Component 1: Completion of the TDA

Future scenarios and recommendations

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Overview

- Future Scenarios

1. *Business as Usual*
2. *Climate change induced*
3. *National & Regional Coordination*

- Recommendations
- *Discussion*

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Future Scenarios

1. *Business as Usual*
2. *Climate change induced*
3. *National and Regional Coordination*

- *Conditions*
- *Costs/Risks and Benefits/Incentives*

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1. Business as Usual

- *Continued population growth*
- *Continued economic development without coordination with increasing demands*
- *Increased cost for water treatment*
- *Deterioration of water quality*
- *Ecosystem degradation*
- *Increased water stress*

1. *Business as Usual*

Costs/Risks

- Food insecurity
- Sectoral competition for water
- Increased cost for water treatment
- Continued TB problems

Benefits/Incentives

- Low costs for change
- Predictability of situation
- No new institutional structures
- Continued autonomy

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2. Climate change with BAU

Business as usual conditions continued

- *Increasing temperatures*
- *Decreasing precipitation*
- *Greater irrigation demands*
- *Increased food insecurity*
- *Increased extreme events*
- *Changes in ecosystems*
- *Increased stresses on water resources*
- *More degraded water quality*

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2. *Climate Change BAU without Adaptation*

Costs/Risks

- Lack of predictability
- Food insecurity
- Sectoral competition for water ***increased***
- Increased costs for water treatment ***increased***
- Continued TB problems ***increased***

Benefits/Incentives

- No costs for change
- No need for investment in new institutional structures
- No costs for research and development of interventions

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3. National & Regional Coordination

- *Climate change conditions continue*
- *Shifts from Business as Usual to increased national and regional coordination for water management*
- *External drivers*
  - *EU Association Agreements*
  - *Economic growth plans using water resources*
  - *International Environmental Agreements*

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3. *National & Regional Coordination*

Costs/Risks

- Loss of autonomy due to consideration and consultation with upstream and downstream users
- Domestic political costs due to potential rationing (rational use) of water resources

Benefits/Incentives

- Climate change adaptation and regional IWRM will enable improved sustainability in the future, for future generations
- Increased regional cooperation will increase markets for agricultural goods & other trade
- Improved food security and less hunger induced conflict
- Increased knowledge and experiences about adaptation

