

GreenDelta

sustainability consulting + software

The experience of two European projects on how to combine social, environmental, and economic values in mining

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Mining: a multifaceted topic

- Complex and sometimes conflicting relations between different parties
- Dynamic business environment

“The problems are where conflicts of interest arise“

Finnish NGO

How can we create value in mining?

Creation of sustainability values

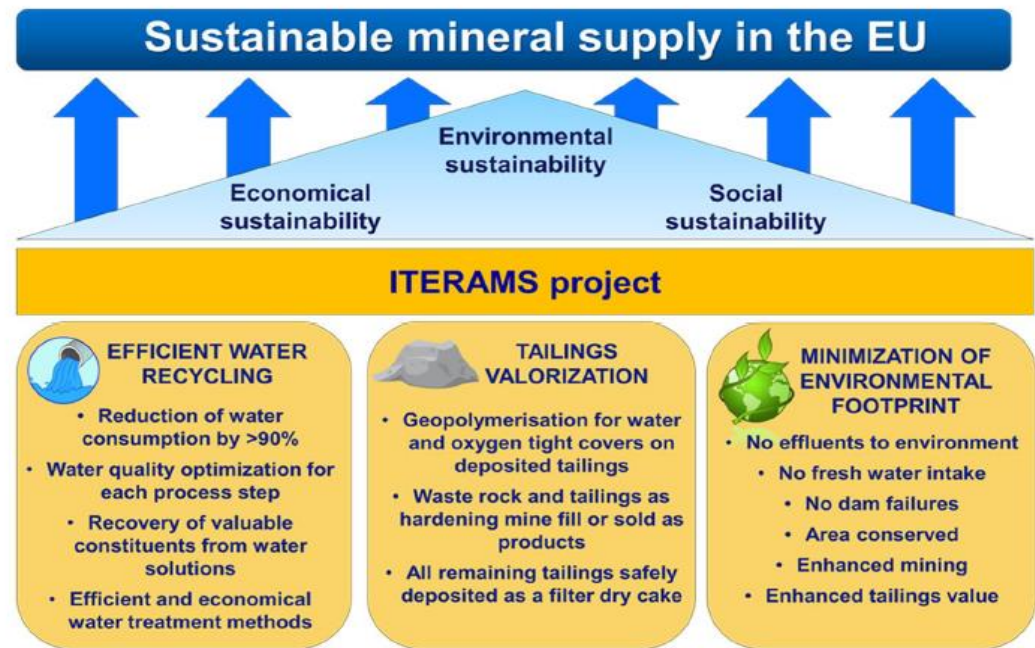
- By generating **positive impacts**
- By enhancing **opportunities**
- By reducing **negative issues**
- By mitigating **risks**

Which sustainability values can we create and combine?

H2020 ITERAMS project

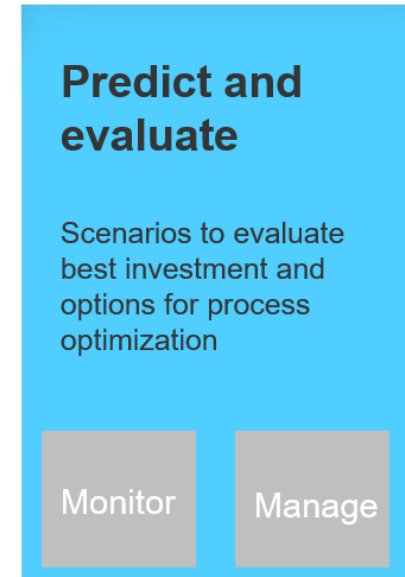
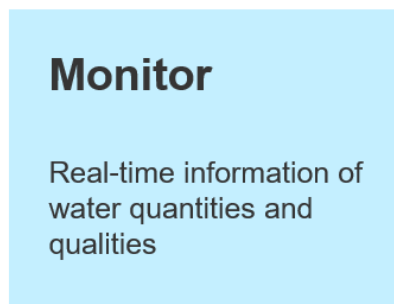
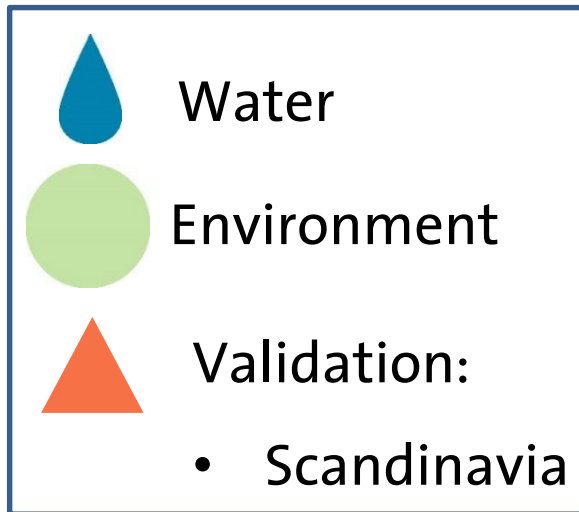
Integrated Mineral Technologies for more Sustainable Raw Material Supply

