

# Systems Approach Framework

## System Assessment (Output), Implementation & Monitoring and Evaluation

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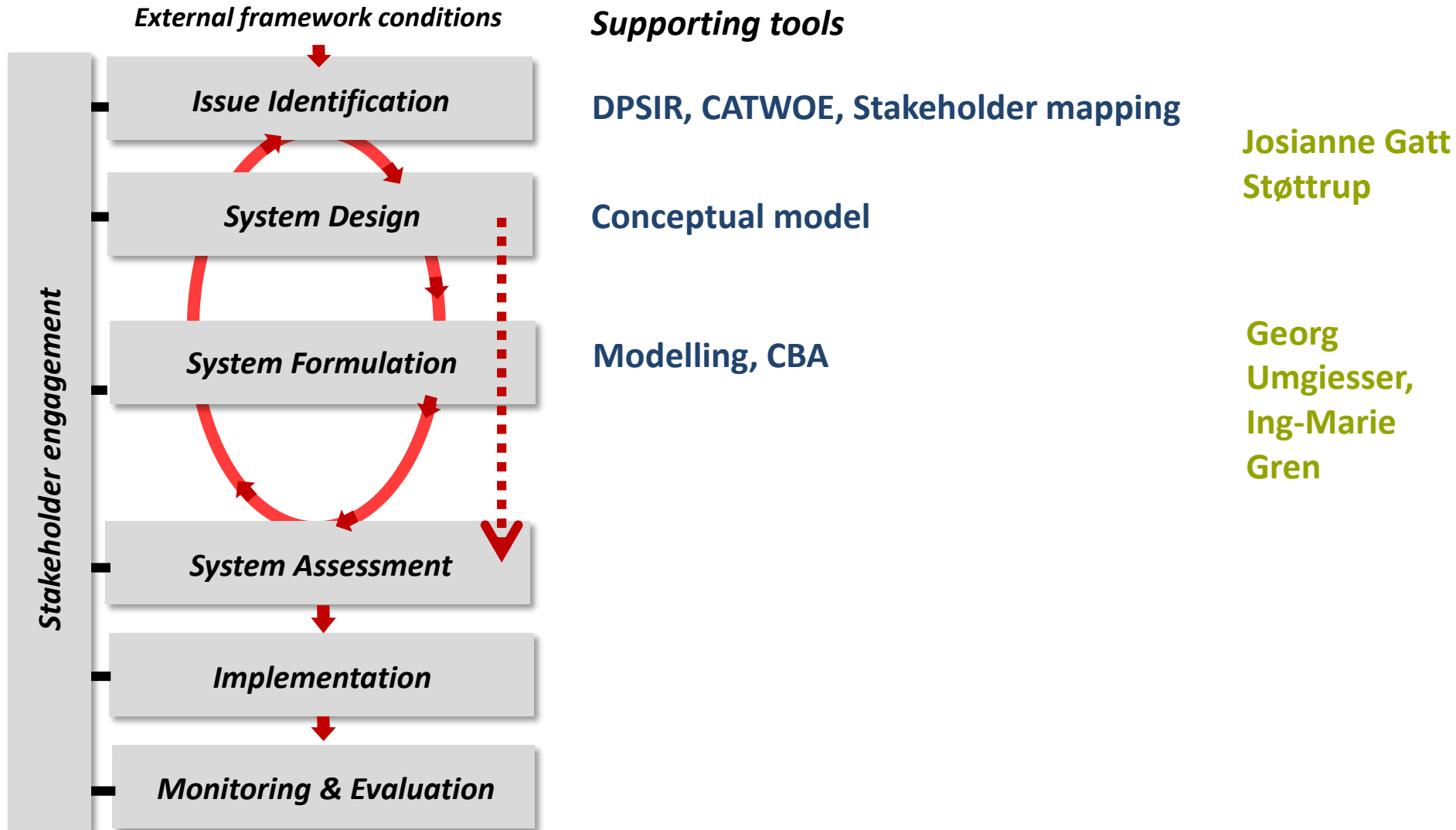
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**A SYSTEM APPROACH FRAMEWORK FOR  
COASTAL RESEARCH & MANAGEMENT**