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Recommendations

- *By Transboundary Issues*
- *Broader to address common root causes*

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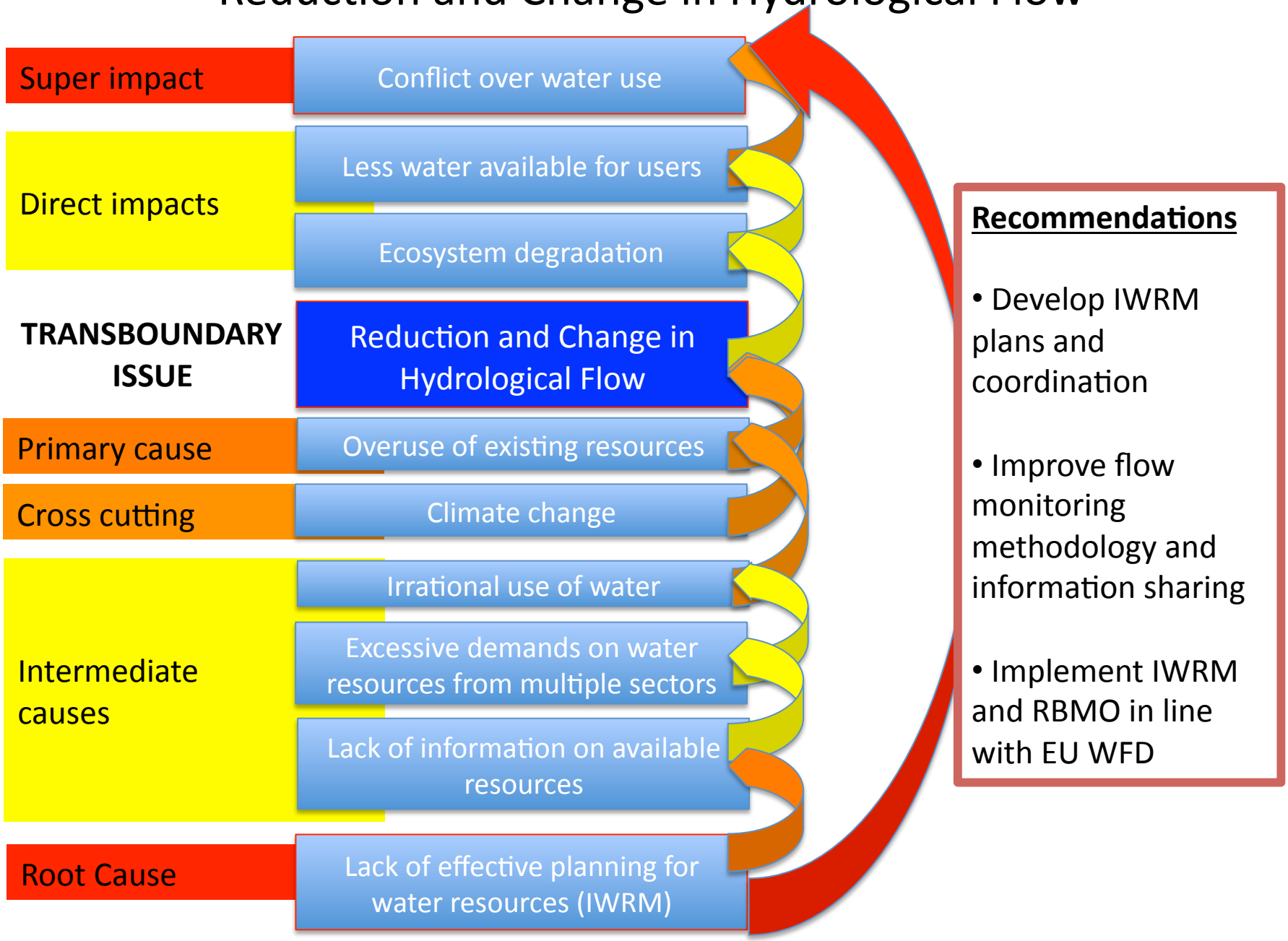