-  Water
-  Tailings
-  Environment
-  Validation:
 - Finland
 - Portugal
 - South Africa



EIT RawMaterials SERENE project

A dynamic predictive solution for sustainable water balance management in mining



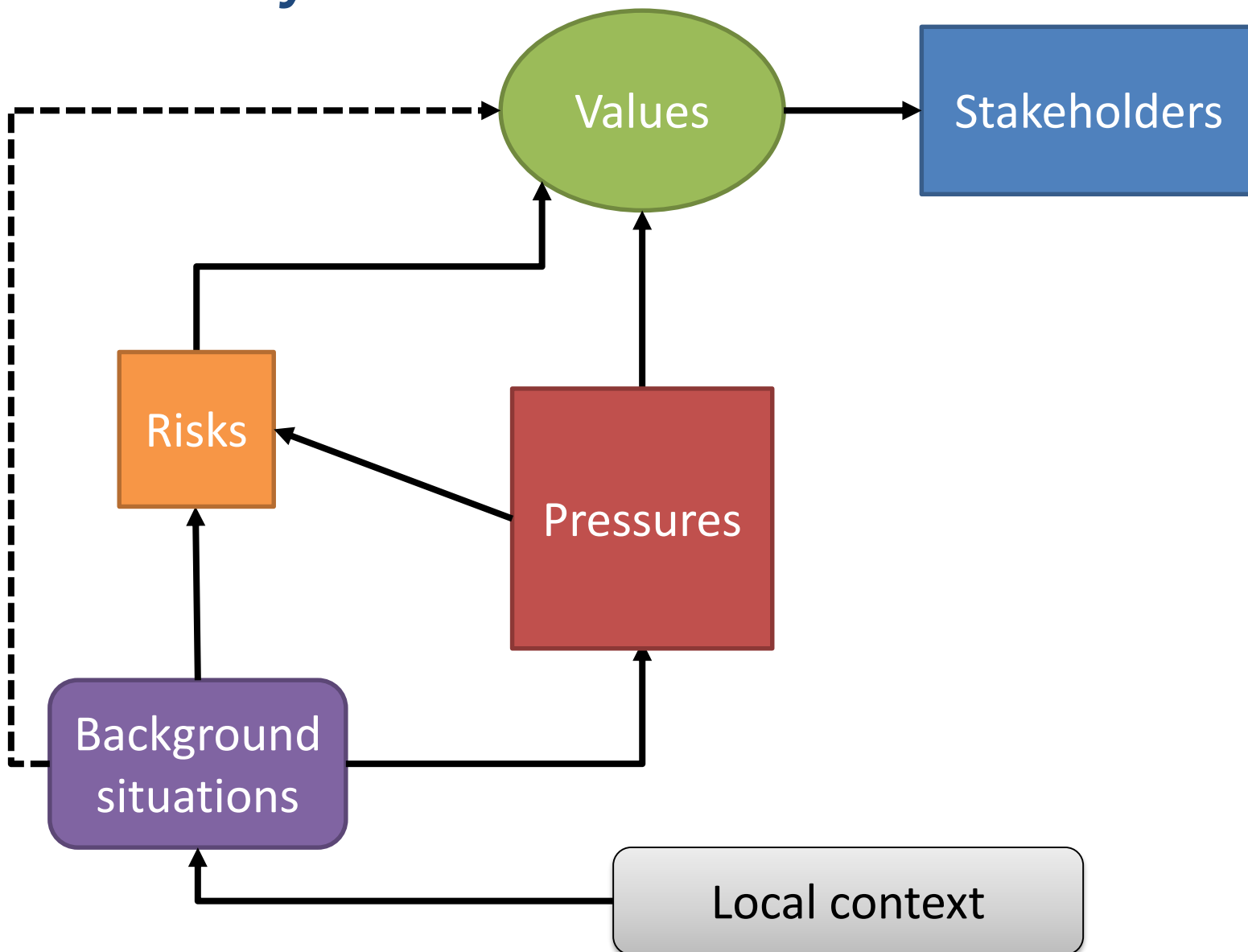
Approach

1. Mapping **stakeholders** directly and indirectly affected by the novel solutions foreseen by the projects
2. Definition of **values** potentially generated by the projects
3. Definition of **pressures** and **risks**, and relation with **background situations** on site

HOW?

- Internal project discussions
- Literature and context research
- Hotspots screening

