World Water Congress XV
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Building robust strategies for sustainable water management through stakeholder-informed scenario development

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POLITÉCNICA

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The SCENES Project & follow-up

Water Scenarios for Europe and for Neighbouring States

http://www.environment.fi/syke/scenes

- Integrated EU-Funded FP6 Project
- 27 research institutions, 15 countries
- **Aim:** to develop and analyse future water scenarios for Europe and neighbouring countries for the years 2025 and 2050 counting on an active stakeholder participation

MULTI-SCALE DESIGN
Pan-European→ Regional→ Pilot Area

Baltic
- Narew (Poland)
- Peipsi lake (Estonia)

Lower Danube
Upper Tisza (Hung./Ukraine)
Danube Delta (Rom./Ukra/Bulg.)

Mediterranean
- Guadiana (Spain)
- Candelaro (Italy)
- Seyhan (Turkey)

Black Sea
- Lower Don (Russia)
- Lower Dneper (Ukraine)

Methods - Looking into the future

How to look at the future? → need to make assumptions...

Scenario development:

- Permits to look at the future in a structured and systematic way
- Dealing with complexity and addressing uncertainty
- Widely used in policy analysis and decision-making

→key for environmental research and sustainability assessment

Participatory scenario development:

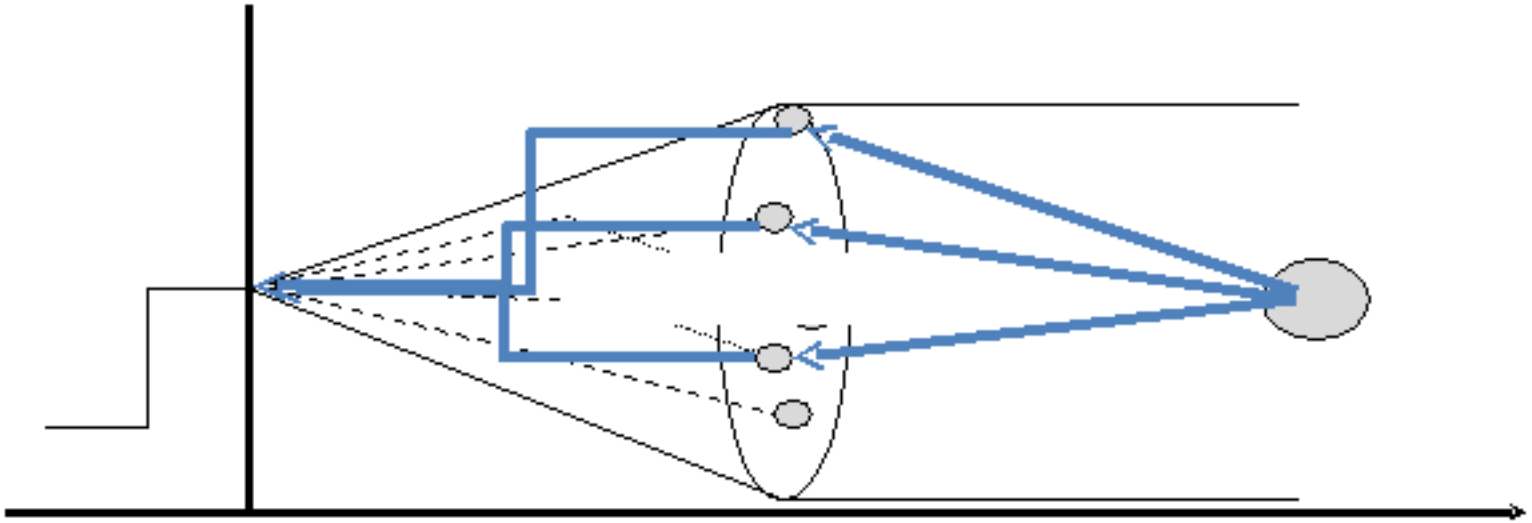
- Profits from local knowledge
- Provide solutions that are more applicable, targeted, acceptable, and adapted to real local contexts

