

Systems Approach Framework Issue Identification - Exercise

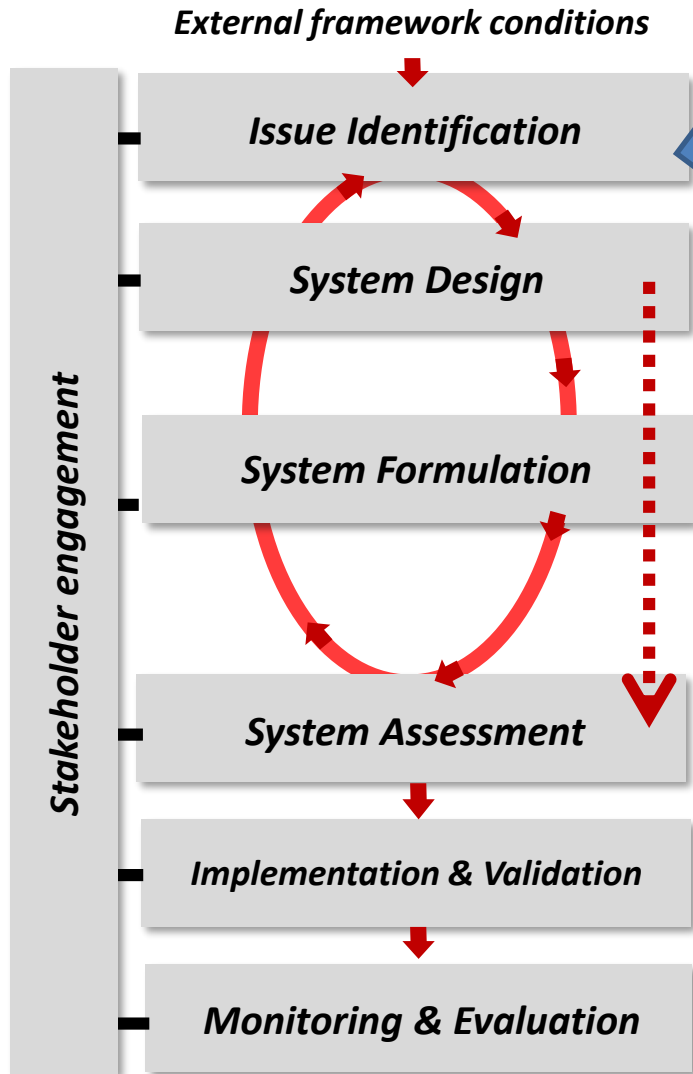
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**A SYSTEM APPROACH FRAMEWORK FOR
COASTAL RESEARCH & MANAGEMENT**



SAF - Issue Identification



- list human activities;
- map institutions and stakeholders;
- list Ecosystem Services;
- engage stakeholders (SH) and conduct consultations;
- map SH preferences;
- prioritise and ID/select issues;
- **identify relevant social, economic, environmental components and dependencies (DPSIR, CATWOE).**
- history of previous consultation or development



SAF - Issue Identification

Exercise on DPSIR and CATWOE

The supportive tools, DPSIR (Driver-Pressure-State-Impact-Response; EEA 1999) and CATWOE (Customers-Actors-Transformational process-Worldview-Owners-Environmental constraints) (<http://www.coastal-saf.eu>), help to develop a common understanding of the issue/problem, its causes and consequences and are invaluable for generating the first generation conceptual model for the issue.



