

Stakeholder involvement and water management scenarios

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DG Research

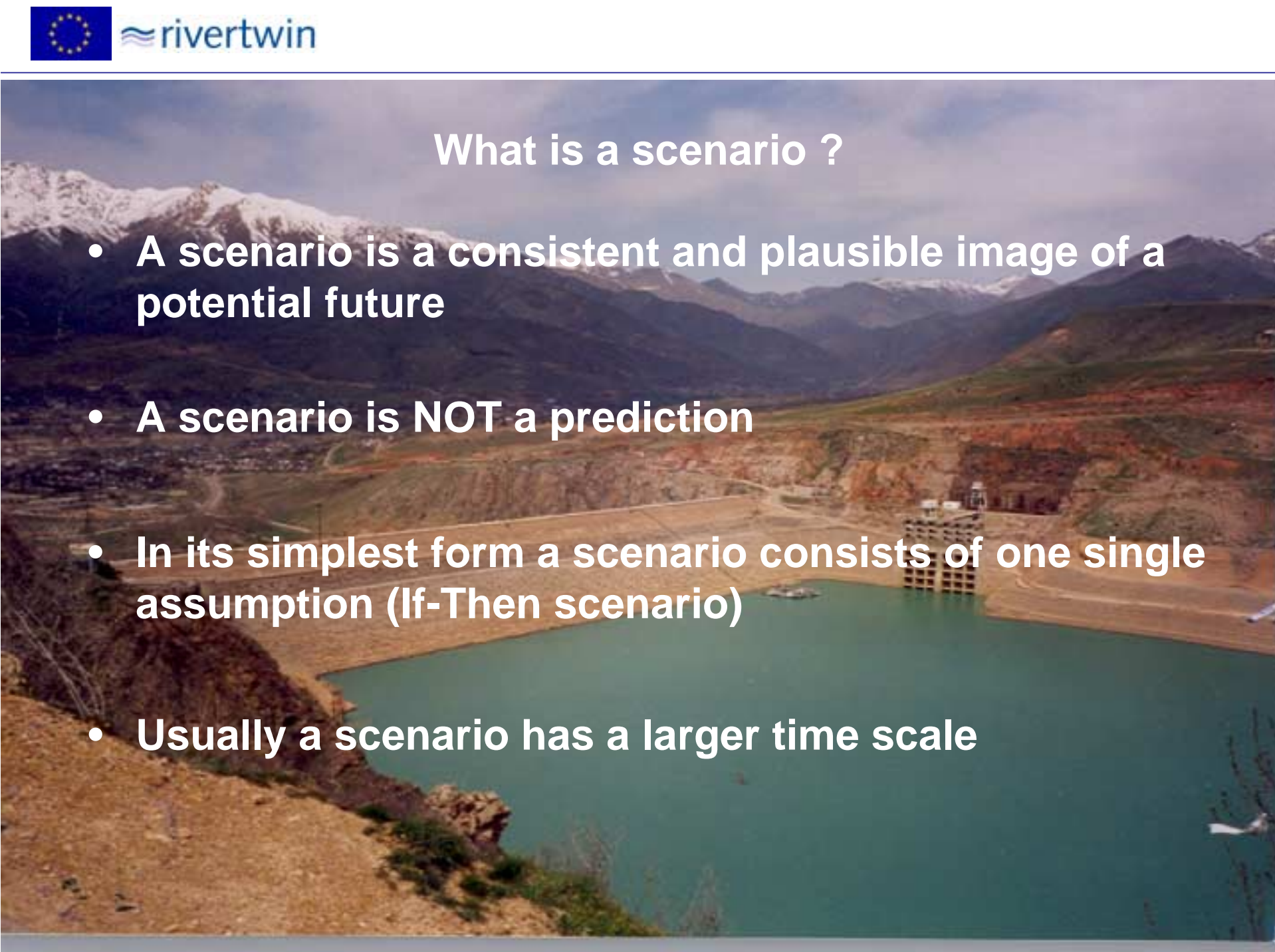


RIVERTWIN

Scientific and Technological Objectives

- **Building of scenarios** of integrated water resources management together with stakeholders to support the establishment of River Basin Management Plans (RBMP)
- **Developing an integrated regional model** for scenario analysis and evaluation under contrasting ecological and socioeconomic conditions in three river basins

What is a scenario ?

- **A scenario is a consistent and plausible image of a potential future**
 - **A scenario is NOT a prediction**
 - **In its simplest form a scenario consists of one single assumption (If-Then scenario)**
 - **Usually a scenario has a larger time scale**
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What is an integrated scenario ?