Methods - Looking into the future

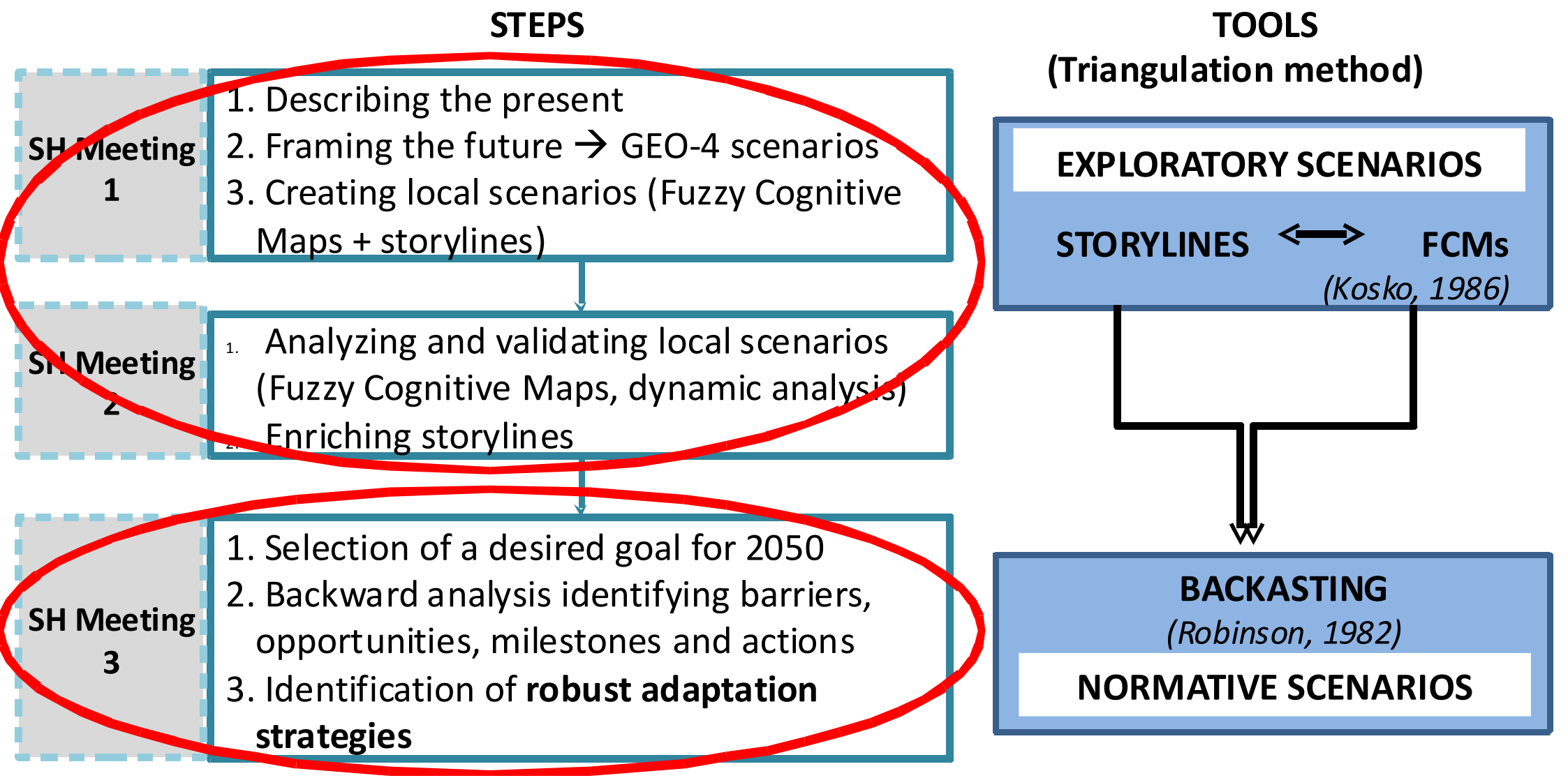
Scenario types

- **Exploratory:** descriptive, different plausible pathw
- **Normative/"Backcasting":** fixed endpoint, then const path to reach that outcome