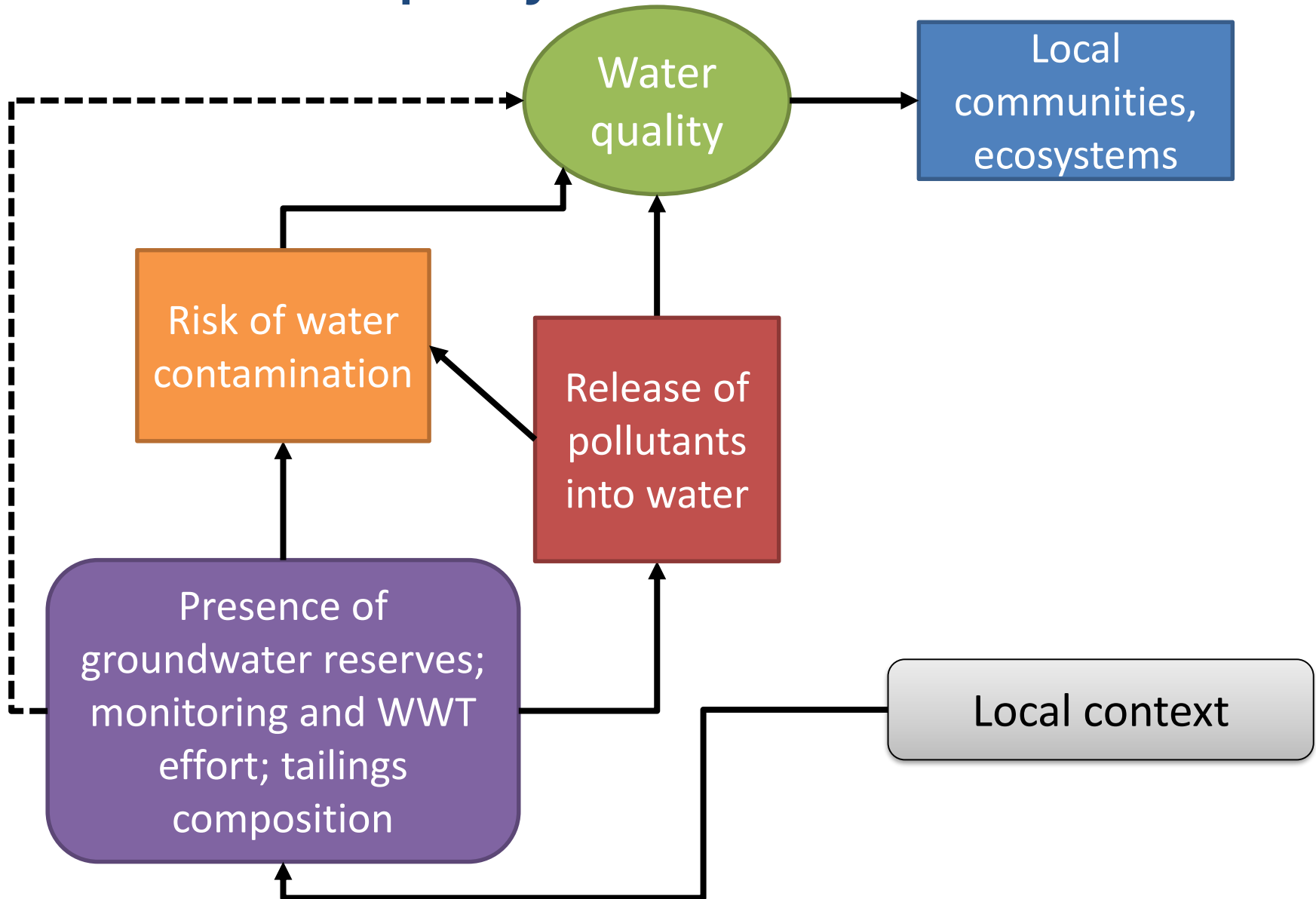
Value ecosystem



Results: stakeholders and values

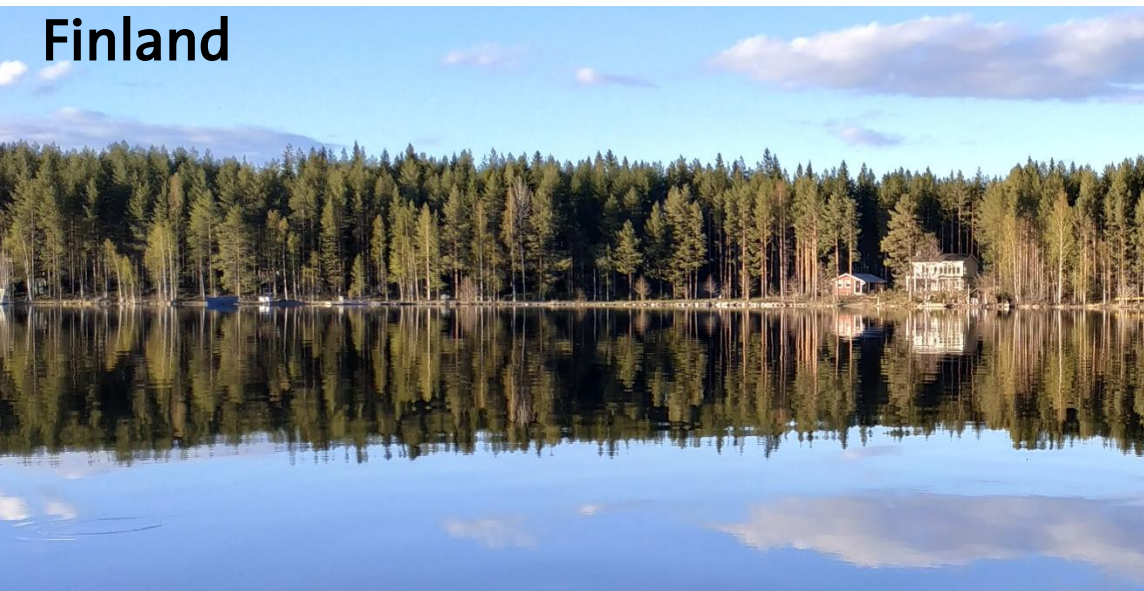
Social – local communities	Water availability Water quality Trust Land preservation	Social – workers	Safety Jobs creation Human health
Environmental - ecosystems	Water balance management Water quality Land preservation		
Economic – mining companies	Productivity Visibility of the system and related risks Respect of regulatory standards		

