

Towards Risk Based Management of European River Basins

An introduction to the EC FP  project 

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Rainfall induced debris flow
(Slovenia, November 2000:
7 casualties in houses,
picture. M. Matjaz))

RISKBASE

- Addresses:** topic II.2.1: “Integrated risk based management of the water-sediment-soil system at river-basin scale”.
- Under:** EC 6th RTD Framework Programme (FP6)
- Project type:** Coordination Action (CA)
- Full title:** CA on Risk Based Management of River Basins
- Acronym:** RISKBASE
- Start:** September 1st, 2006 (month 1)
- End:** August 30th, 2009 (month 36)
- Website:** www.riskbase.info

RISKBASE partners/contractors



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RISKBASE objective

to develop **integrated, risk assessment-based management approaches** enabling the prevention and/or reduction of the negative impacts caused by human activities on that system

More concrete: risk to what?

- Goods and **services provided** by the soil-sediment-water ecosystem
- Hereby focus on **resilience*** of this system
- * **Resilience:** river systems have a certain, natural potency to attenuate (**reduce risk**) negative impacts of contaminants (**Natural Attenuation**):
 - Immobilisation
 - Dilution
 - Degradation



RISKBASE deliverables

- 1) **overarching concept**, generic approach and guiding principles to integrated risk based management of EU river basins
- 2) **recommendations** towards evolution and **implementation** of risk based management **in national and community policies** and towards implementation **in management**
- 3) proposal for the European **research agenda** related to risk based management.





Target audience

- **River basin managers** responsible for $\geq 2^{\text{nd}}$ round of drafting RBMPs (Note: 1st round RBMP (≤ 2009) no 'time' to include 'new' concepts ..):
 - As they are probably not yet appointed, best to focus on managers involved in 1st RBMP round (the 'trainers')
 - We have to speak their WFD 'language'
 - Aim at science-policy bridgers/fore front runners (those who look beyond 1st RBMP)
- But also other **stakeholders** in general industry, water companies, NGOs, OECD...
- Decision making & policy DG Environment & national

Objectives of River Basin Managers



According to the Water Framework Directive (WFD):

- Protection of **ALL** waters
- Good ecological and good chemical status by 2015
- Degradation of water bodies not allowed
- Stepwise reduction/elimination of the emission of hazardous substances

Challenges

EU river basin managers face several challenging management issues when trying to achieve the WFD objectives.

In general they have to manage:

- Hydro-morphological changes
- Quantity (water/sediment excess and shortage)
- Quality (diffuse and point source contamination)