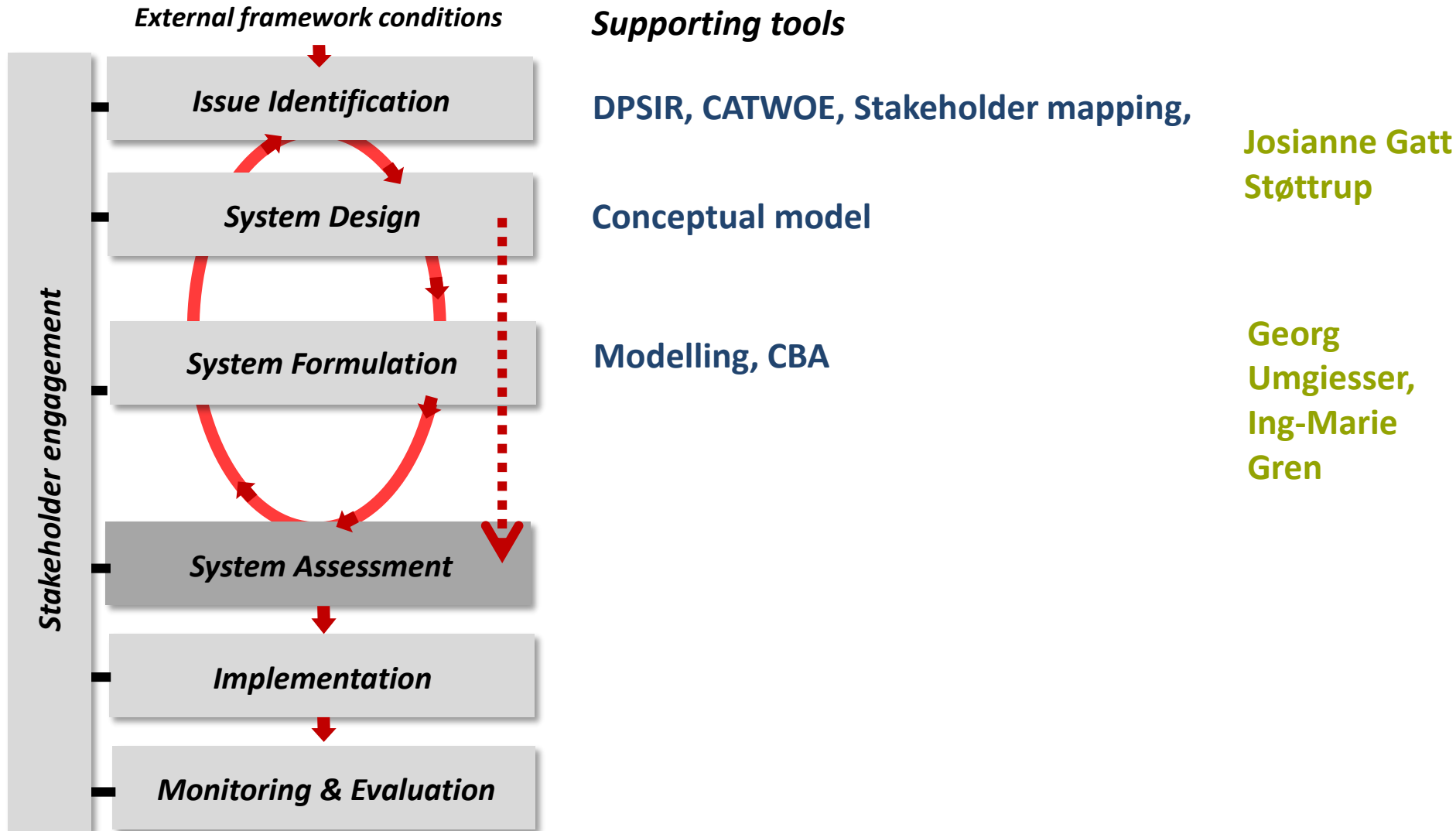


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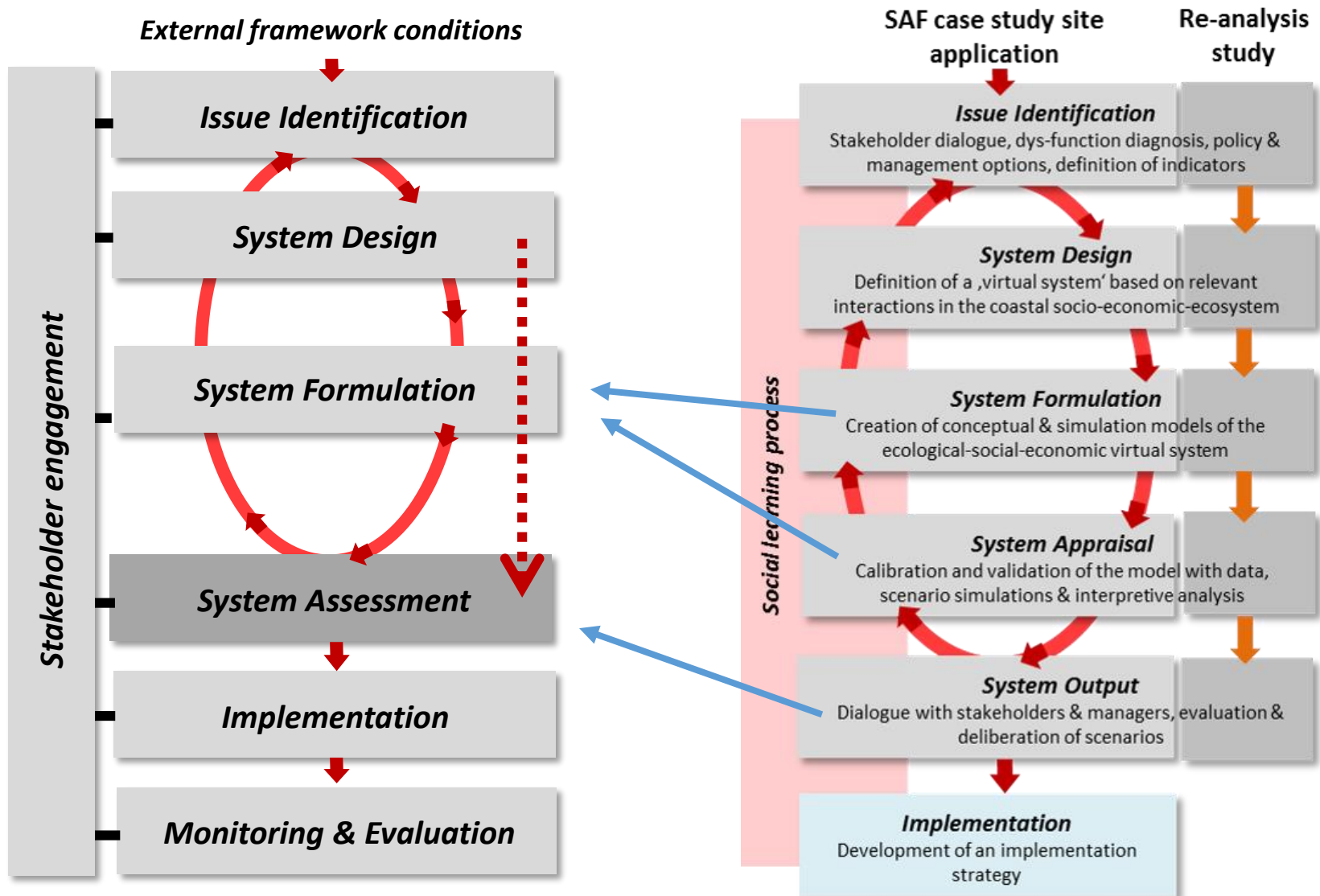