Value: water quality



Global values in local context: water quality

Finland



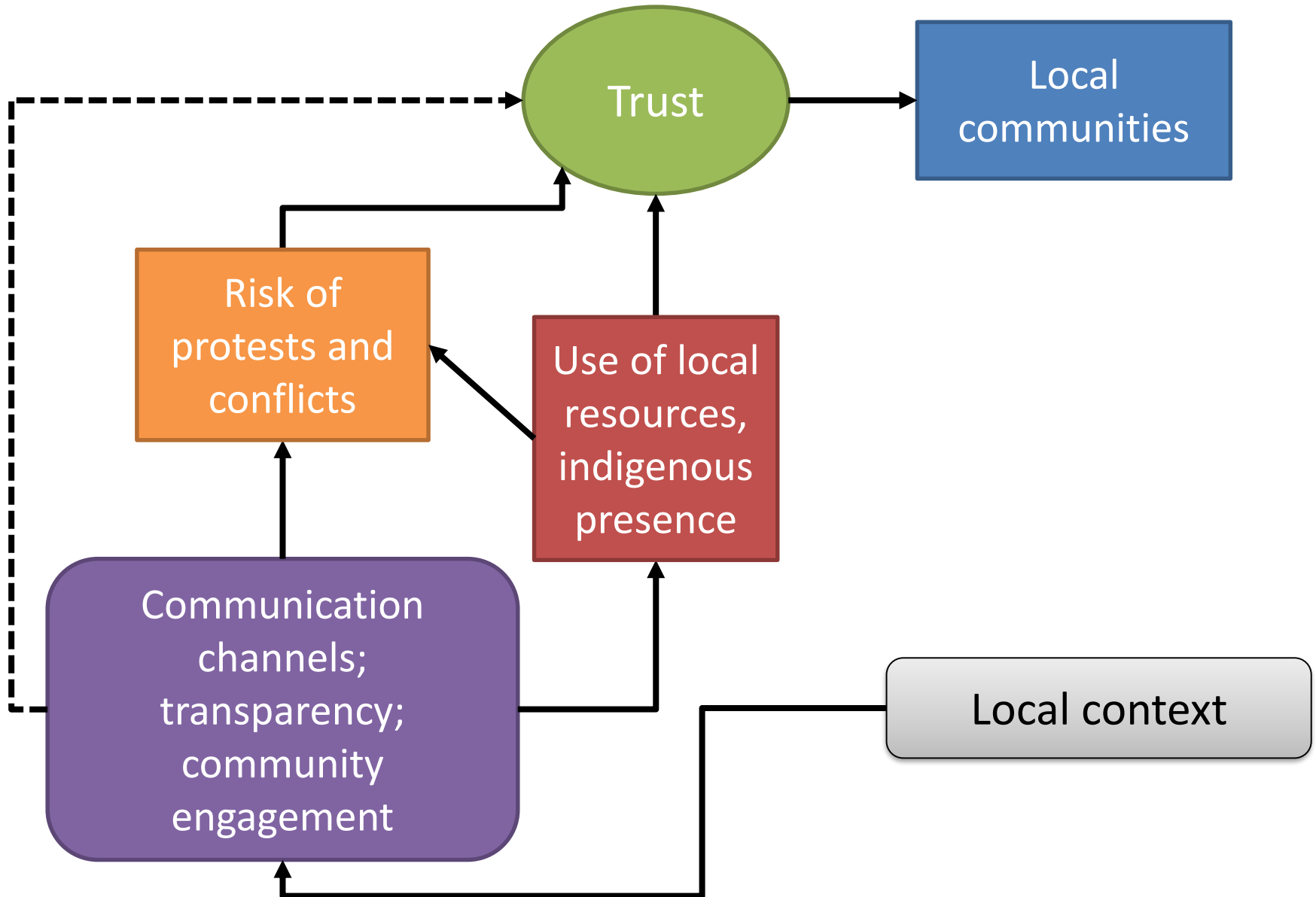
- Symbolic value of water
- Good freshwater quality
- Tourism
- Sami people
- Reindeer herders