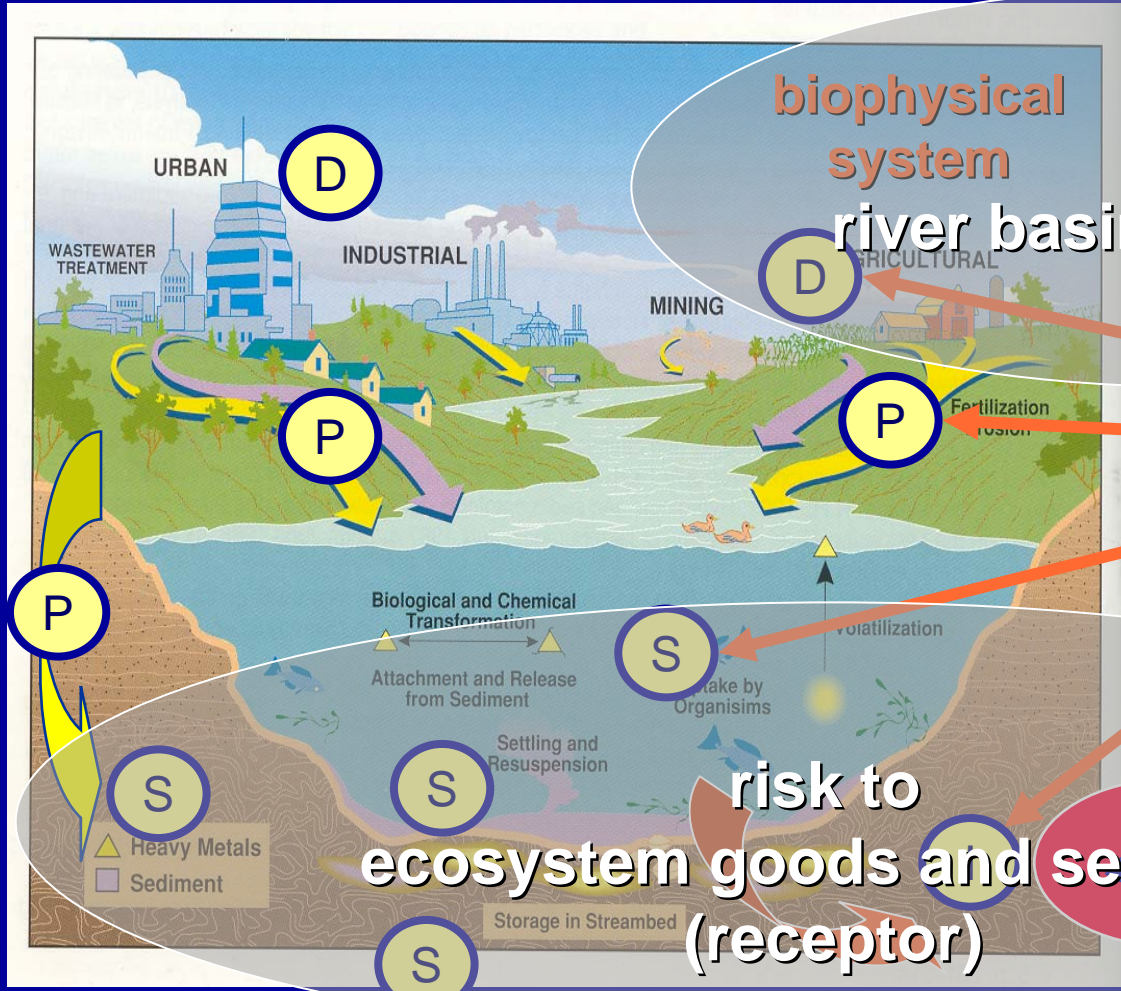


Their main uncertainties:

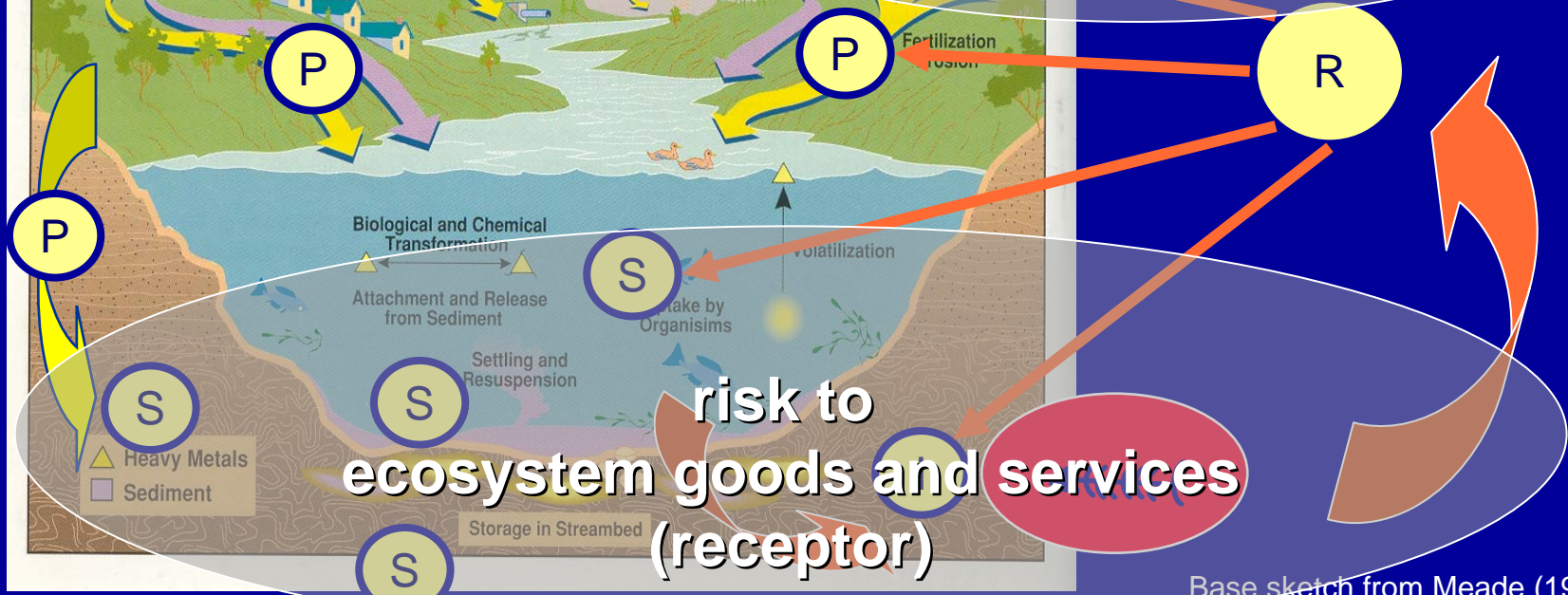
- Combined impact of above issues?
- Changes in socio-economic driving forces and resulting pressures?
- Effects of climate change?
- Effectiveness of measures?

Key: improve system understanding!

