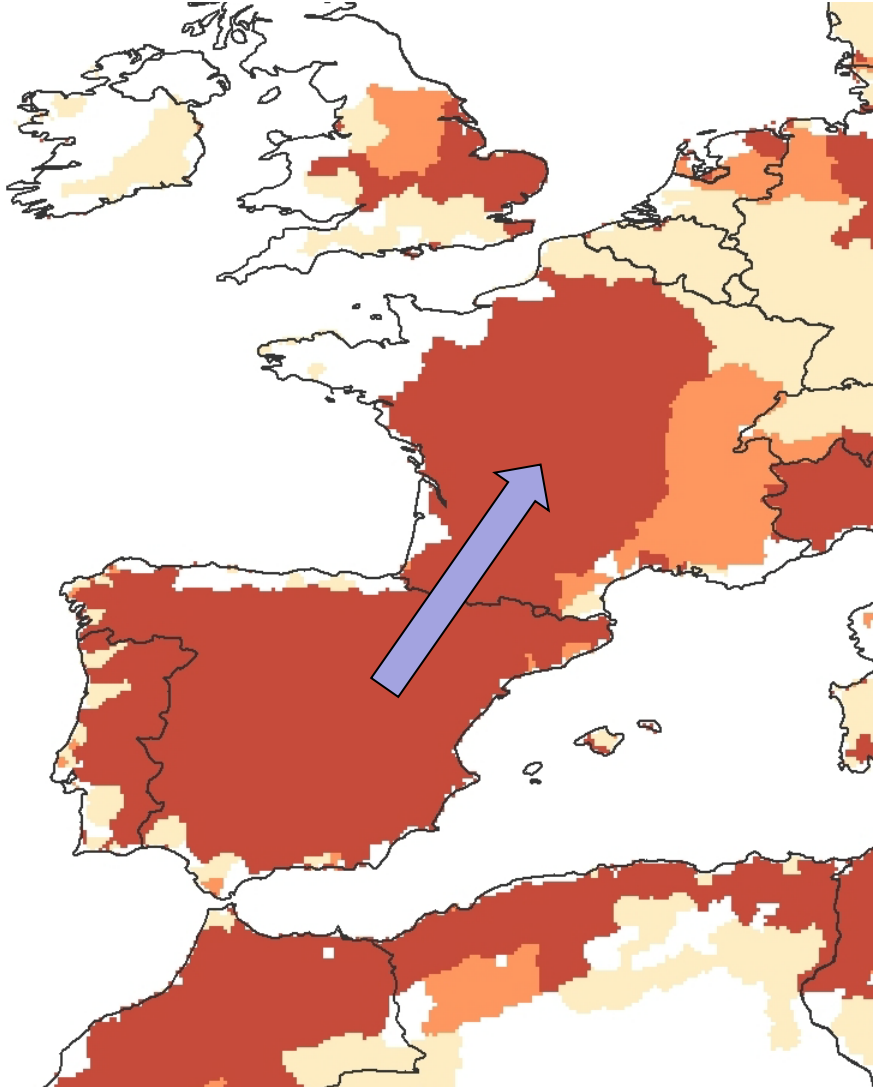


low to severe
domestic water
stress

large changes



Regional shifts



shift in irrigated
area from
southern Europe
to western Europe.

EcF IPCM4

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Robust solutions?

Candidate for robustness	Mediterranean	Baltic	Black Sea	Lower Danube
Economy (taxes, water pricing, voluntary agreements)	+	++	+	+
Agriculture (spatial planning)	+/++	+	+	++
Awareness raising	+	+	++	++
Technological investments	++	+	++	0
CAP reform	++	+/++	0	+
Climate change impact opportunity	-	0/-	0/-	0
Lack of money	0/-	0/-	++	+
Weak governance	0/+	0	++	0/+
Institutions + international agreements	0	0	++	++



Conclusion


Policy matters!

- We do not only have to wait what climate change will bring to us (although mitigation is important)
- But our policy actions will largely determine our future water resources and water services for people and for nature
- Not only environmental policy actions are important

...adaptive management



CHALLENGES FOR THE FUTURE

- 
- A vertical rectangular image on the left side of the slide showing a close-up of a green leaf with a large, clear water droplet resting on its surface.
- ❖ a more frequent interaction between the stakeholders and the scientists
 - ❖ a river basin focus is required to make precise local assessments
 - ❖ a launch of an on-going stakeholder driven water scenario development process
 - ❖ an updated online scenario WebService
 - ❖ a continuing dialogue between scientific findings and integrated policy making