South Africa



- Poor water quality
- Lack of water supply infrastructure
- Lack of sanitation services
- Agriculture

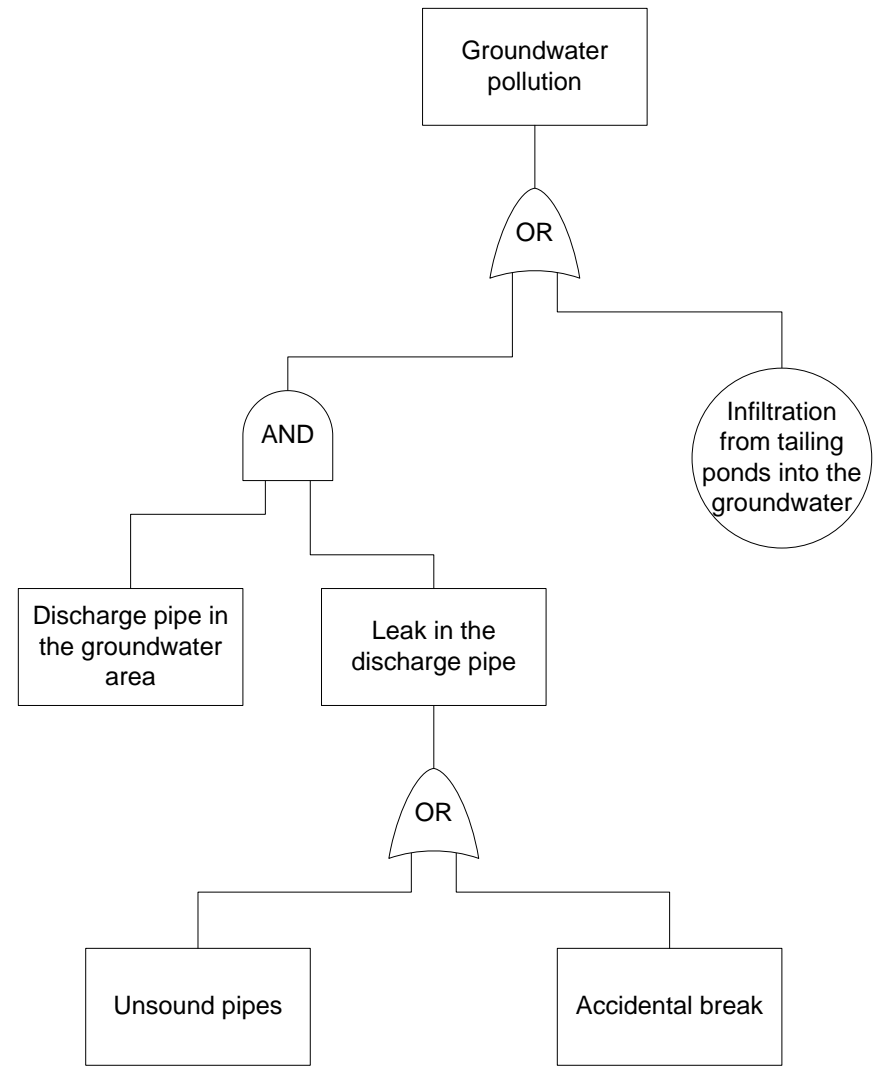
Value: trust



How do we assess value?