DPSIR as conceptual framework for (improved) understanding of the system

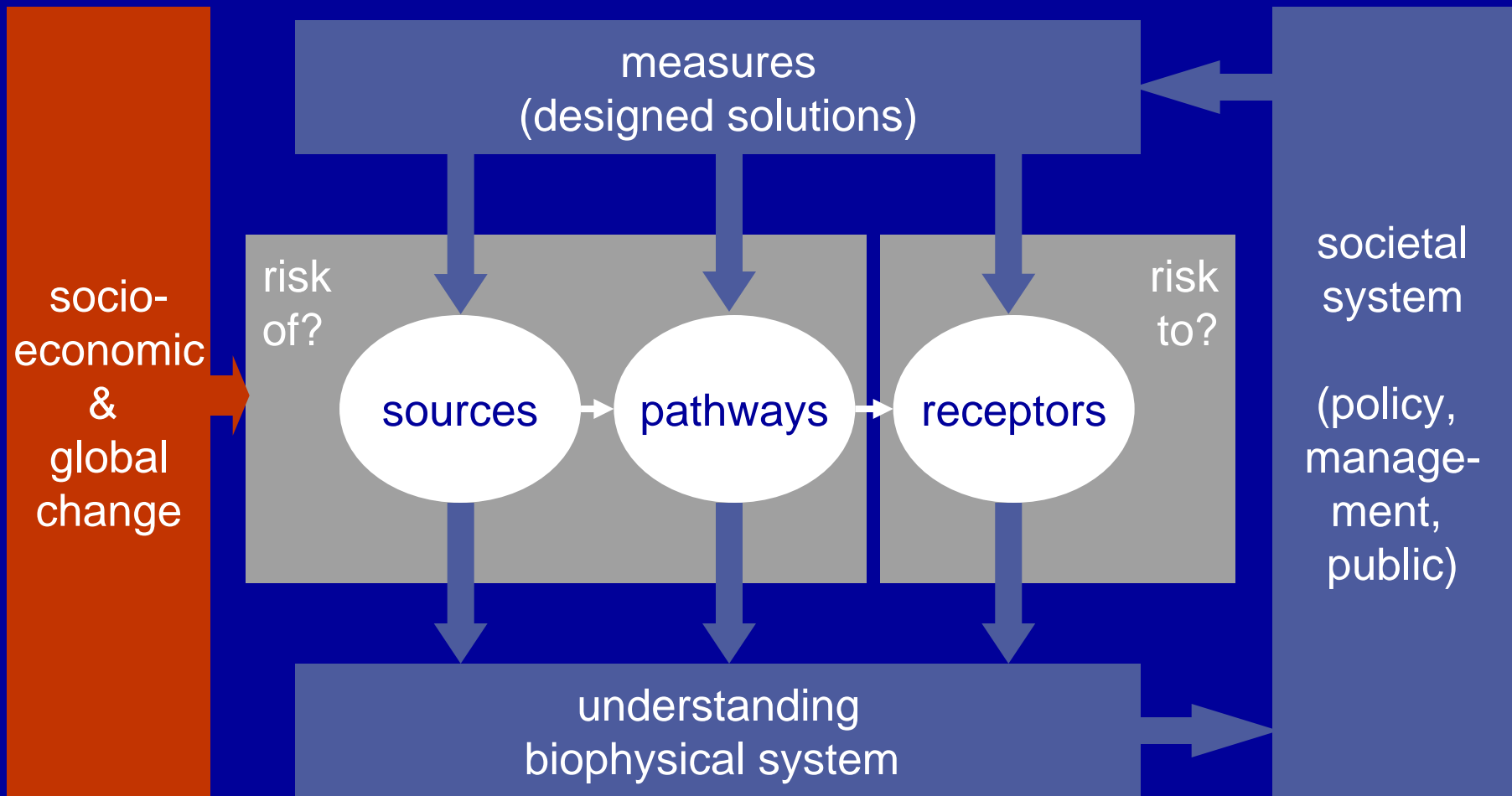


biophysical system
 societal system
 river basin management



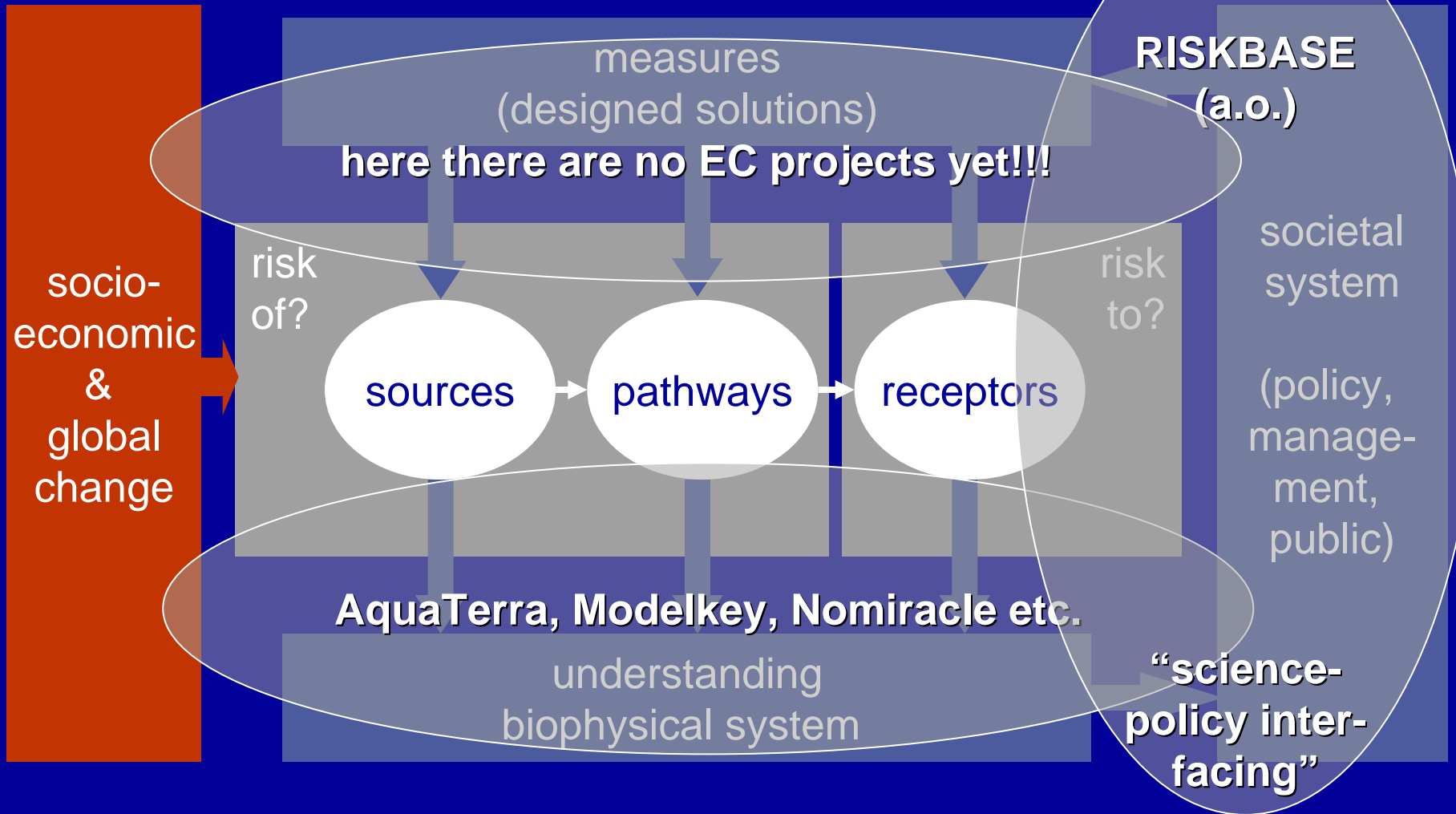
Base sketch from Meade (1996)

Towards a risk-based management framework ...



RISKBASE DRAFT CONCEPT for risk-based management (RISKBASE, 2007)

Where are the main EC projects ...



RISKBASE DRAFT CONCEPT for risk-based management (RISKBASE, 2007)

manage

understand

political

What are the political priorities/decisions
the voice of "society"

political
sieve

costs &
benefits

Cost Effectiveness Analysis (CEA) - focused
Cost Benefit Analysis (CBA) - holistic
how does "society" value the benefits

socio-
economic
sieve

solution
design

What are the options for solving these problems?
minimise/remove source; intercept/modify pathway; remove/protect receptor
e.g. - *reduce fertiliser inputs; permeable reactive barriers; treat water supply*
how does "society" view the options

system
understanding

What **critical linkages** drive/disrupt the system?



understand the system; understand the **pressure linkages**
and **how pressures propagate through catchments**