- In most cases environmental processes are influenced by a range of different factors (driving forces)
- An integrated scenario is composed of a bunch of assumptions related to the major driving forces and their impacts (“Story and Simulation approach”)

Driving forces for water management scenarios:

- **Climate change**
- **Social and economic changes**
- **Political interventions**

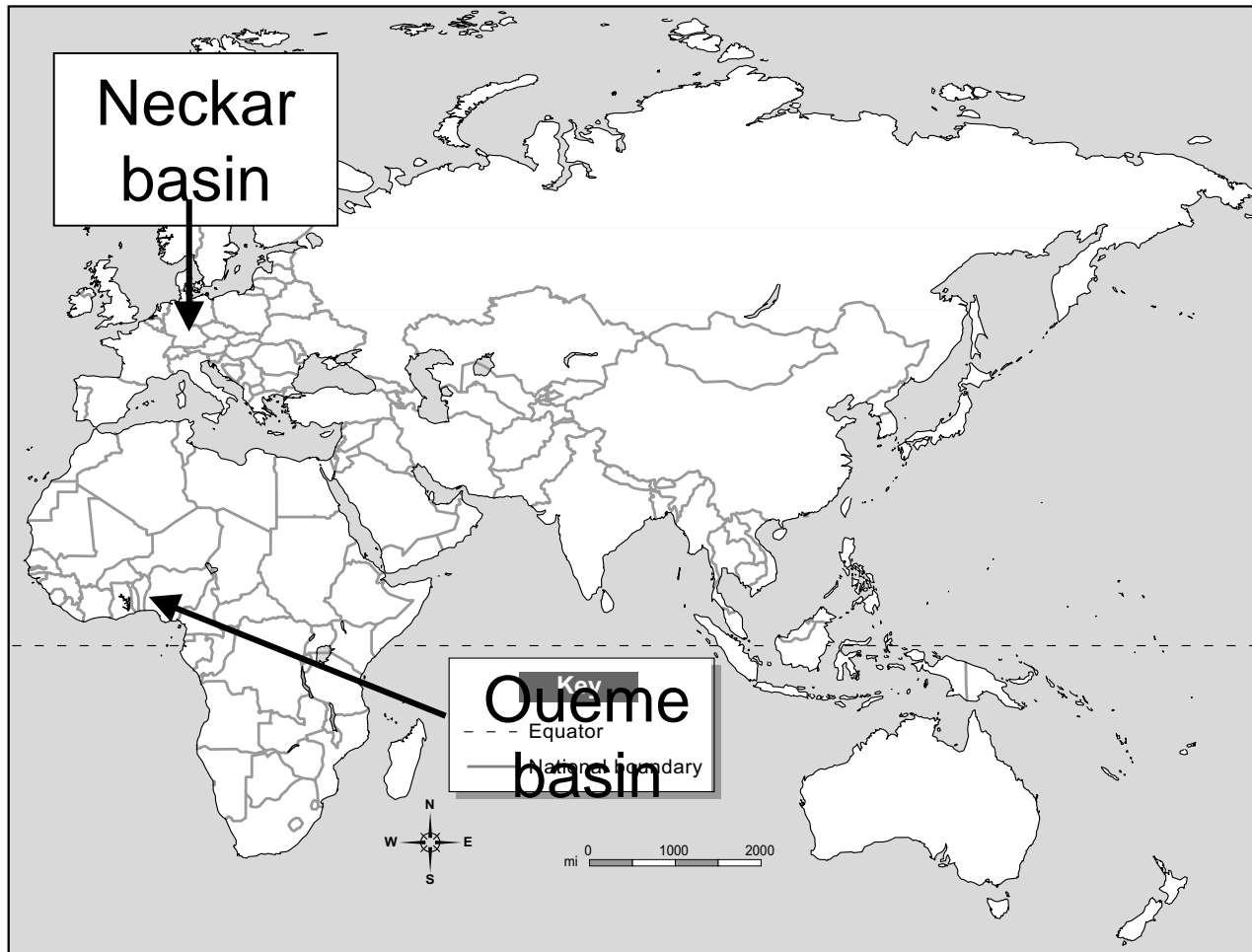


Why do we need scenarios ?