SAF - Issue Identification

The DPSIR framework. Drivers, Pressures, State, Impact, Responses

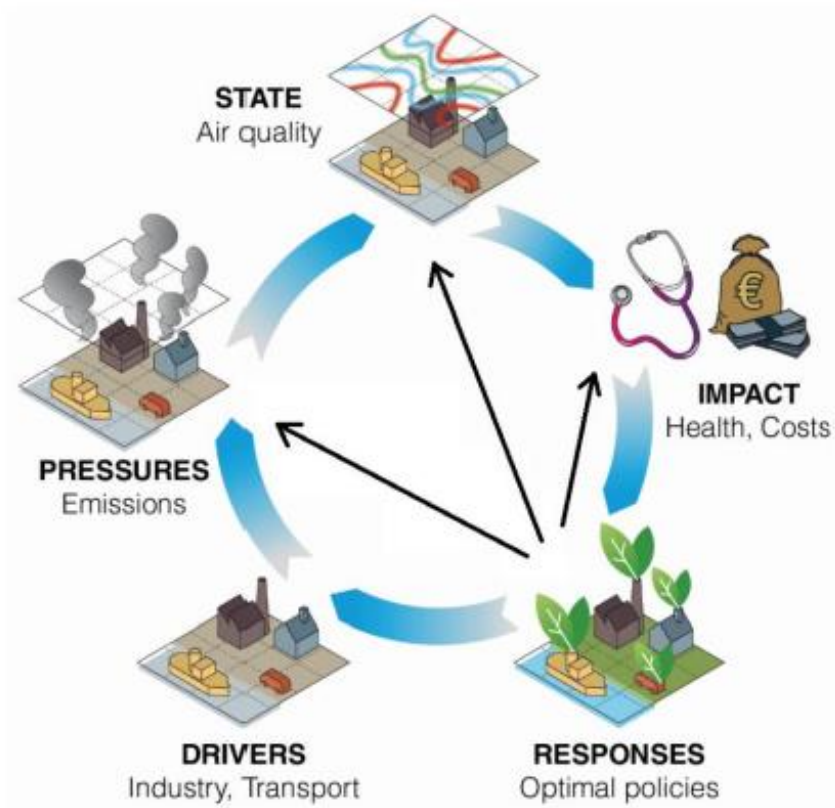


Figure 2 The DPSIR framework in its original form as in Smeets & Weterings (1999)



SAF - Issue Identification

DPSIR

Driver: Needs of human society (**food**, water, fuel, shelter, etc.) This often relates to a HA (food= agriculture)

giving rise to.....

Pressure: HA that stress the environment (increasing loading with nutrients),

resulting in a shift in the

State: The situation at a specific time and the forced rate of change in the ecosystem (increasing nutrients, phytoplankton, primary production, shift from fish to mussels, change of makro vegetation –regime shifts)

which may be diagnosed as an

Impact: the ‘undesirable disturbance’ (e.g. harmful algal blooms, water quality/clarity). End results of a cause-effect chain

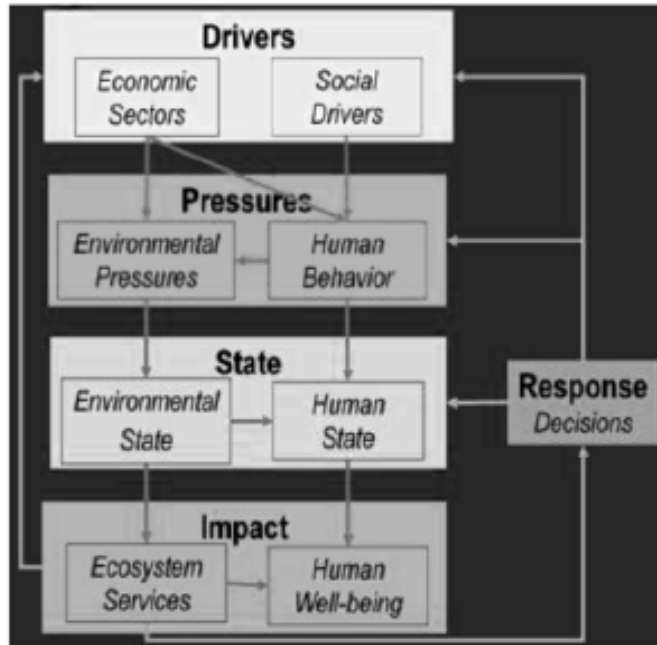
causing a

Response: response of society to losses of Ecosystem services - measures to mitigate the Driver and Pressure eg. WFD targets for nutrient reductions= often leading to a Policy change.