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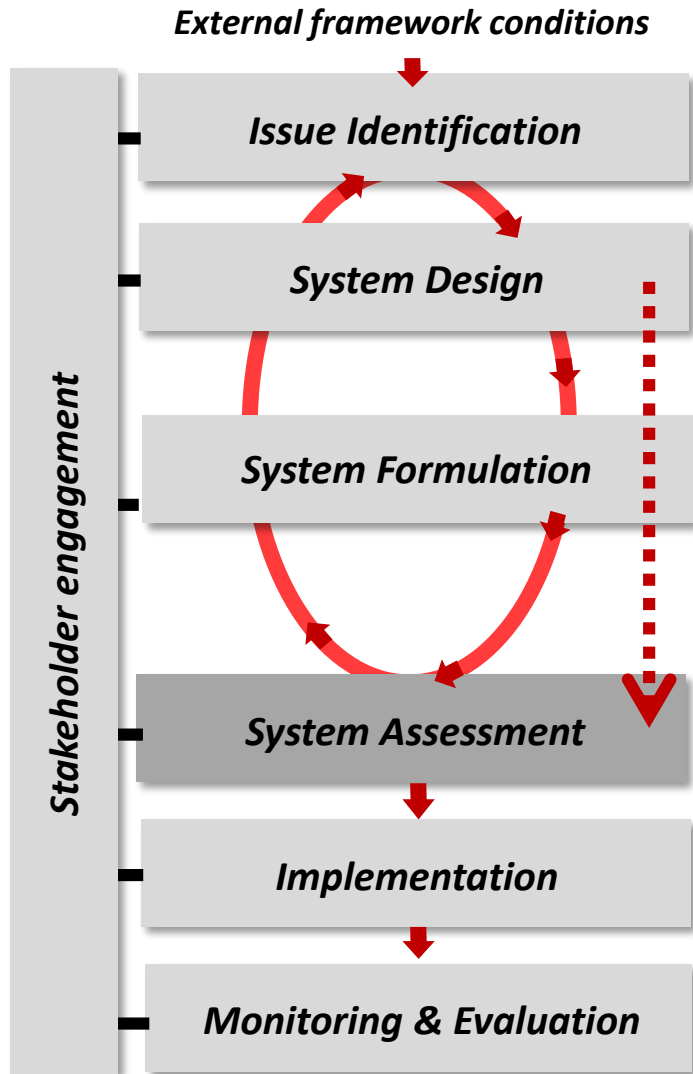