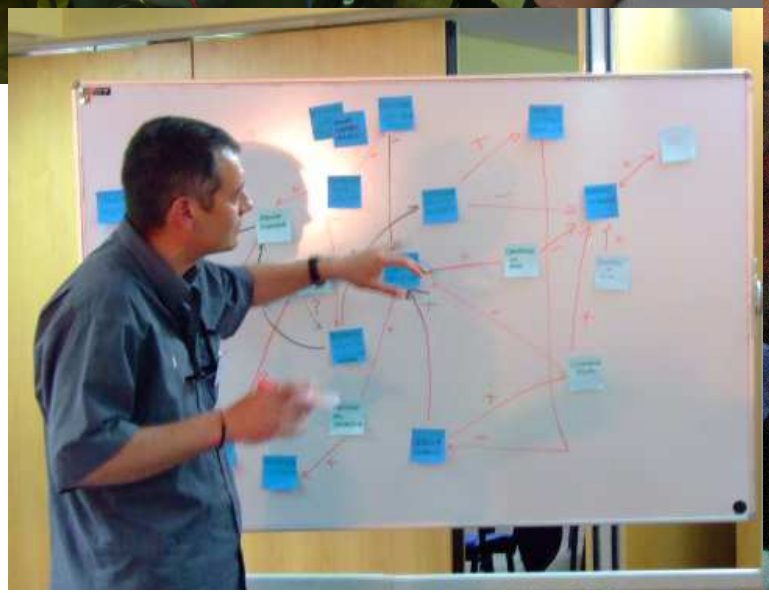
COMBINED



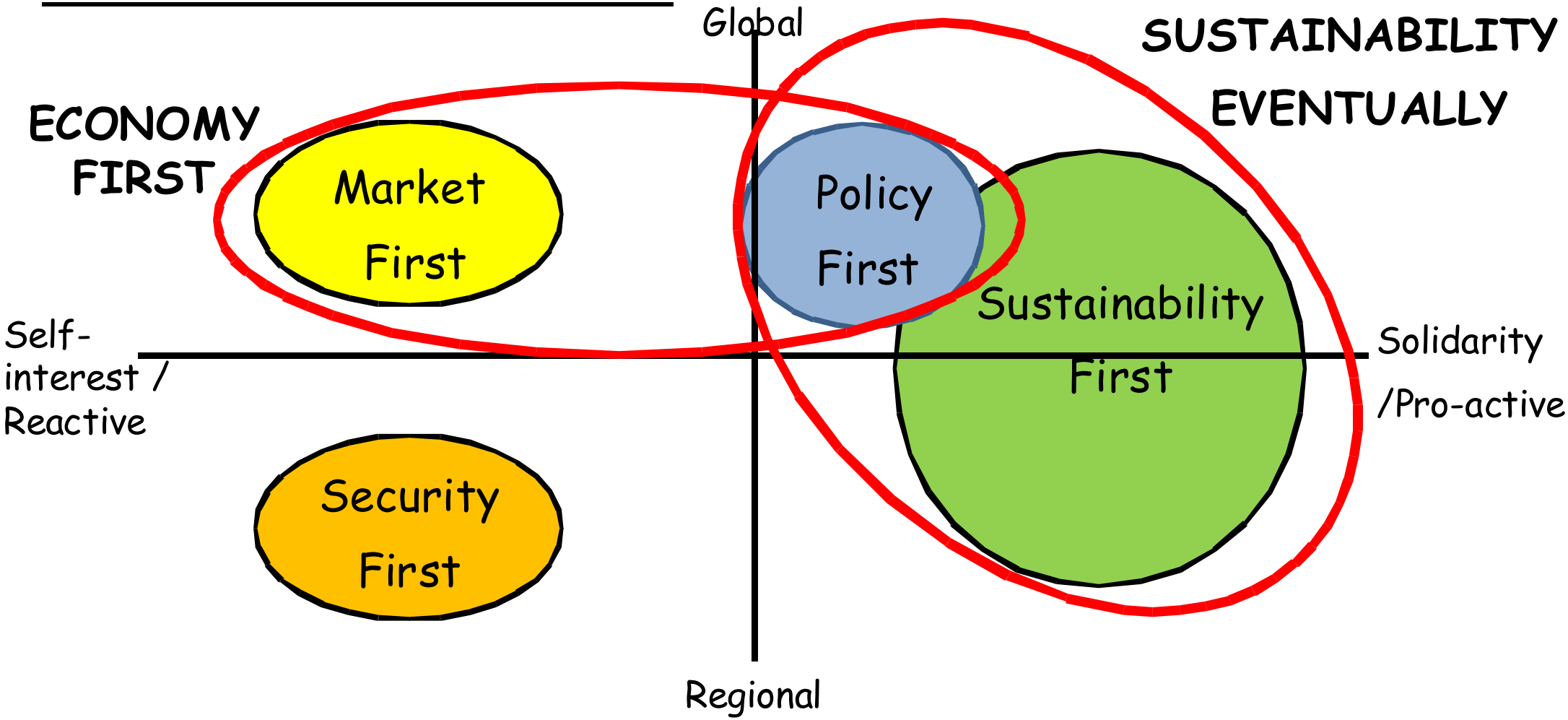
Methods - Participatory scenario development



Building FCMs & Storylines



The Global GEO-4 scenarios:



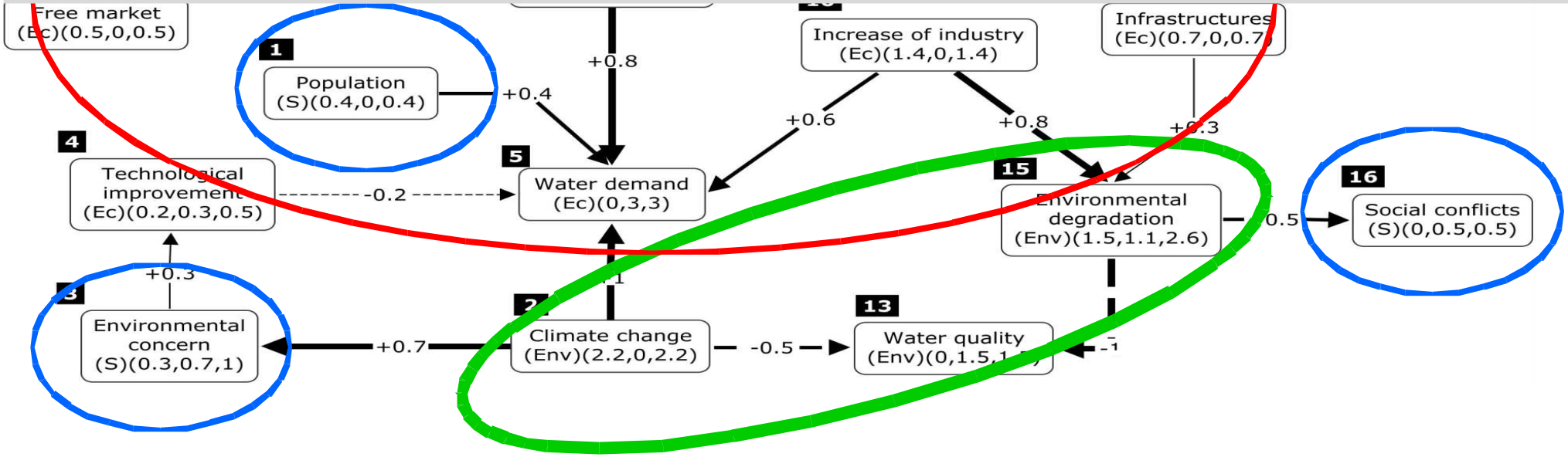
Results – Exploratory scenarios

ECONOMY FIRST SCENARIO

STORYLINE:

- Market forces are the key drivers of the system (globalization, liberalization)
- High level of technology development and innovation
- Water resources progressively deteriorates, driven by agricultural intensification and the low importance of social or environmental issues

FCM (future state of the water system 2050)