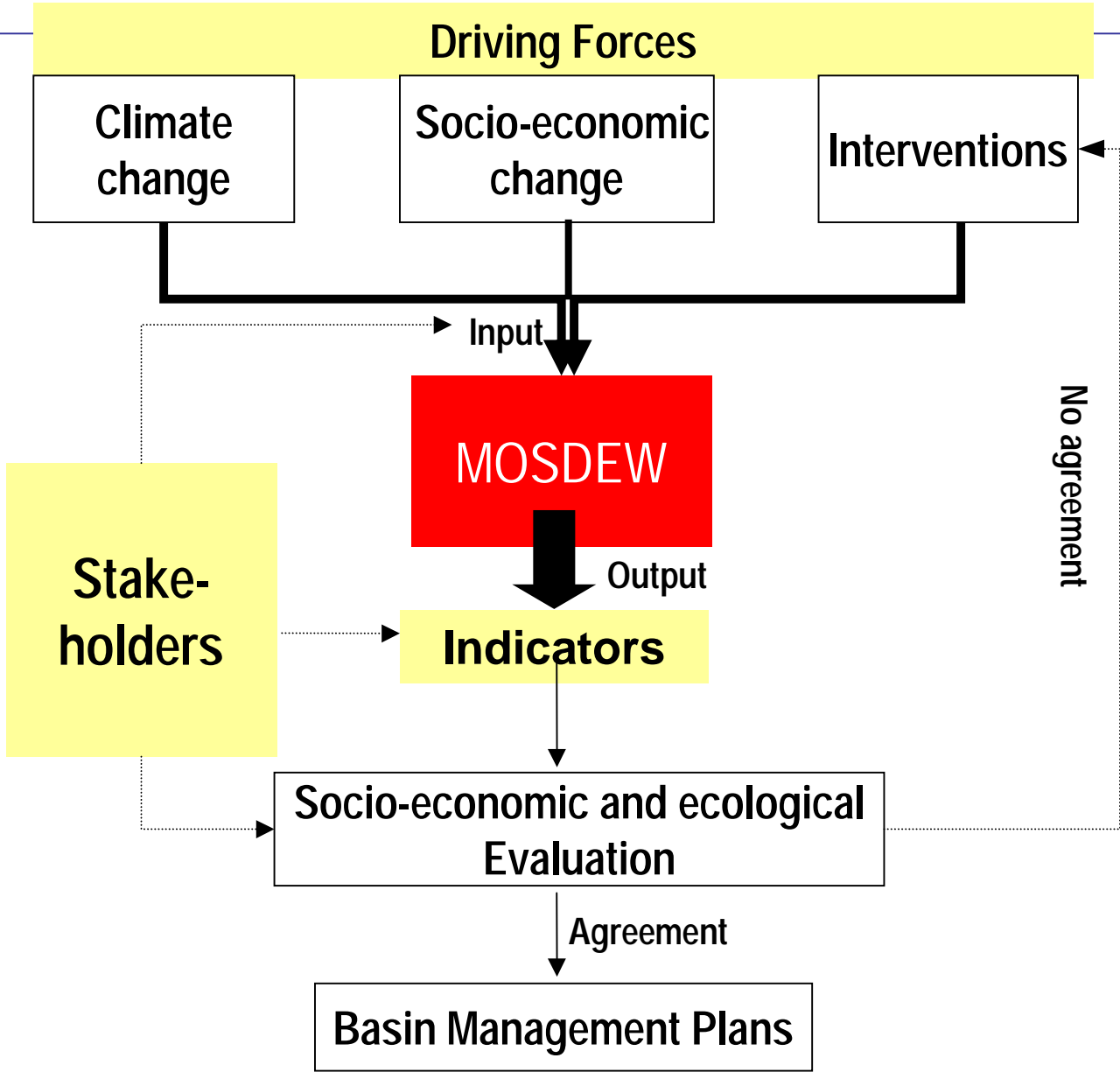
Scenarios can support decisions in strategic long-term planning processes:

- **Estimating the impacts and robustness of decisions under changing environmental and socio-economic conditions**
- **Predictions of political and economic changes over several years or decades are impossible**

Comparison of two different institutional and cultural settings



Stakeholder Participation in the „Story and Simulation“ approach



Institutions involved in the definition of driving forces and evaluation of results

◆ Neckar:

- > **Ministry of Environment**
- > **Environmental Protection Agency**
- > **Regional Commission Stuttgart („River basin agency“)**
- > **District administration**
- > **Water supply companies and associations**



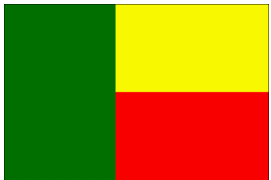
Weighting of the stakeholder input

Institution	Driving forces	Model development	Indicators	Evaluation
Ministry for Environment	+++	+	++	++
Environmental agency	+	+++	+	+
River basin agency	+	0	++	++
Others (district administration, water supply companies)	+	0	++	++

Institutions involved in the definition of driving forces and evaluation of results

◆ Oueme:

- > **Governmental Water Authority**
- > **National Agricultural Research Center**
- > **Water supply company**
- > **University and national statistical office**
- > **Leaders of the districts (communes)**



Weighting of the stakeholder input

Institution	Driving forces	Model development	Indicators	Evaluation
Direction Generale de l'Eau	+++	0	+++	+++
Ministry of agriculture livestock and fishery	++	0	+	+++
University academics/ national statistical office	+++	0	++	+++
Others (district administration, water supply companies)	0	0	++	+++