how can "society" help with our understanding
- anglers, dog walkers



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political sieve

socio-economic sieve



the logical pathway/process line



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understand

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costs & benefits

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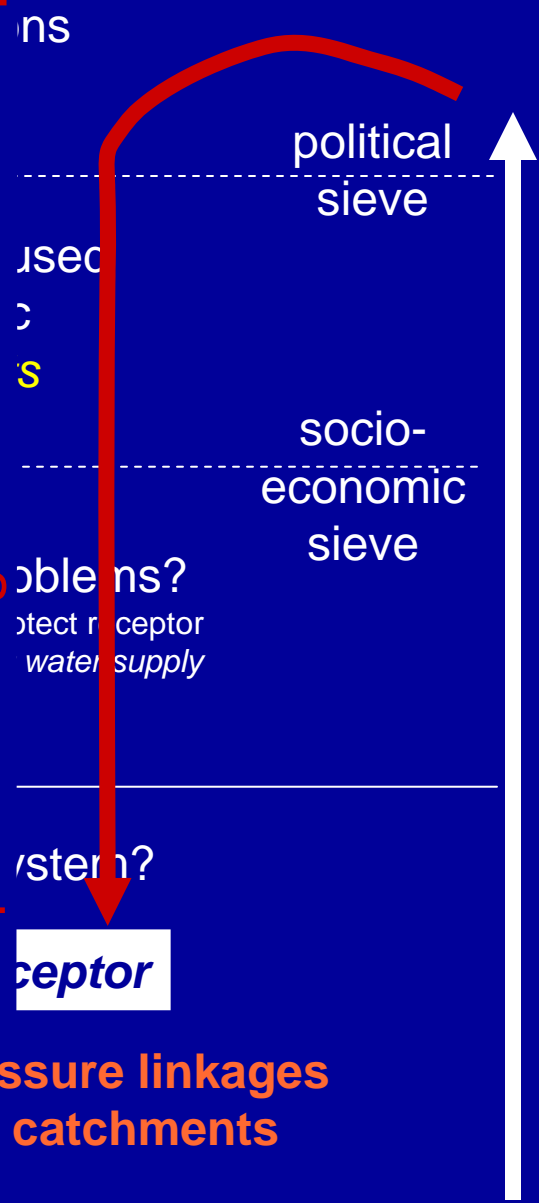
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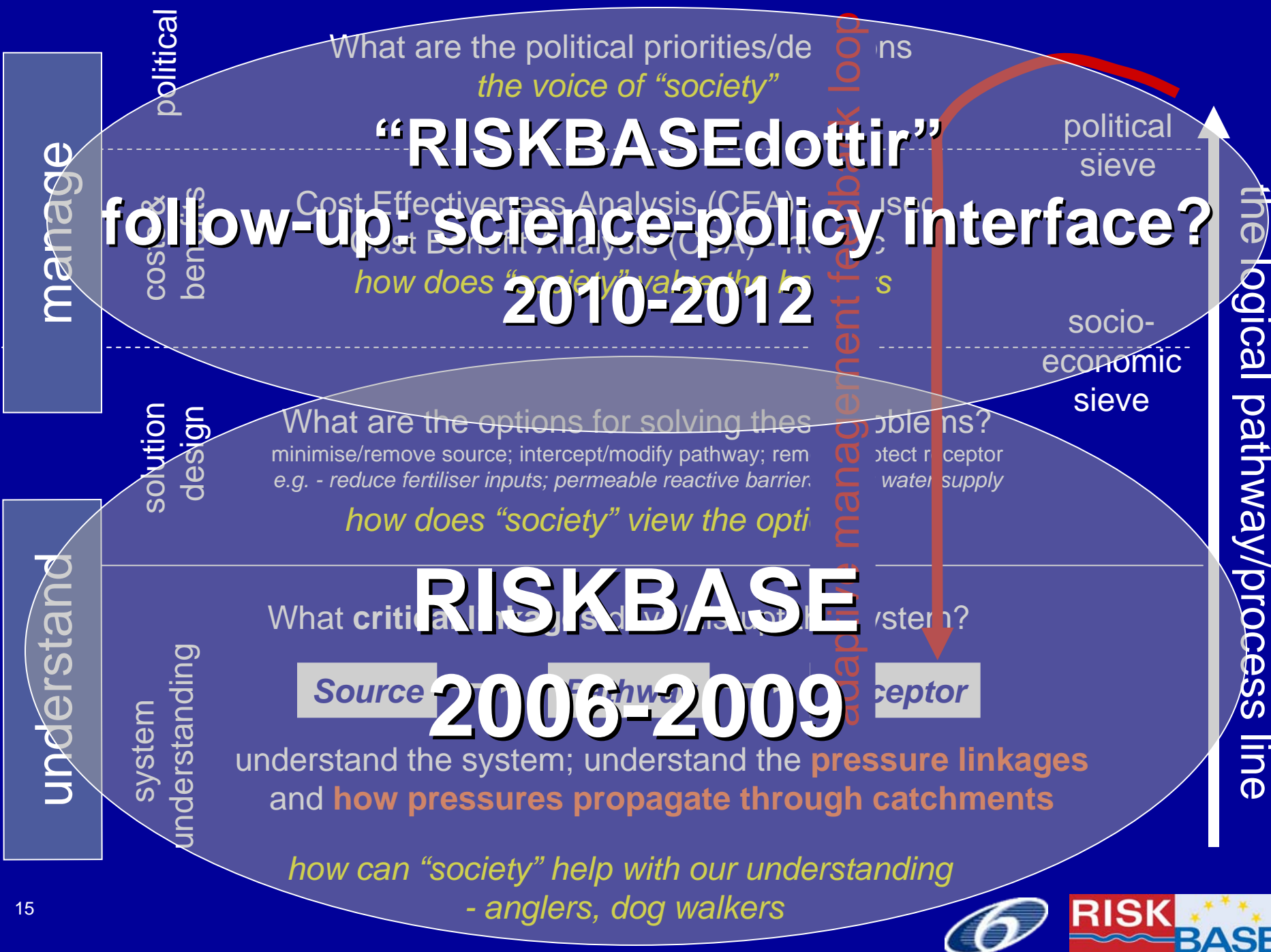