# Systems Approach Framework





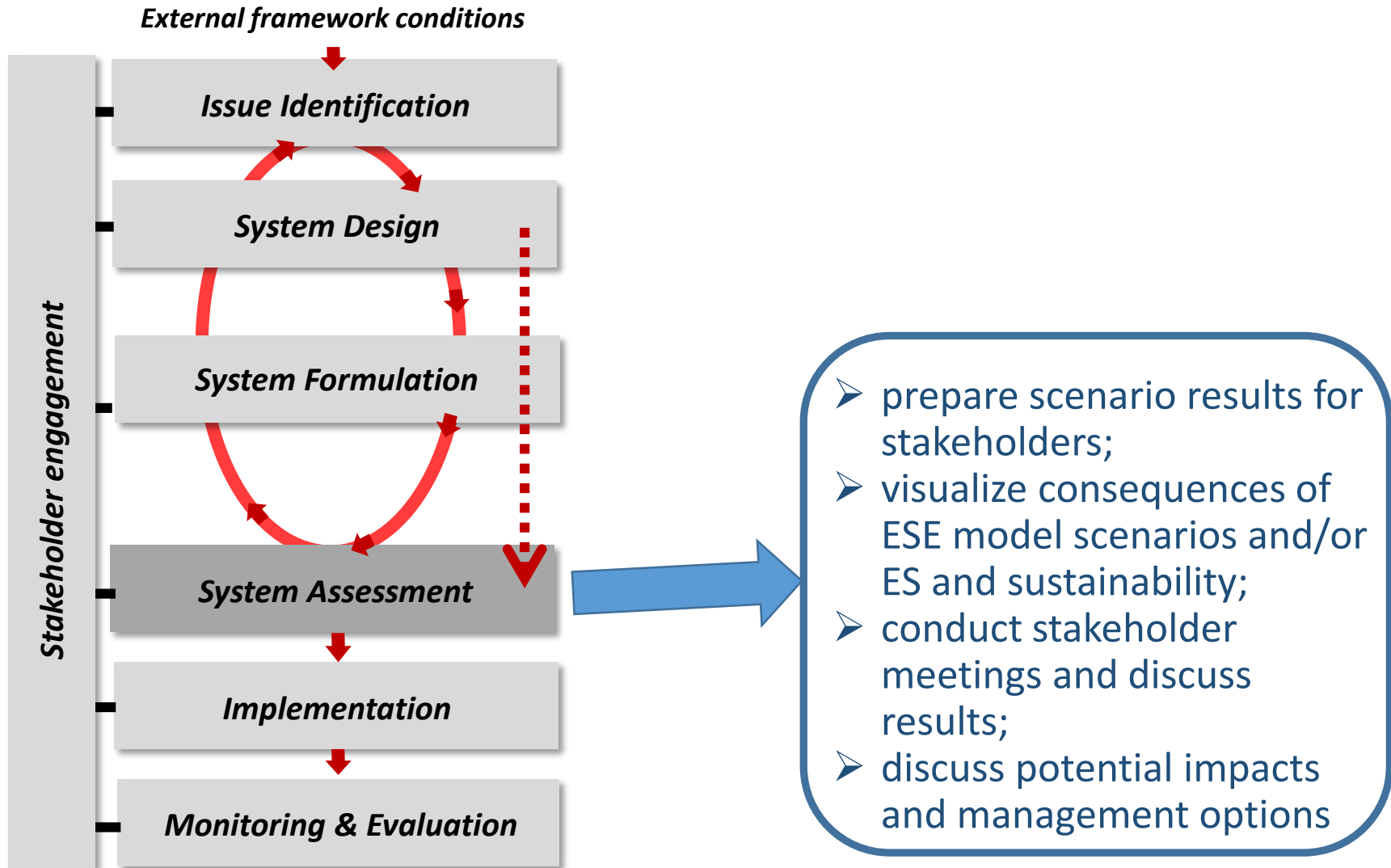
# Systems Approach Framework



- The **issue has been identified** together with stakeholders
- The **system** has been defined and **conceptual models** were prepared
- **Data was collected** and **modelling** of different **scenarios** was carried out
- Next step: is to prepare results and discuss with stakeholders
- Decision-making for further action



# Systems Approach Framework





# SAF – System Assessment

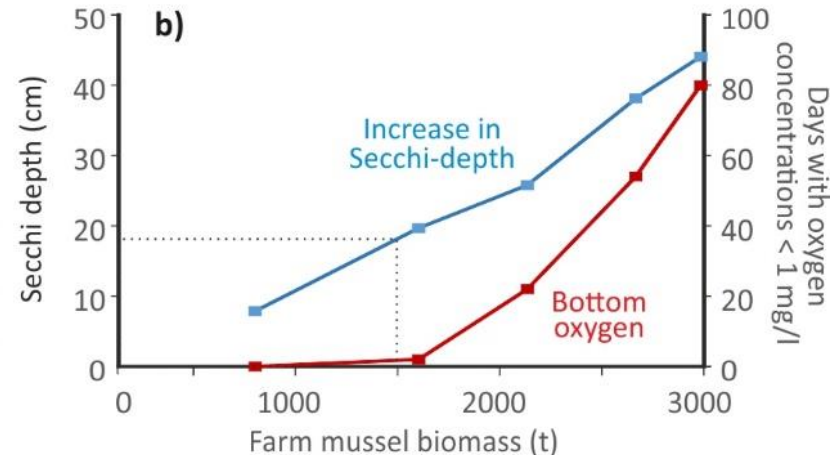
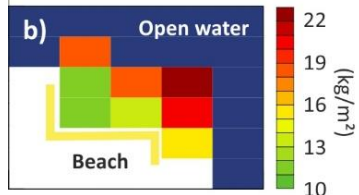
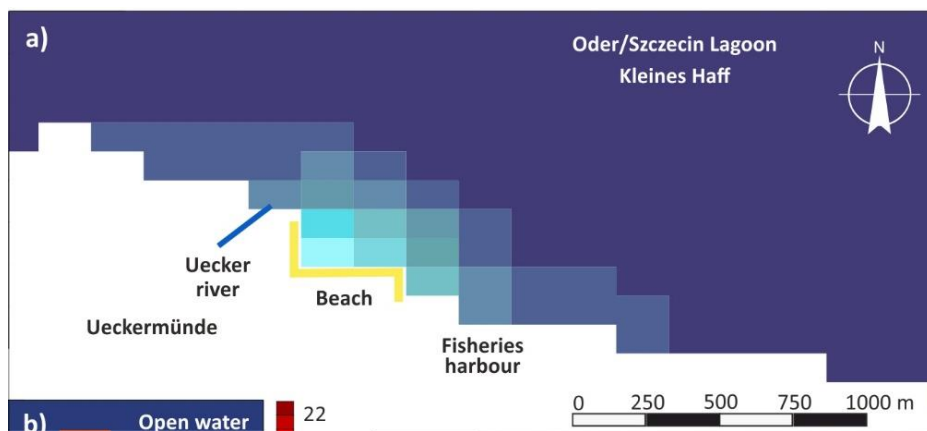
## ➤ *Preparation*