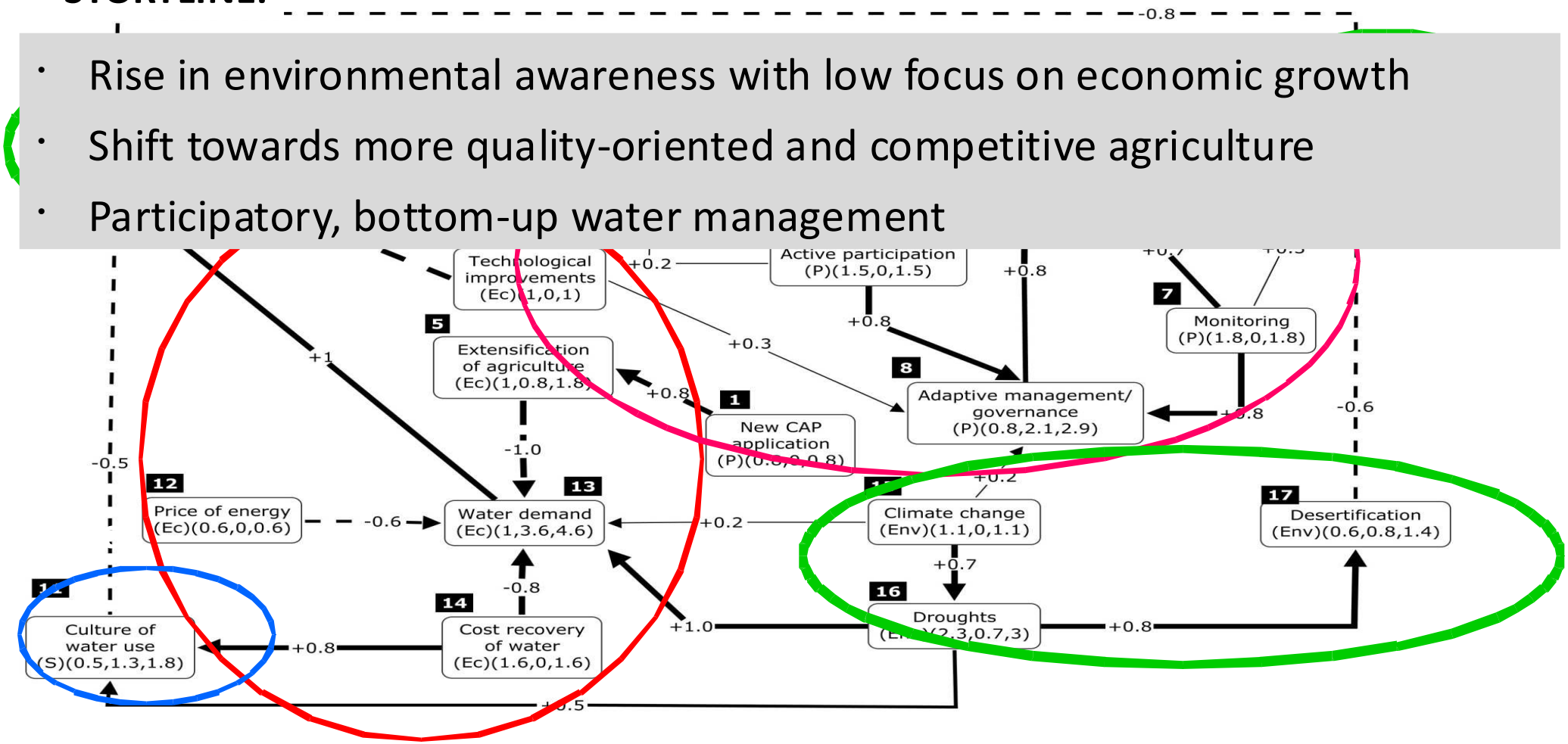
Results – Exploratory scenarios

SUSTAINABILITY EVENTUALLY SCENARIO

STORYLINE:

- Rise in environmental awareness with low focus on economic growth
- Shift towards more quality-oriented and competitive agriculture
- Participatory, bottom-up water management

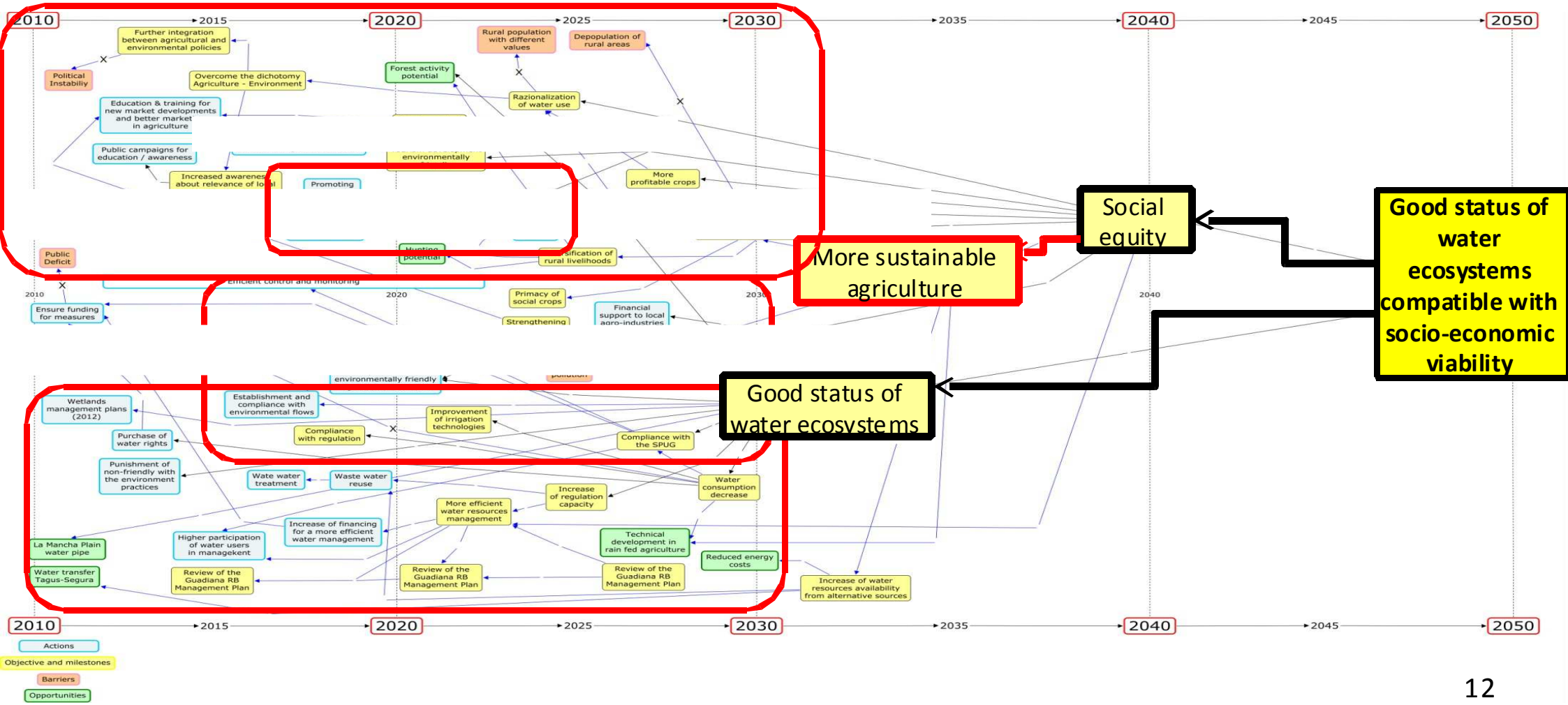
FCM (future state of the water system 2050)