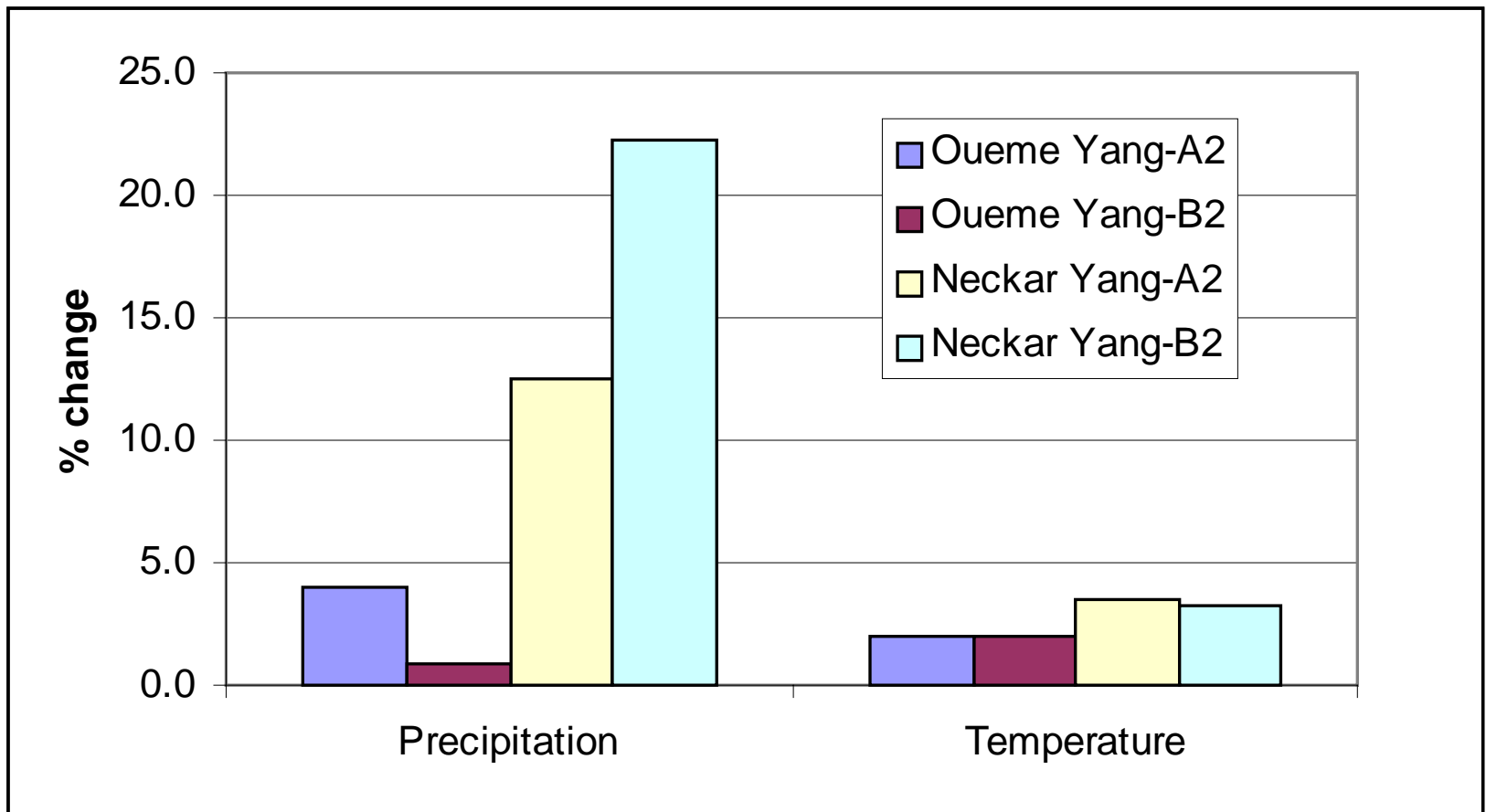
Quantification of driving forces and comparison between basins

Climate change

Downscaling of GCM (ECHAM5) results to the river basin level based on SRES A2 and B2 scenarios:

	YANG A2/B2	ENKEDRY/ ENKEWET
Neckar	X	X
Oueme	X	

Climate change 2000-2030



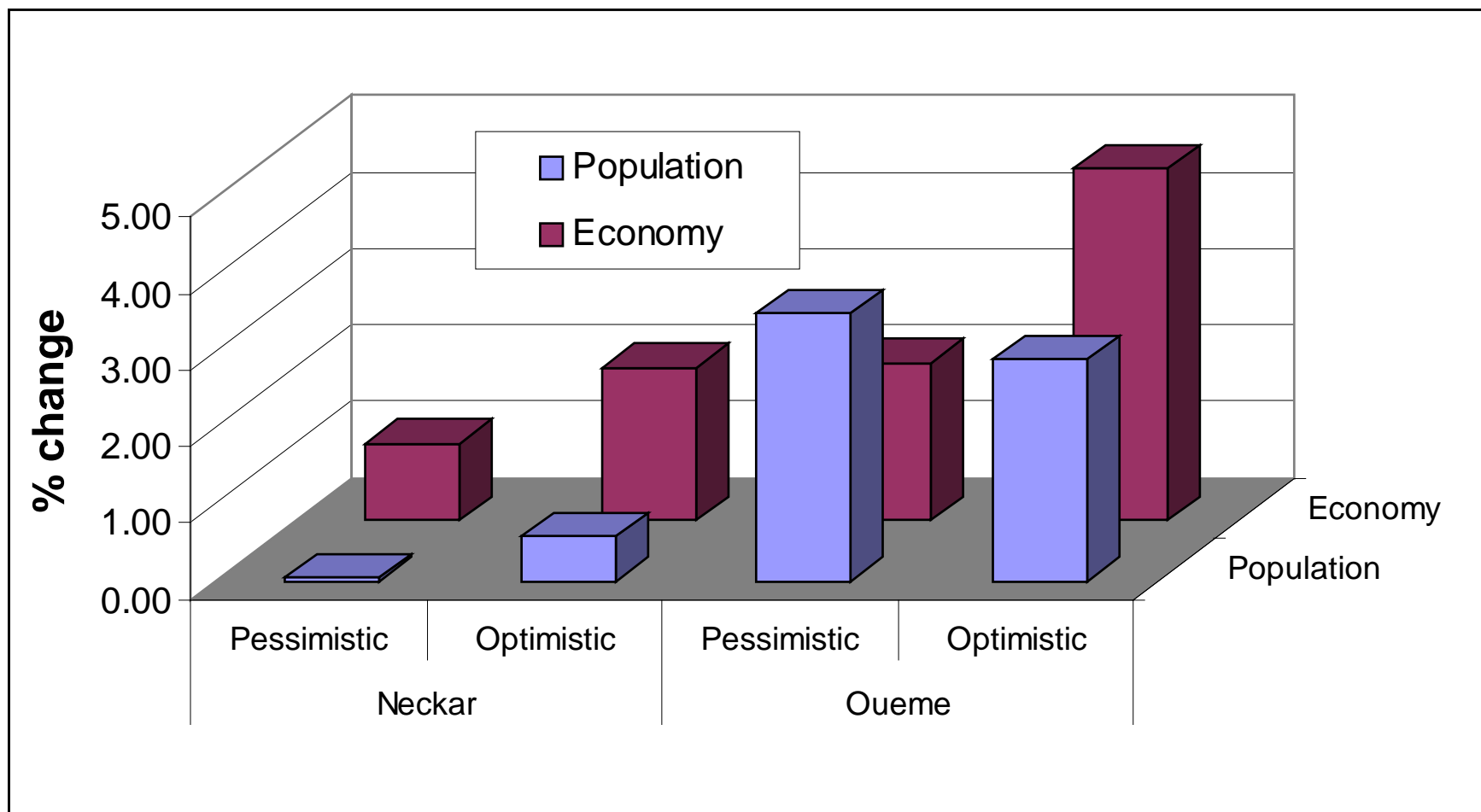
Economic development

	Optimistic	Pessimistic
Neckar	A	B
Oueme	Alafia (A)	Wahala (B)

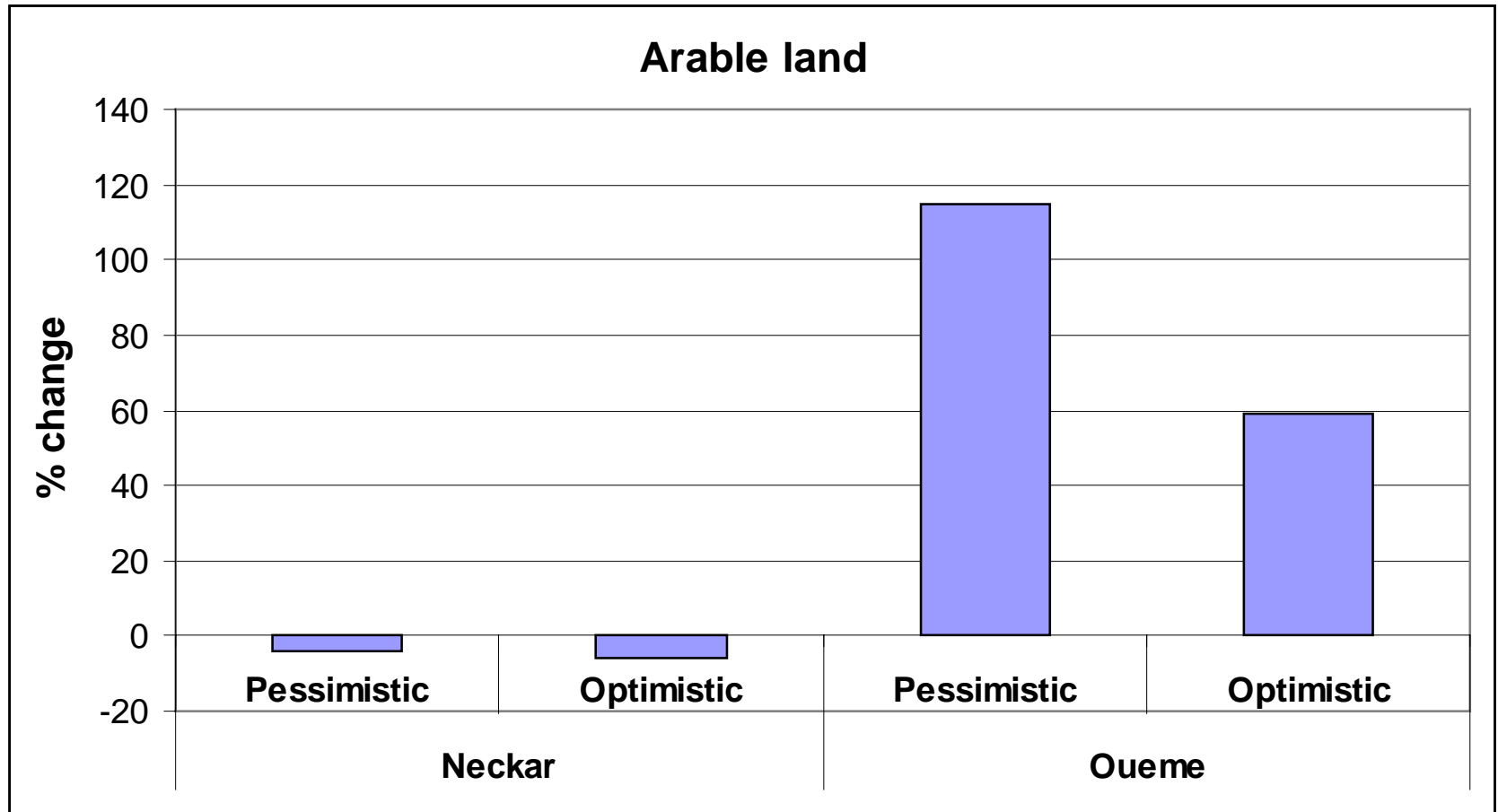
Alafia : shared happiness, peace and health