- Reflect on the process and recapture what was learned
  - List the highlights or key points of the SAF application
  - Re-visit stakeholder interests and list these (have they changed?)
  - Decide a strategy for stakeholder interactions (meeting structure and numbers, single or multiple stakeholder groups) and format of the minutes of the meeting



# SAF – System Assessment

- *Prepare scenario results for stakeholders & visualize consequences of ESE model scenarios and/or ES and sustainability;*
  - Running scenarios with stakeholders during the meeting
  - Comprehensible visualization of scenario results
  - Visualize effects of different scenario results on the prevision of Ecosystem Services (→ Miguel) and Sustainability (→ Donalda)







# SAF – System Assessment

➤ ***Decide on a presentation structure***

***Example:***

1. Explanation of the objective of the meeting
2. Recapitulation of the process for transparency
3. Showing the usefulness (and limits) of scenarios to the reference group
4. General explanation of uncertainties and assumptions
5. Presenting (running) the scenarios for audience
6. Explanation of policy options on which the scenarios are based
7. Comparison of scenario results



# SAF – System Assessment

- ***Prepare for stakeholder questions on or discussion of:***
  - Policy option(s)
  - Scenario inputs and outputs
  - Model assumptions used
  - Cost and benefits for scenarios
  - Fairness in different scenarios
  - Time scales of costs and benefits
  - Uncertainties of the scenario results
  - Model limitations
  - Possible unexpected changes



# SAF – System Assessment

- ***Conduct stakeholder meetings and discuss results, potential impacts and management options***
  - Conduct the meeting with presentations and deliberation
  - Assess whether stakeholder preferences have changed over time (→ stakeholder involvement lecture)
  - Reflect on the deliberation and decide if further meetings are needed
  - Sent out minutes to meeting participants



# SAF – System Assessment

## *Example: Limfjord case study*

- Presentation of various scenario simulation results
  - Reduction of total N and P
  - Closure of wild mussel fishery
  - Introduction of line mussel culture

## **Conclusion**

- Stimulation of stakeholder discussions
- Provision of a credible overview of the ecosystem they were familiar with
- Cognition of a higher ecosystem complexity than hitherto understood
- Process caused changes in stakeholder perceptions





# SAF – System Assessment

## *Example: Lithuanian Case Study - Bathing Water Quality & Beach Opening*

- Presentation of results for microbial pollution based on observations and modelling results
- Presentation of socio-economical evaluation of possible beach in the Curonian lagoon
- Discussion and evaluation of alternative scenarios

**Conclusion:** Stakeholders indicated that they see a combination of nature tourisms with advertisement of lower accommodation prices and beach area on lagoon site and targeting Lithuanian families as the best solution for more sustainable tourism in pre and post season.