Methods – Building Backcasts

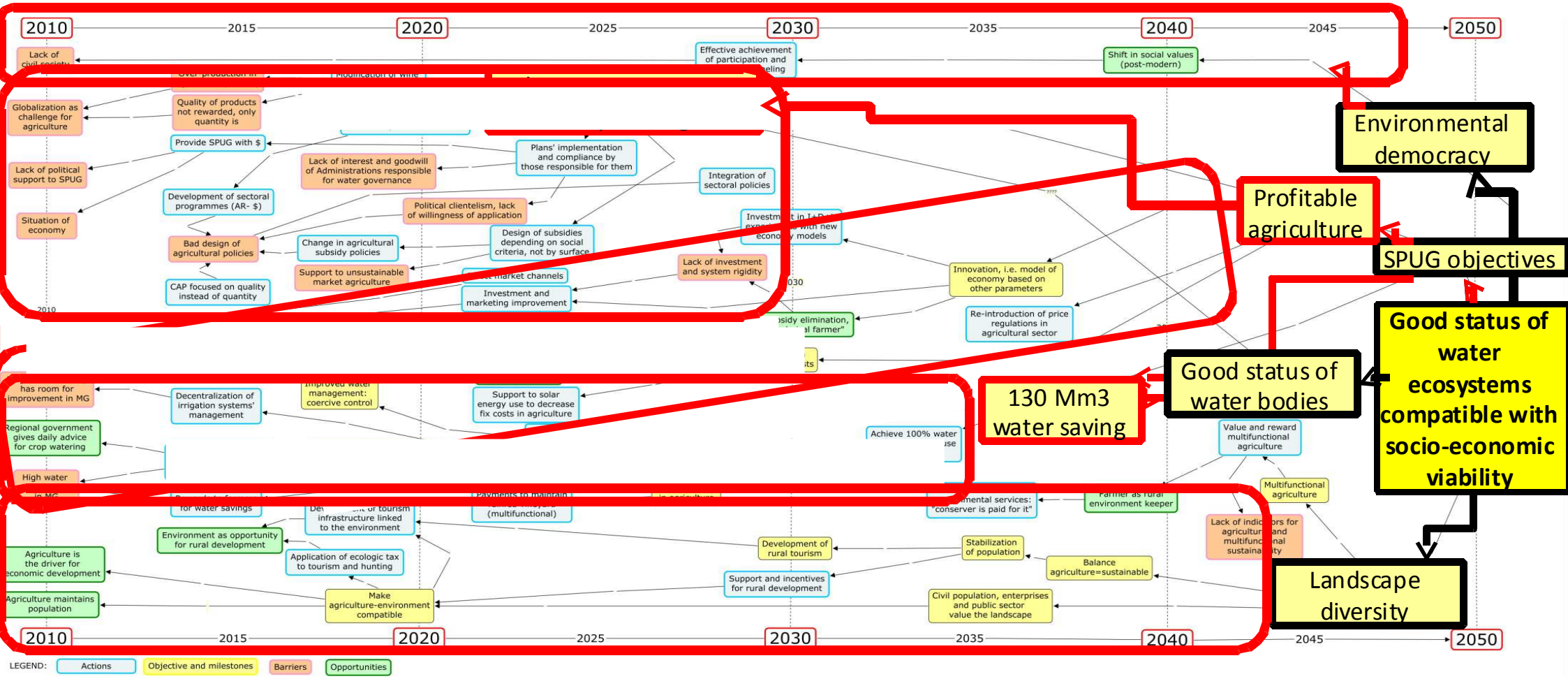
DESIRED GOAL (2050) → Good status of water ecosystems compatible with socio-economic viability

Results – Backcasting



Results – Backcasting

SUSTAINABILITY EVENTUALLY SCENARIO



Results – Backcasting

ROBUST STRATEGIES: common actions identified in both scenarios

12 actions are the same or similar in both groups, that is: **44%** of actions in group SE; **67%** of actions in group EF