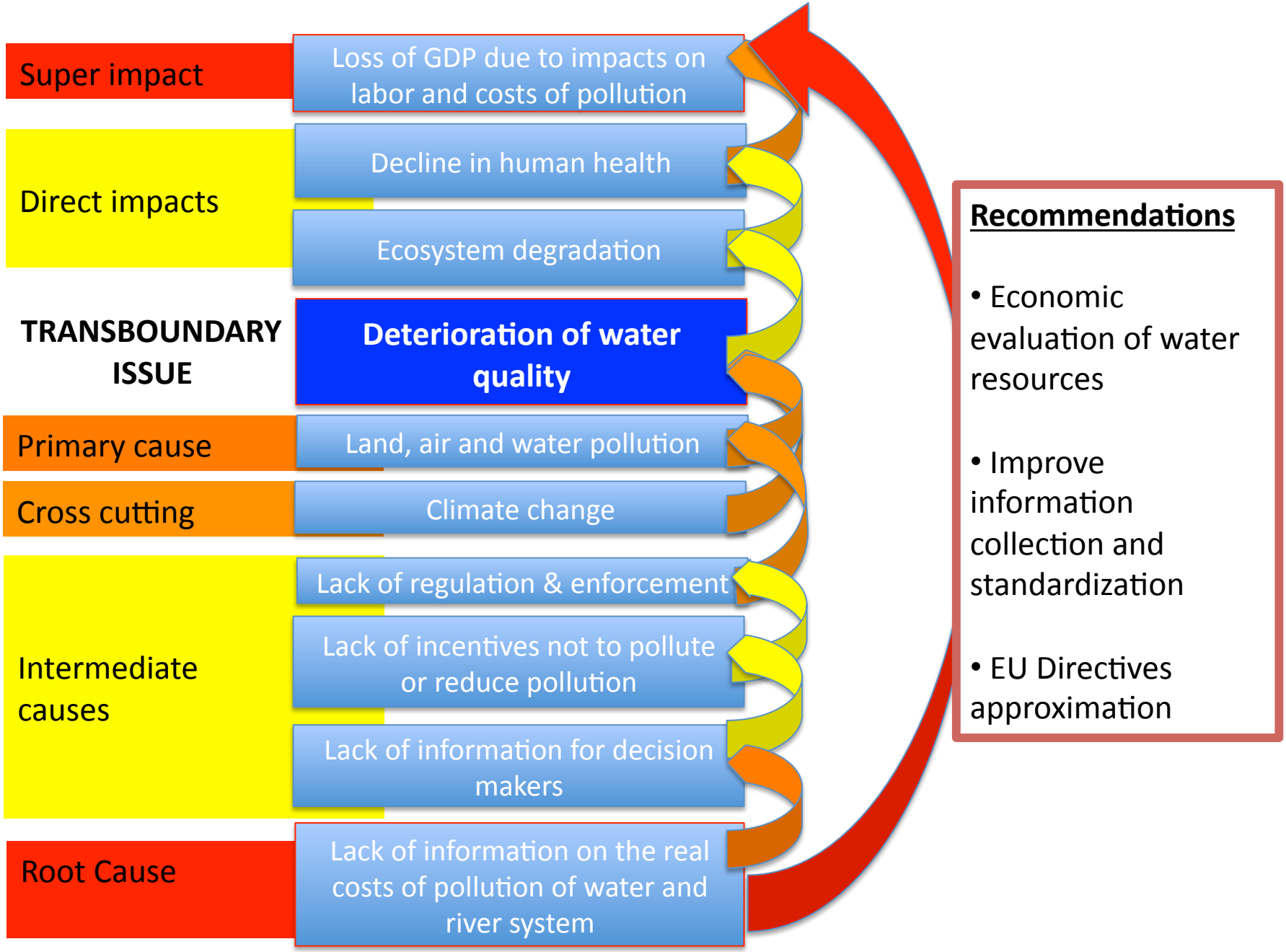
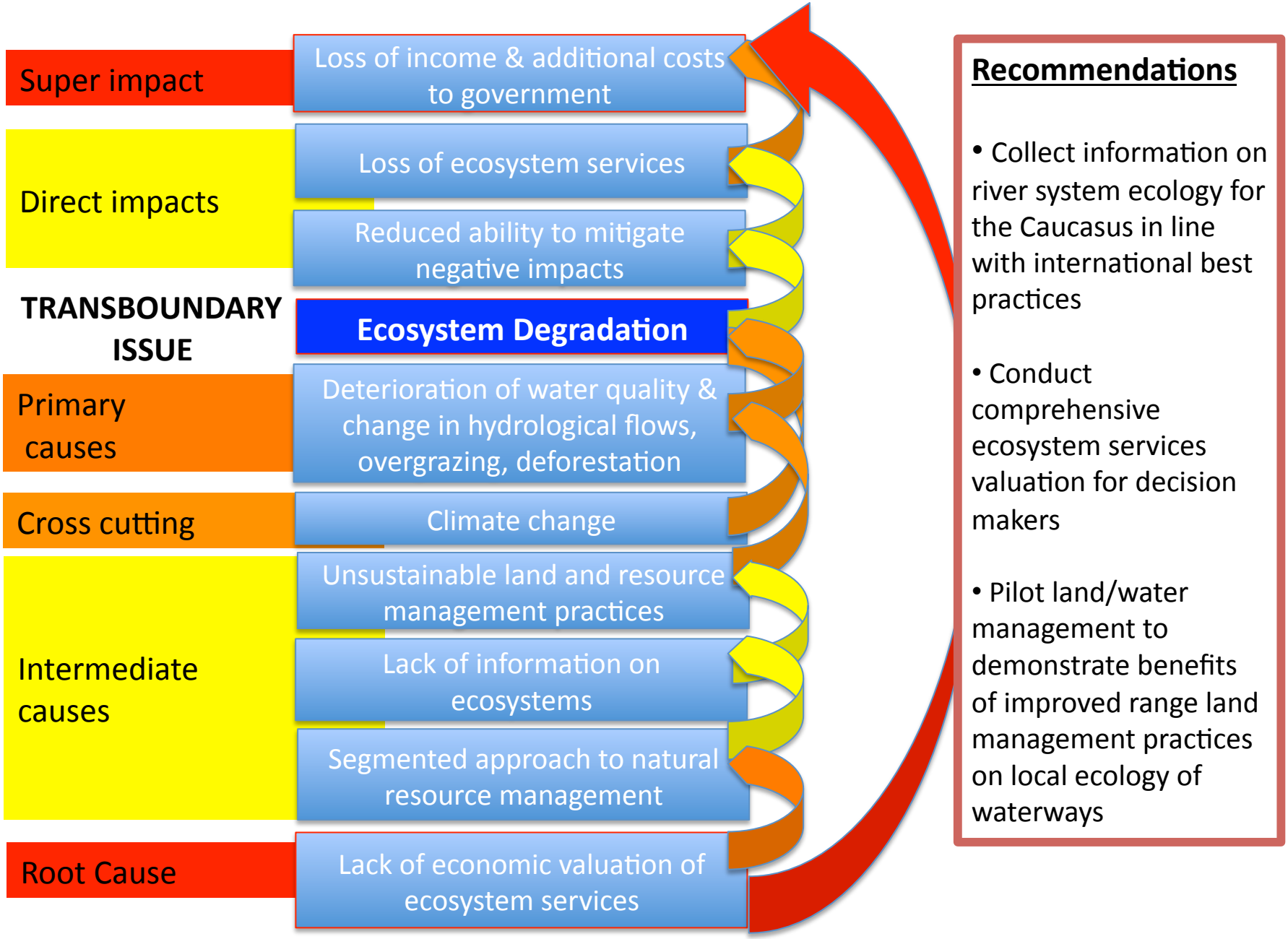
Reduction and Change in Hydrological Flow