# SAF – System Assessment

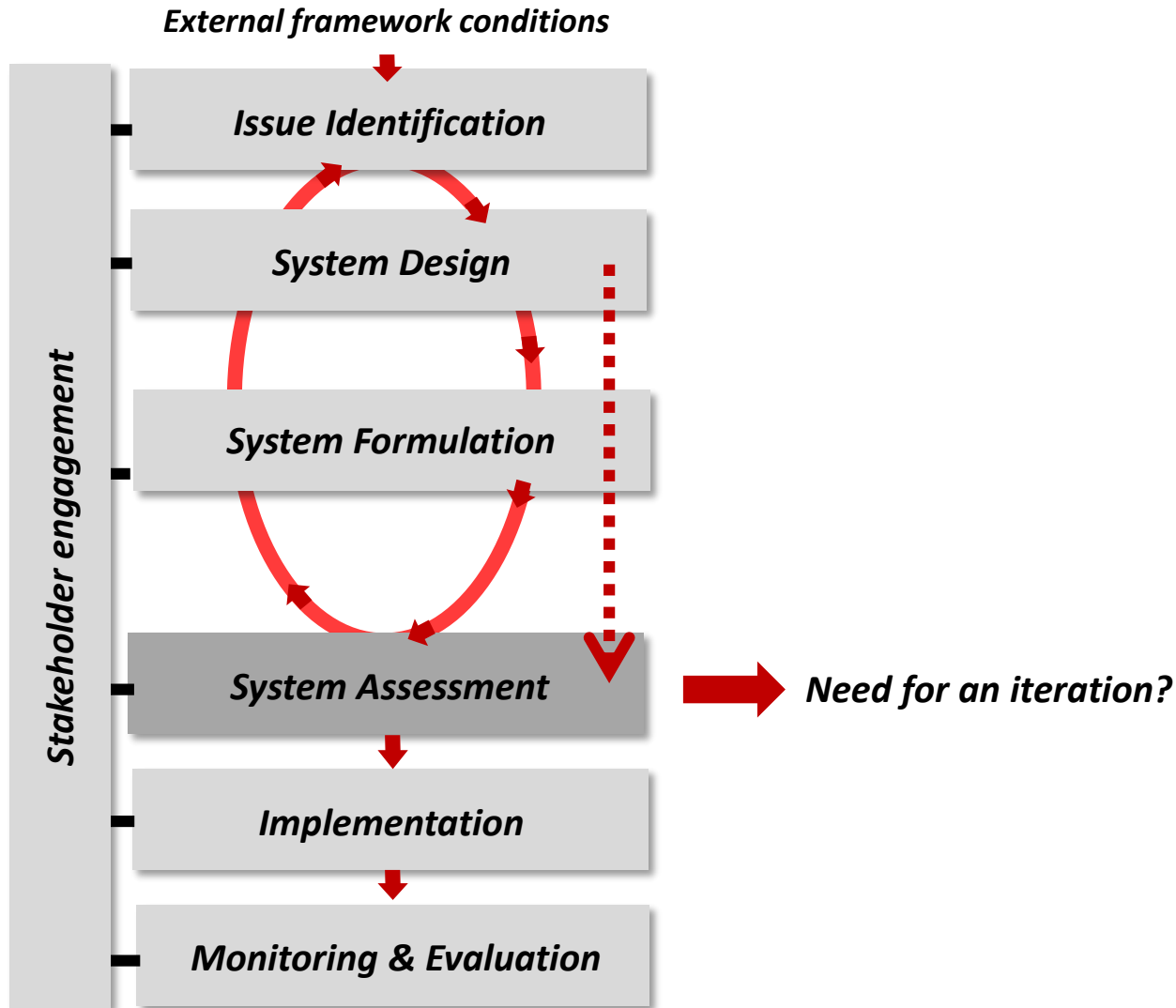
## *Example: German Case Study - Eutrophication & Eco-technologies*

- Presentation of different mussel farm and macrophyte extension options and scenario results
- Evaluation and discussion of the different options based on predefined success criteria