Same common actions:	Economy First		Sustainability Eventually	
	YEAR	RELATED MILESTONE	YEAR	RELATED MILESTONE
Provide funds for implementation of current policies	2011	Compliance with SPUG, decrease w. consumption	2014	Rational and coherent management and planning
Efficient control of policy compliance	2012-22	Compliance with SPUG	2024	Water savings in agriculture
Public participation	2015	Compliance with SPUG	2030	Environmental democracy
New sources of water (waste water treatment and reuse)	2016-19	Increase w. availability from alternative sources, increase regulation capacity	2033	Water savings
Payments for environmental services	2019	Strengthen organic agric., sustainable agric and good status of w. ecosystems	2036	Multifunctional agriculture

Conclusions

- **Participatory scenario development** is a useful tool to support water policy decision-making → Allow for integrating stakeholder views and responding to the challenges of an uncertain future
- The **combination of methods (FCMs, storylines, backcasts) served** as triangulation method contributing **to enhance coherence in scenario definition**
- **Key issues** identified for the Guadiana basin (common in all the scenarios):
  - Central element: **imbalance demand/supply**
  - External drivers relate to **policy/management** issues (water price, management policies, political will), **technology** development (irrigation techniques) and **climate** issues (climate change, droughts)
- The **exploratory scenarios developed** (Economy first and Sustainability Eventually) **depict opposite future visions** in terms of sustainability and economic development, however, **several strategies could be identified as robust** for achieving the desired goal in 2050 → they comprise technical, economic and policy aspects → need of an integrated approach

THANK YOU

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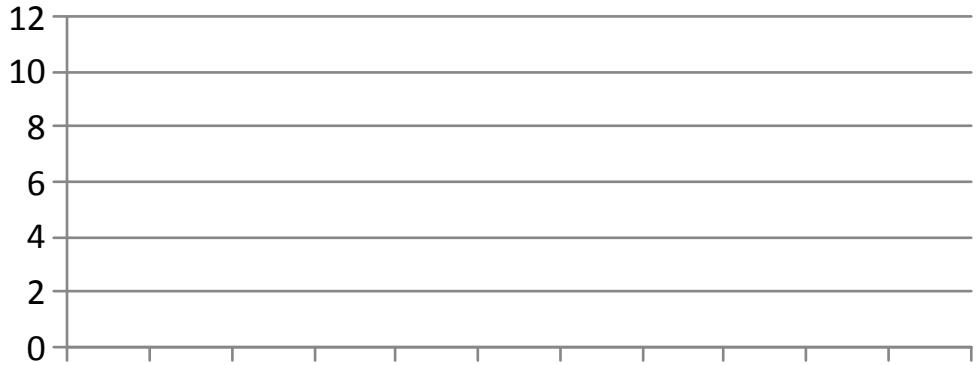
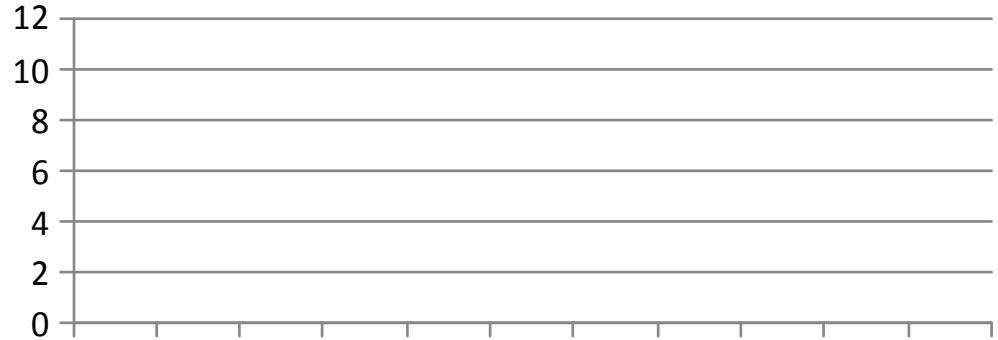
SCENES
SIXTH FRAMEWORK PROGRAMME