understand the system; understand the **pressure linkages** and **how pressures propagate through catchments**

how can "society" help with our understanding - anglers, dog walkers

adaptive management feedback loop





“RISKBASEdottir”

follow-up: science-policy interface?

2010-2012

manage

understand

the logical pathway/process line

political

costs & benefits

solution design

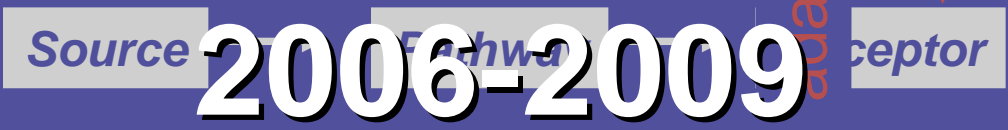
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 Cost Benefit Analysis (CBA) – *how does “society” value the benefits*

What are the options for solving these problems?
 minimise/remove source; intercept/modify pathway; remove
 e.g. - reduce fertiliser inputs; permeable reactive barrier.
how does “society” view the options?

What critical linkages exist/receptor system?



understand the system; understand the **pressure linkages** and **how pressures propagate through catchments**

how can “society” help with our understanding - anglers, dog walkers

political sieve

socio-economic sieve

swapping management feedback loop

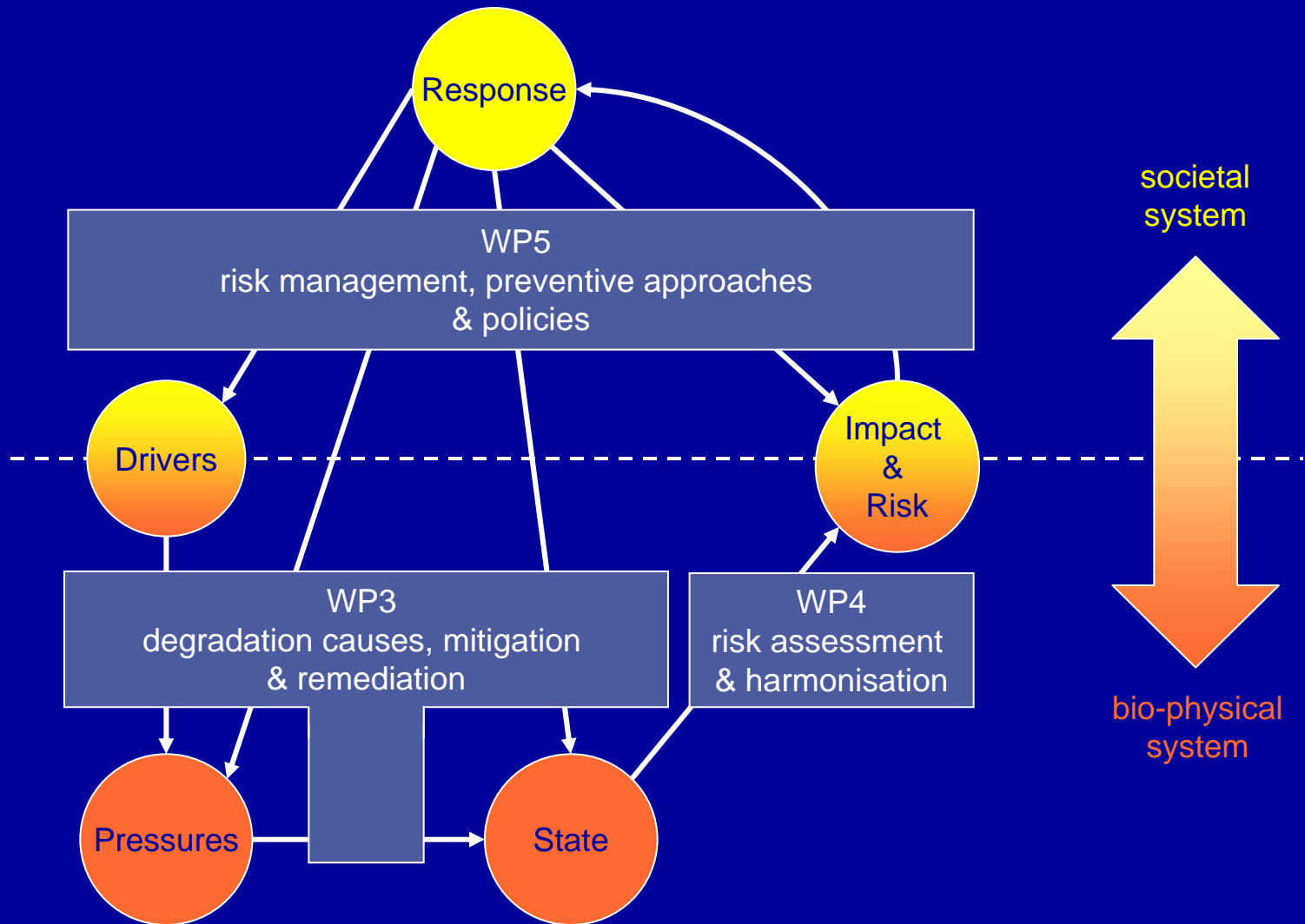


RISKBASE working modus

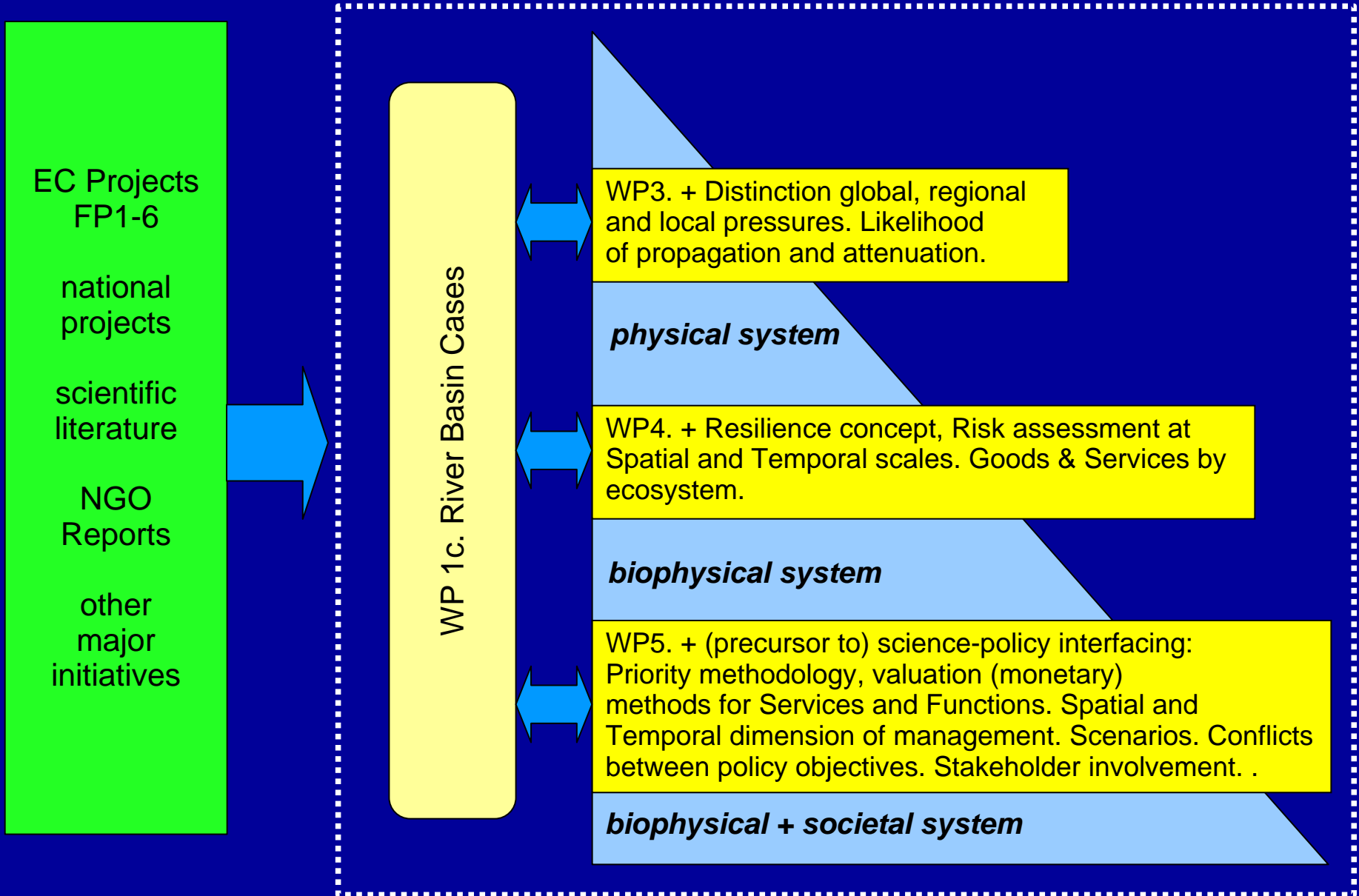
- **review and synthesis** of the outcome of EC RTD Framework Program projects and other major initiatives
- done in several **workshops** dedicated to specific issues related to risk based management at the river-basin scale
- annually a **General Assembly (GA)**
- use **EUGRIS** as web-based information exchange structure
- workshops, GA and the website **open** to all who are interested and willing to contribute to achieve the RISKBASE goals and objectives