SAF - Issue Identification

(a)



(b)

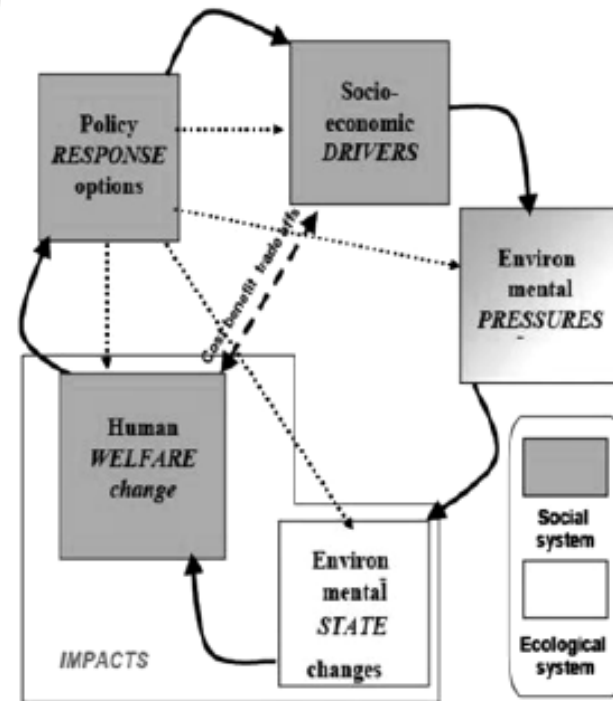


Figure 3 Two different adaptations of the DPSIR framework that aim at an improved consideration of the social component. In (a) a parallel pathway is added to consider human health. In (b) the term *Impact* is replaced by *Welfare*, separating changes in the environmental and social dimensions. The frameworks are taken from EPA (2012) and O' Higgins et al. (2011)



SAF - Issue Identification

The CATWOE

- Customers, beneficiaries/victims:
- Actors:
- Transformation:
- Worldview:
- Owners:
- Environment:



SAF - Issue Identification

CATWOE- Customers, beneficiaries/victims:

- Who is on the receiving end?
- What problem do they have now?
- How will they react to new management options?
- Who are the winners and losers?



SAF - Issue Identification

CATWOE - Actors:

- Who are affected directly?



SAF - Issue Identification

CATWOE - Transformation:

- What are the inputs and where do they come from?
- What are the outputs and where do they go to?
- What are the steps in between?

Eg. Public demand for water clarity, for high quality food, etc.



SAF - Issue Identification

CATWOE - Worldview:

- What is the bigger picture into which the situation fits (may differ among stakeholders)
- What is the real problem for each stakeholder
- What is the wider impact of any solution?

Example: Mussel production is an important income source in the area. Mussel dredging is harmful to the environment impoverishing the fjord.



SAF - Issue Identification

CATWOE - Owners:

- Who can help or stop you?
- What will cause them to get in your way?
- What will lead them to help?

Example: Ministry, national municipals, local councils.



SAF - Issue Identification

CATWOE - Environment:

What are the external constraints and limitations affecting the success of the solution?

What are the ethical limits, laws, financial constraints, limited resources, regulations?

How might these constrain your solutions?

How might you get around them?

Example: Agriculture or farming technology, regulating laws, improved land-use in catchment, upland assimilation, marshland/wetlands.



SAF - Issue Identification

Exercise in SAF Issue Identification:

- Group of 3-5 persons – maximum of 5 groups for the whole class.
- You have 30 min to work on this exercise
- Choose a problem or Issue among you. It should be fairly complex and high risk
- Work out the DPSIR for the Issue – draw on a sheet of paper and prepare to present to the whole class within 5-6 min
- If you still have time.... Work out the CATWOE for the same Issue – draw or write on a sheet of paper and prepare to present to the whole class within 5-6 min.

Thanks to all BaltCoast colleagues and C. Gillgren, who have contributed to the further development of the SAF

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