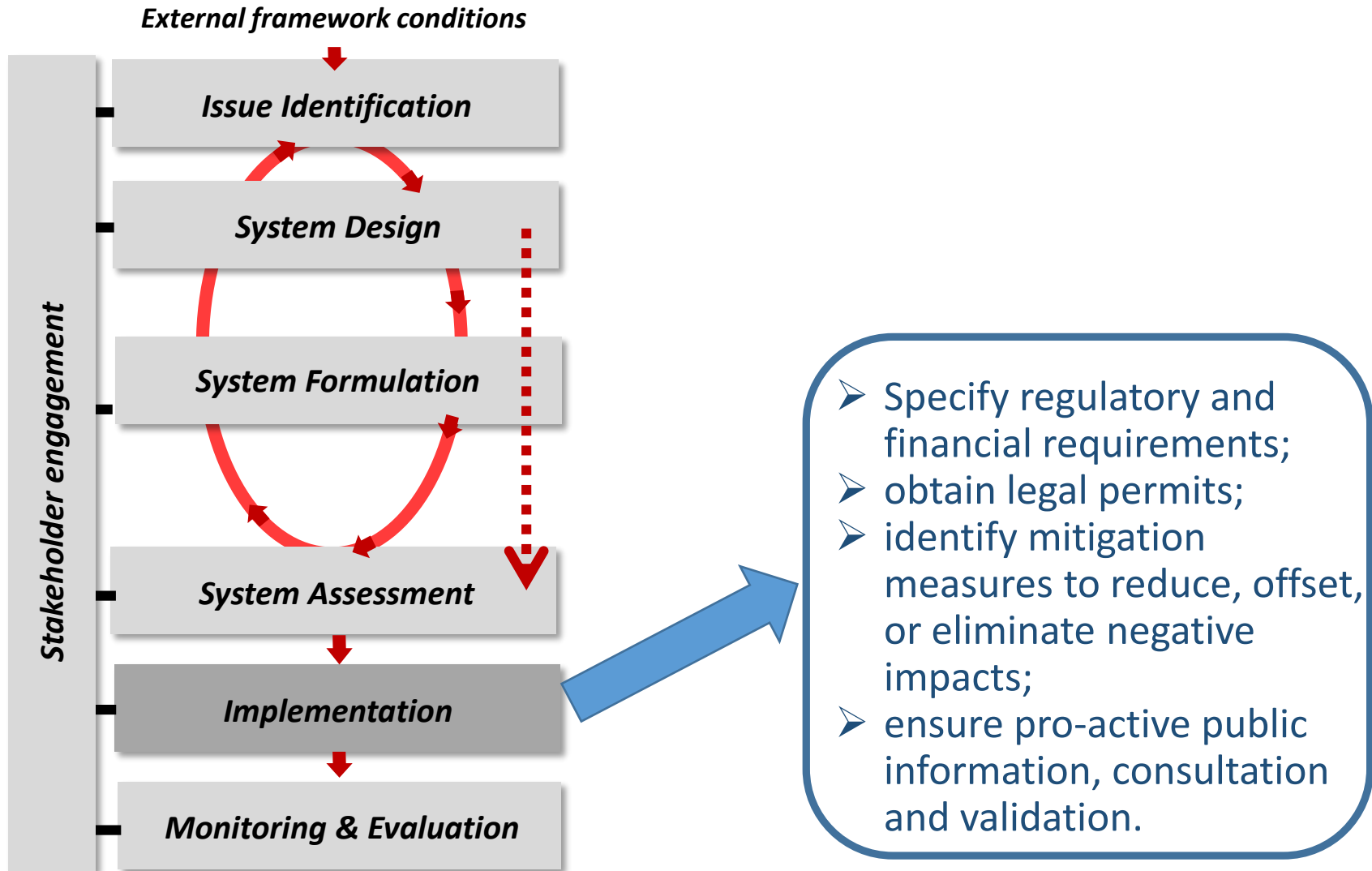


# SAF – System Assessment





# SAF - Implementation







# SAF – Implementation

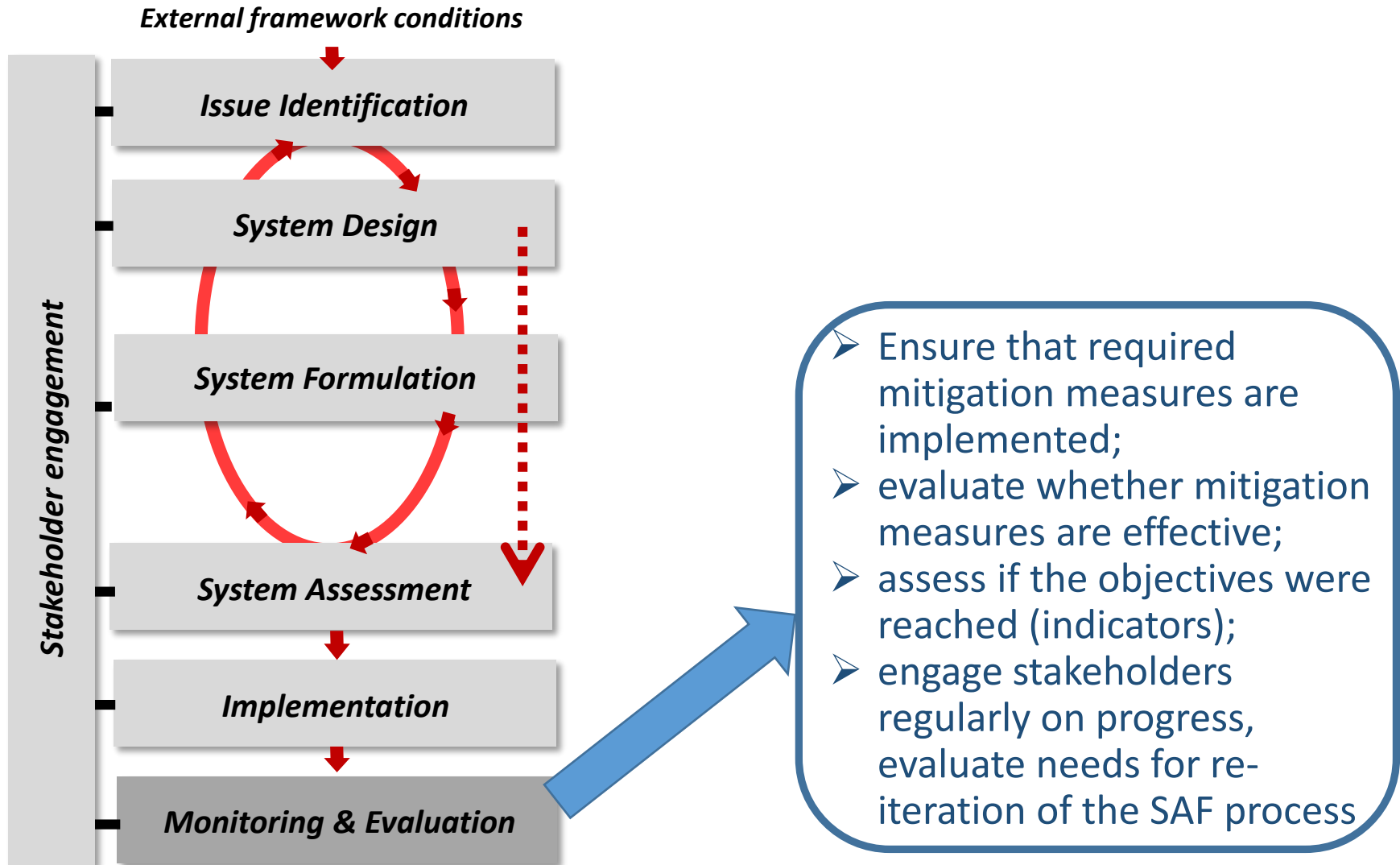
## *Example: Timmendorfer Strand – Coastal Defence Management*