Deterioration of Water Quality



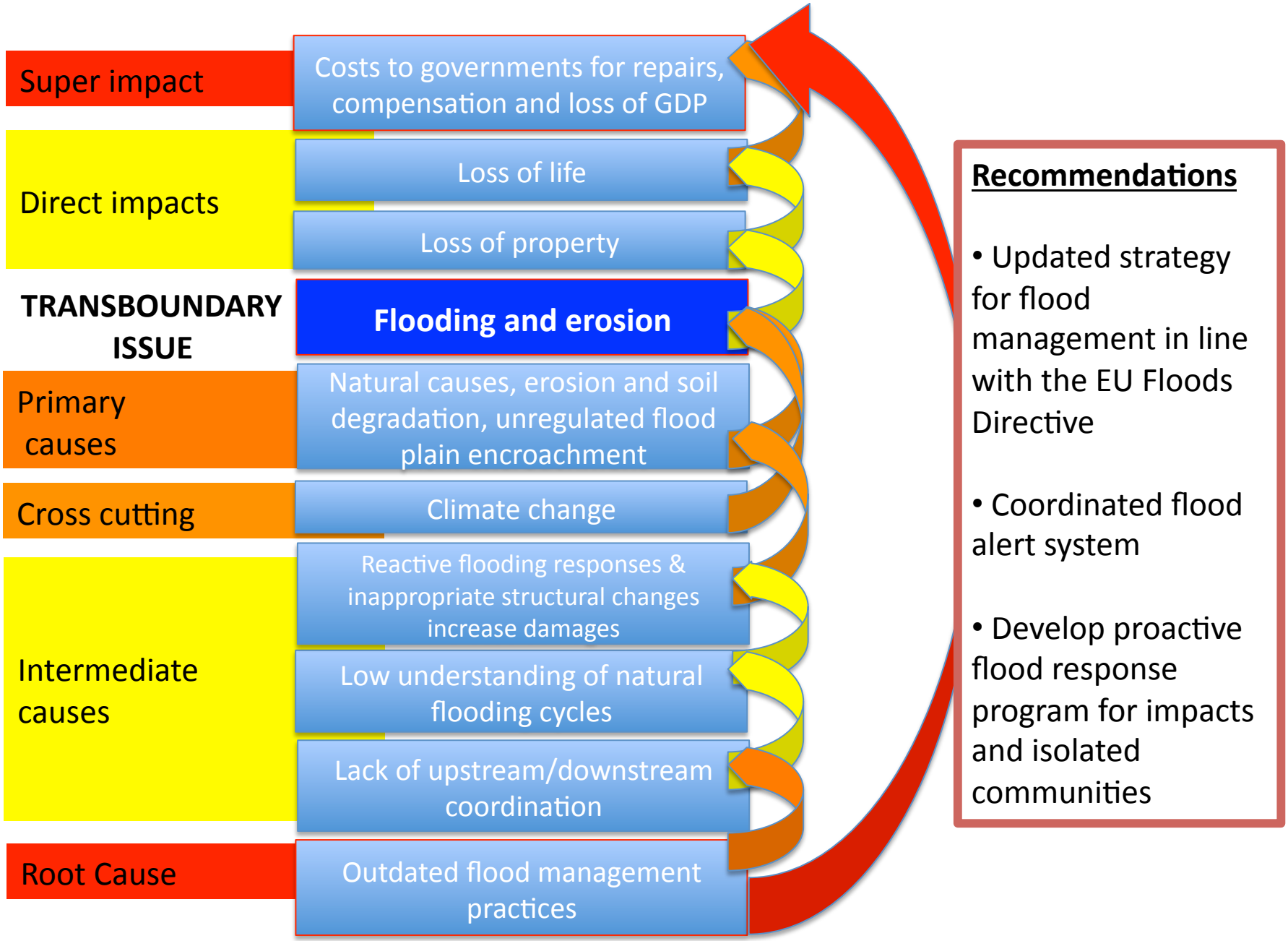
Ecosystem Degradation



Recommendations

- Collect information on river system ecology for the Caucasus in line with international best practices
- Conduct comprehensive ecosystem services valuation for decision makers
- Pilot land/water management to demonstrate benefits of improved range land management practices on local ecology of waterways

Flooding and Erosion



Recommendations from TDA

A. *Develop, finalize, adopt and implement **national IWRM Plans***
B. ***Adopt the EU WFD** and development strategies for RBM plans in line with EU Association Agreements*
C. *Conduct full scale **analyses of the costs of pollution and declining water resources** and the benefits of reducing pollution levels and instituting rational water use*
D. *Develop national and basin wide **climate change adaptation strategies** to address changes in water availability and demand*

A. Develop, finalize, adopt and implement ***National IWRM Plans***

- **Improved information collection and distribution** mechanism for more effective decision making, *(standardized and shared regionally as possible and appropriate.)*

- **Develop IWRM coordination mechanisms**, including hydrological data collection and sharing in line with EU standards

- **Updating of flow metering** within river systems to accurately and effectively monitor flow rates

- Establish **groundwater abstraction** monitoring, evaluation and reporting requirements

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B. Adopt the EU WFD and development strategies for RBM plans in line with EU Association Agreements

- Conduct **cost/benefit analysis** of approximating the EU Water Framework Directives with **time frame, capacity needs, and costs of full implementation**.

- Develop strategies for adherence to the **EU Floods Directive**, with **community-based flood risk analysis** and update strategies for flood management using international best practices.

C. Conduct full scale analyses of the costs of pollution and declining water resources and the benefits of reducing pollution levels and instituting rational water use

- Case study on the costs of pollution using the **Cost of Environmental Degradation Methodology** piloted in the Middle East by the World Bank.
- Conduct an **ecosystem services valuation** study for **river systems** within the basin.
- Develop strategies for using **low water use crops and alternative irrigation.**
- Conduct pilot projects on innovative approaches to pollution reduction, including **artificial/constructed wetlands** in suitable rural communities, including stakeholder participation.

D. Develop national and basin wide climate change adaptation strategies to address shifts in water availability.

- Develop a **water based climate adaptation strategy** for the Kura Aras river basin based on **common IWRM Strategies**.
- Establish **ecological data collection for river systems**, and conduct an update of regional biodiversity.
- Conduct **pilot projects on integrated land/water management**, focusing on impacts of overgrazing and land quality deterioration.
- Establish **flood alert systems and response strategies** within impacted or at risk riparian communities throughout the full basin.
- Create **educational opportunities** for water managers on **climate change adaptation**.

	Hydro Flow	Water Quality	Ecosyst Degrade	Flooding
1. Develop, finalize, adopt and implement **national IWRM Plans**	Y	Y	Y	Y
2. Adopt the **EU WFD** and development strategies for RBM plans in line with EU Association Agreements	Y	Y	Y	Y
3. Conduct full scale **analyses of the costs of pollution and declining water resources** and the benefits of reducing pollution levels and instituting rational water use	Y	Y	Y	
4. Develop national and basin wide **climate change adaptation strategies** to address shifts in water availability.	Y	Y	Y	Y

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Thank you!

Next:

Discussion of the TDA

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