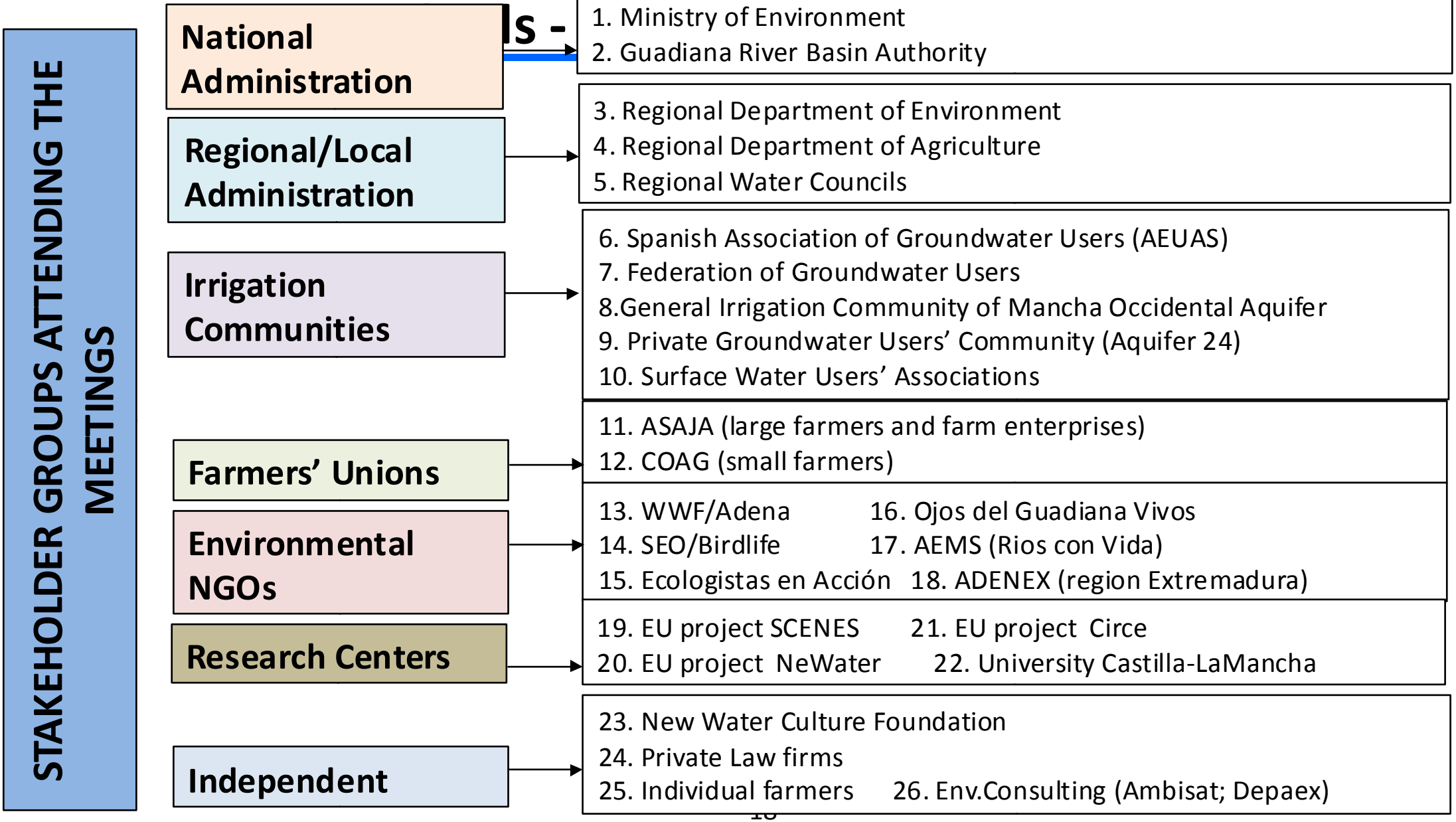
FUTURE SCENARIOS – Dynamic analysis

Sustainability eventually



Economy first




STAKEHOLDER GROUPS ATTENDING THE MEETINGS
National Administration
1. Ministry of Environment
2. Guadiana River Basin Authority
Regional/Local Administration
3. Regional Department of Environment
4. Regional Department of Agriculture
5. Regional Water Councils
Irrigation Communities
6. Spanish Association of Groundwater Users (AEUAS)
7. Federation of Groundwater Users
8.General Irrigation Community of Mancha Occidental Aquifer
9. Private Groundwater Users' Community (Aquifer 24)
10. Surface Water Users' Associations
Farmers' Unions
11. ASAJA (large farmers and farm enterprises)
12. COAG (small farmers)
Environmental NGOs
13. WWF/Adena
14. SEO/Birdlife
15. Ecologistas en Acción
16. Ojos del Guadiana Vivos
17. AEMS (Rios con Vida)
18. ADENEX (region Extremadura)
Research Centers
19. EU project SCENES
20. EU project NeWater
21. EU project Circe
22. University Castilla-LaMancha
Independent
23. New Water Culture Foundation
24. Private Law firms
25. Individual farmers
26. Env.Consulting (Ambisat; Depaex)

SH perceptions