Wahala : suffering, misery, and catastrophe

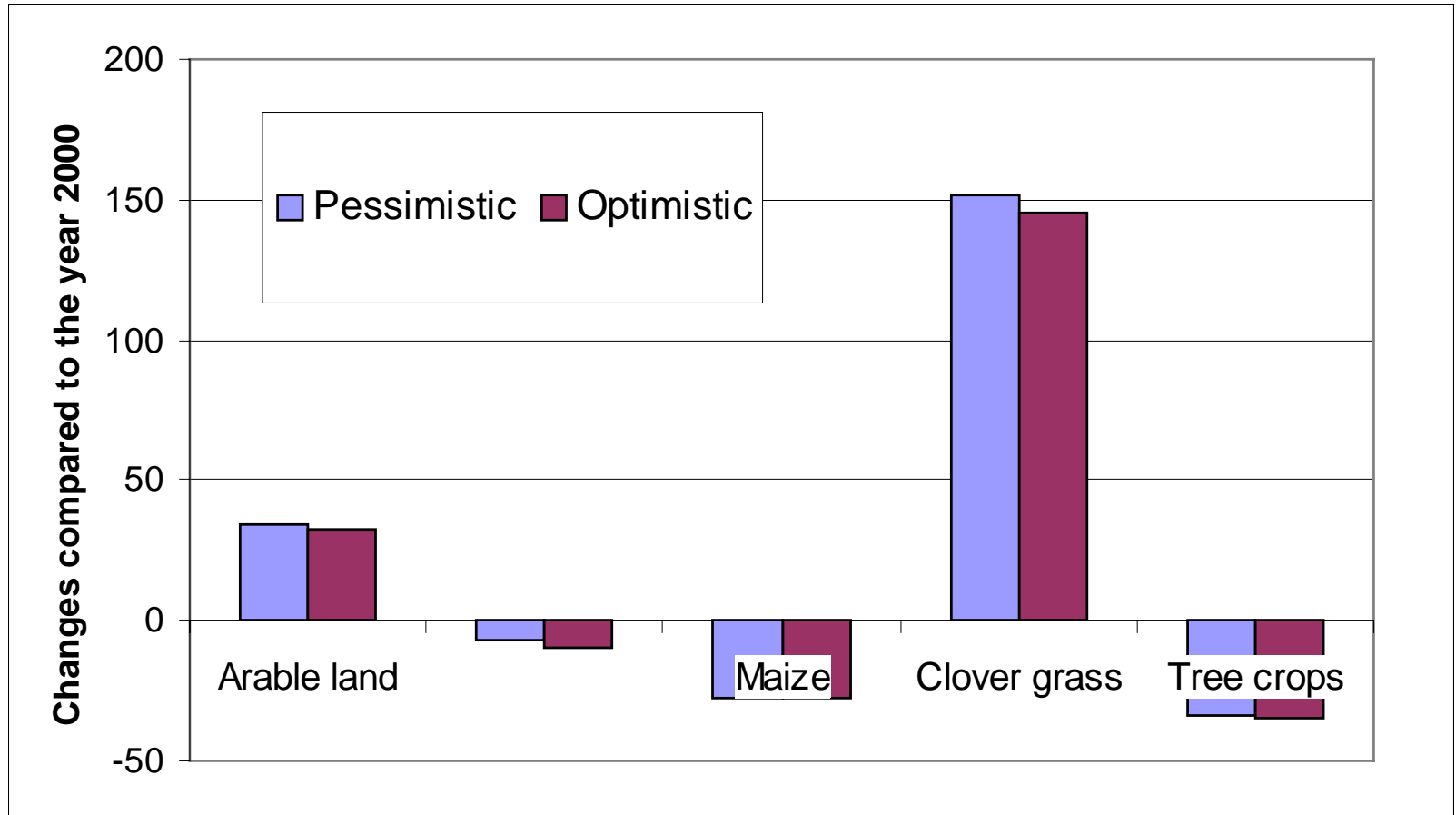
Economic development and demography



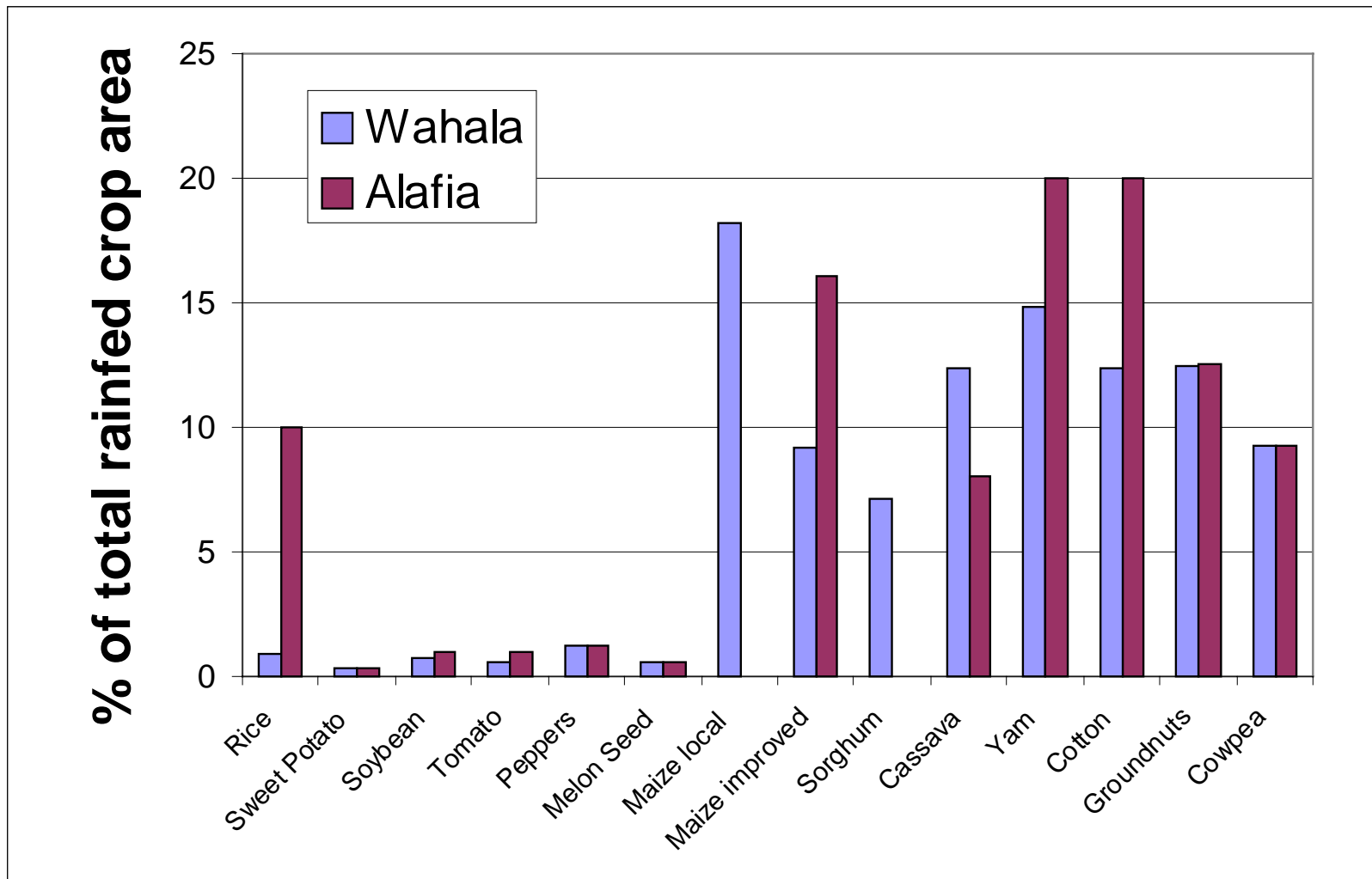
Land use changes



Changes in crop shares – Neckar basin



Changes in crop shares – Oueme basin



Comparison of proposed interventions

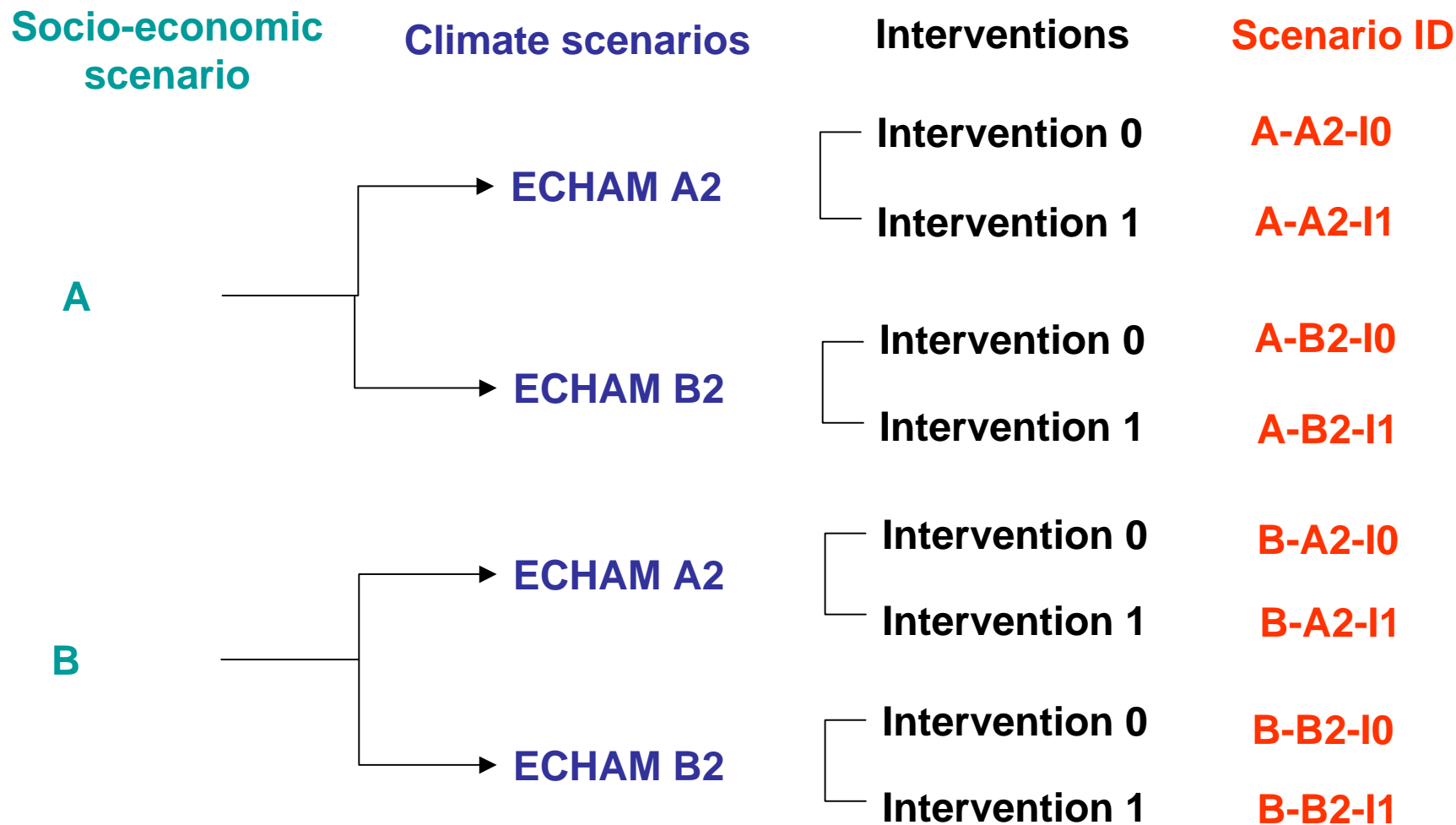
Oueme

- **Construction of hydropower dams**
- **Promotion of usage of mineral fertilizers**

Neckar

- **Impacts of CAP reform**
 - **Reduction of livestock units**
 - **Conversion of arable land into grassland**
 - **Conversion of arable land into fallow**
 - **Improvement of fish passages**
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Integrated scenarios - Combination of driving forces



Summary of driving forces for future development

- **In the Oueme basin, growth rate of population is the overwhelming factor**
 - => Drives the extension of agricultural land and deforestation**
- **In the Neckar basin, climate change and changes in crop production are most pronounced**
- **Economic growth rate is expected to be higher in the Oueme basin compared to the Neckar basin**

Factors encouraging stakeholders participation:

- **Participation in the project planning (proposal stage) => Research becomes demand oriented**
- **Own funding for stakeholders**
- **Research supports ongoing political process (new water legislation and water institutions)**

Problems with stakeholder involvement:

- **Competition between institutions (ministries) =>Coordination by „neutral“ academic institution**
- **NO resources at all (participation in meetings, field trips etc.)**

Recommendations

- **Encourage the establishment of inter-institutional groups for long-term planning for the sustainable and equitable use of soils and water at the governmental and subbasin levels**
- **Training of staff in scenario development and evaluation**
- **Improve the collection of data for monitoring of social and environmental changes**
- **Continuation of the scenario evaluation at communal and district level (decentralisation)**



Thanks to all members of the scenario groups