- **Successful implementation of SAF**
- **Difficult transition from informal to formal process**



# SAF – Monitoring & Evaluation





# SAF – Monitoring & Evaluation

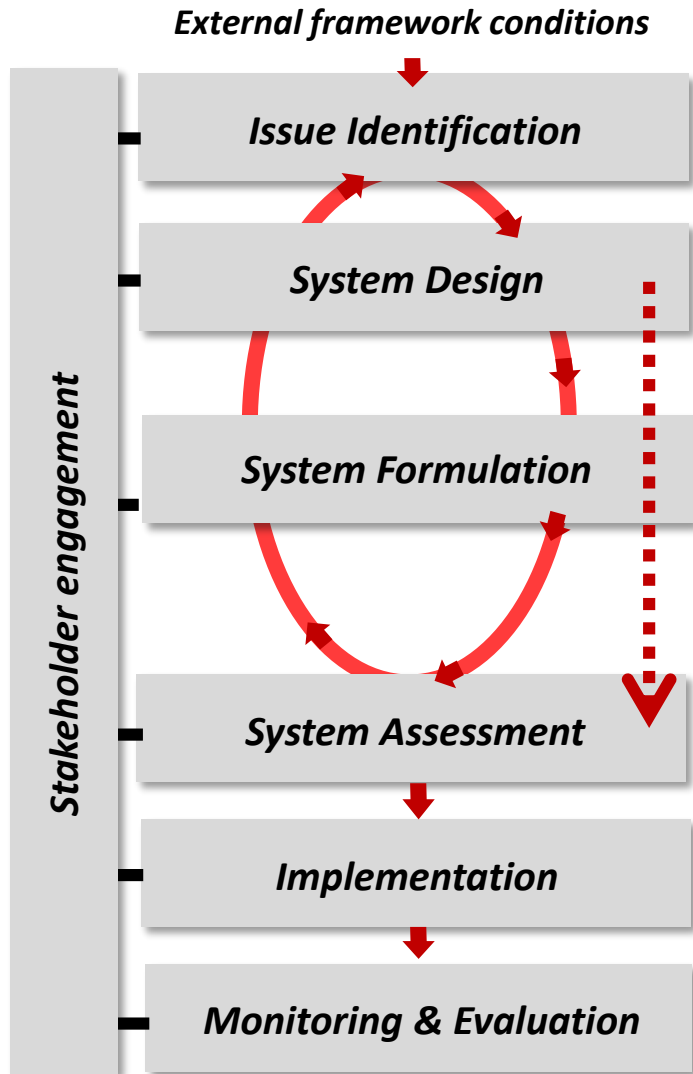
**Example:**  
**Hütelmoor/  
Markgrafeneheide**  
**Coastal protection  
and wetland  
restoration**

→ Lack of clear objectives and measurable success criteria/indicators hampered a follow up evaluation





# SAF - Summary



- Provides a stepwise approach and guidelines for the implementation of ICM principles
- Shortens the duration from identification of a problem to the implementation of a solution
- Provides quality insurance for ICM initiatives
- Enhances social-learning



# Literature

Dinesen, G., Timmermann, K., Roth, E., Markager, S., Ravn-Jensen, L., Hjorth, M., ... & Støttrup, J. (2011). Mussel production and water framework directive targets in the Limfjord, Denmark: an integrated assessment for use in system-based management. *Ecology and Society*, 16(4).

Hofstede, J., & Schernewski, G. (2005). Two coastal management and public participation case studies in Germany. In *International Conference on Coastal Conservation and Management in the Atlantic and Mediterranean (ICCCM)"*. Conference at (Vol. 17, No. 20.04, p. 2005).

Schernewski, G., Schumacher, J., Weisner, E., & Donges, L. (2017). A combined coastal protection, realignment and wetland restoration scheme in the southern Baltic: planning process, public information and participation. *Journal of Coastal Conservation*, 1-15.

## Literature

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**Thank you!**

Thanks to all BONUS BaltCoast who have contributed to the further development of the SAF.

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