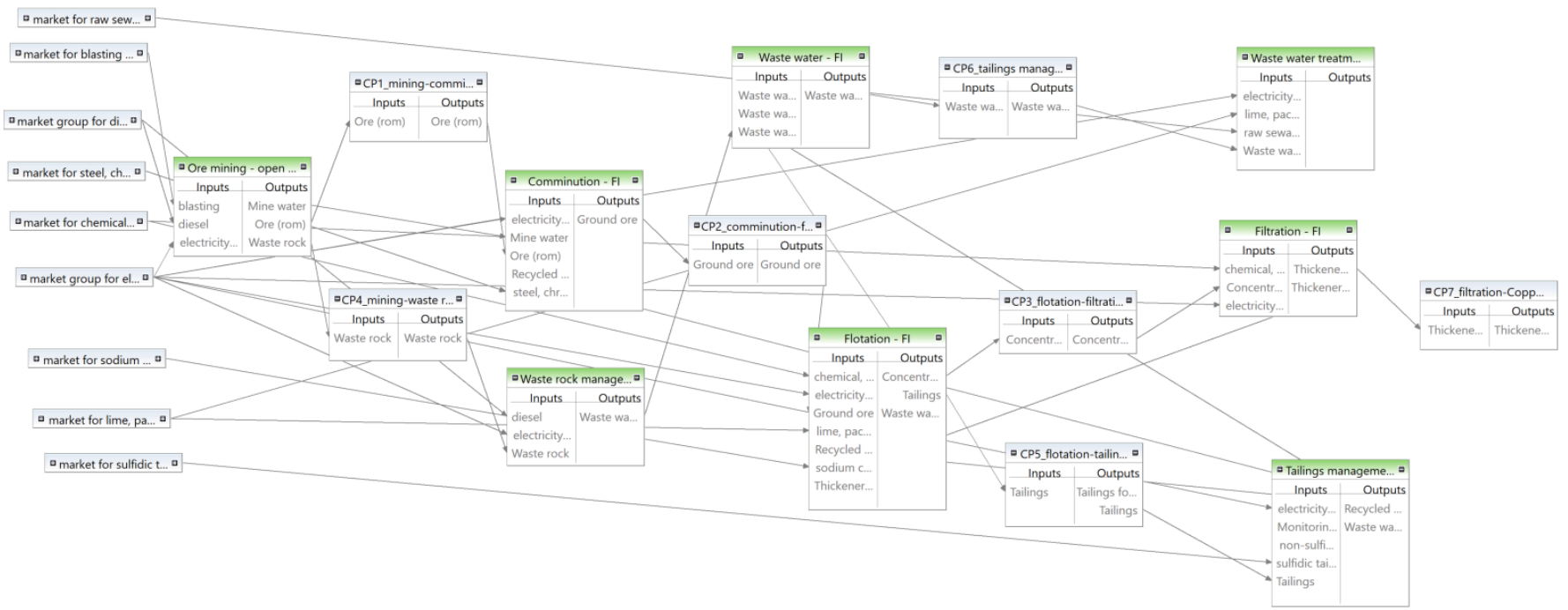
Value assessment

- Risk Assessment



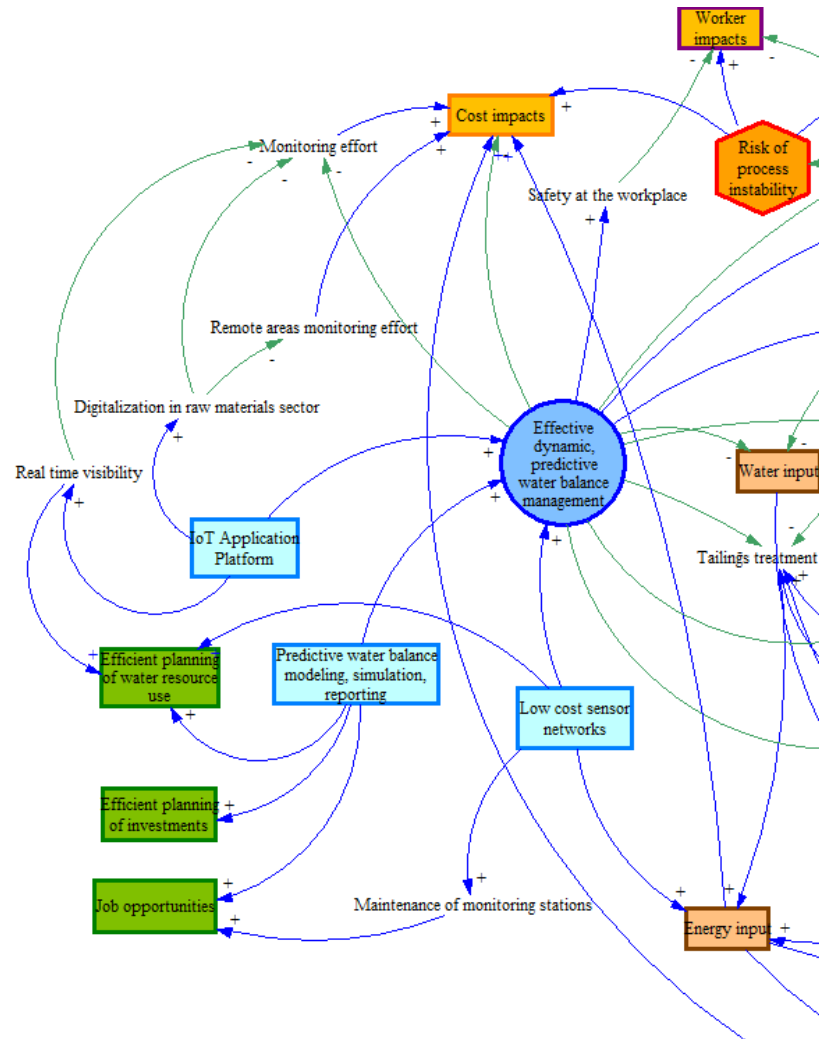
Value assessment

- Risk Assessment
- Life Cycle Assessment



Value assessment

- Risk Assessment
- Life Cycle Assessment
- **Causal loop diagram**



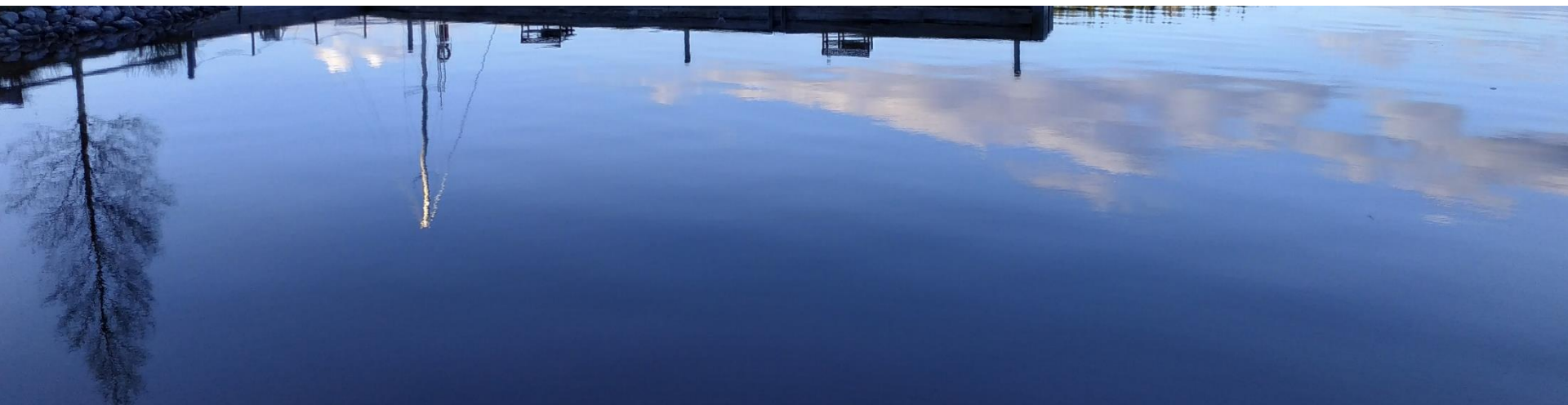
Value assessment

- Risk Assessment
- Life Cycle Assessment
- Causal loop diagram
- **Interviews with key stakeholders**

Qualitative information is as important as quantitative results

Conclusions

- Avoid one-size-fits-all solutions
- **“Consult beforehand and modify accordingly” – Finnish NGO**
- Impacts cannot be **compensated**/replaced by another sustainability dimension



Acknowledgements

- ITERAMS



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Thank you!

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