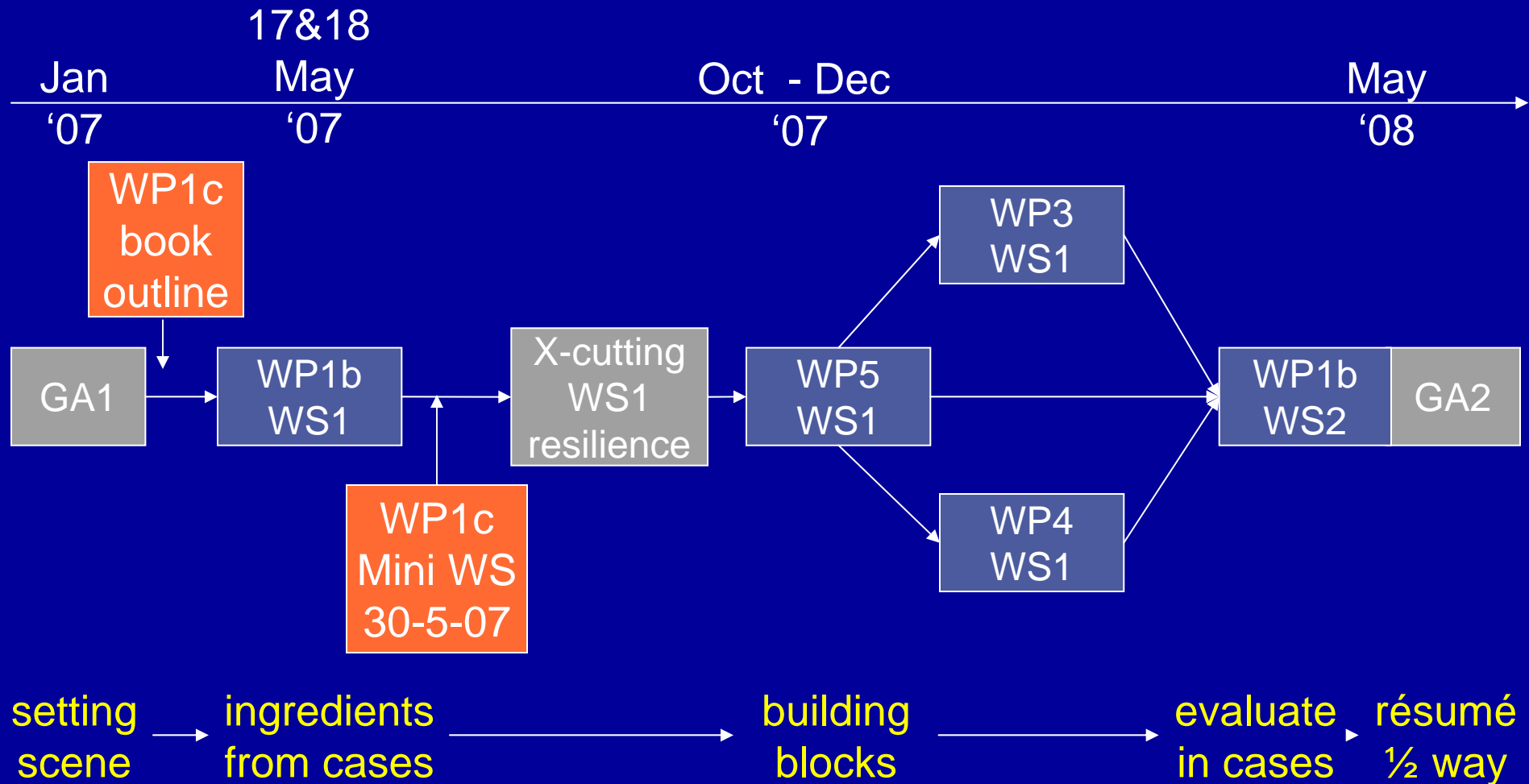
DPSIR as basis to RISKBASE project structure



Flow of information between WPs



Activity diagram (WP in-output relationships) (program, details, dates etc. at www.riskbase.info)



Thank you for your attention

