SCENARIO METHOD: EXAMPLES[1]

Scenario method in addressing land-sea interactions: the Estonian, Latvian and Polish case studies

Background

The scenario approach is used in land use planning for depicting conceivable future situations and elucidating the driving forces behind them. Scenario research is seen as a useful tool in understanding the consequences of policy options available in the future (Schoute et al. 1995). Scenarios have value only if there are several different choices – thinking through all the probable options would warn about unpleasant surprises. Therefore, scenarios do not have to be realistic – these are just thought-provoking tools to unravel complex effects of sought-after trends on spatial scale. Similarly, there is seldom a situation when one scenario is realised to its fullest extent (Antrop, 1997, 1998, 2000, 2005), and the reality is usually a combination of scenarios (compare Palang et al. 2000 and 2019).

Broadly speaking, two types of scenarios were in use, ones that tried to forecast the future, others that aimed to backcast the conditions that would create the desired future (Harms 1995, Schoonenboom 1995). Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES 2016) have developed a methodology for assessment of scenarios in relation to biodiversity and ecosystem services, suggesting different types of scenario building depending on policy or decision-making context:

- Exploratory scenarios – represent different plausible futures, often based on storylines, and provide means for dealing with high levels of unpredictability, associated with the future trajectory of many drivers.
- Intervention scenarios – evaluate alternative policy or management options – through either:
    - Target-seeking scenarios – alternative pathways are examined for reaching an agreed-upon future target or
    - Policy screening (‘ex-ante’) scenarios – various policy options are considered.

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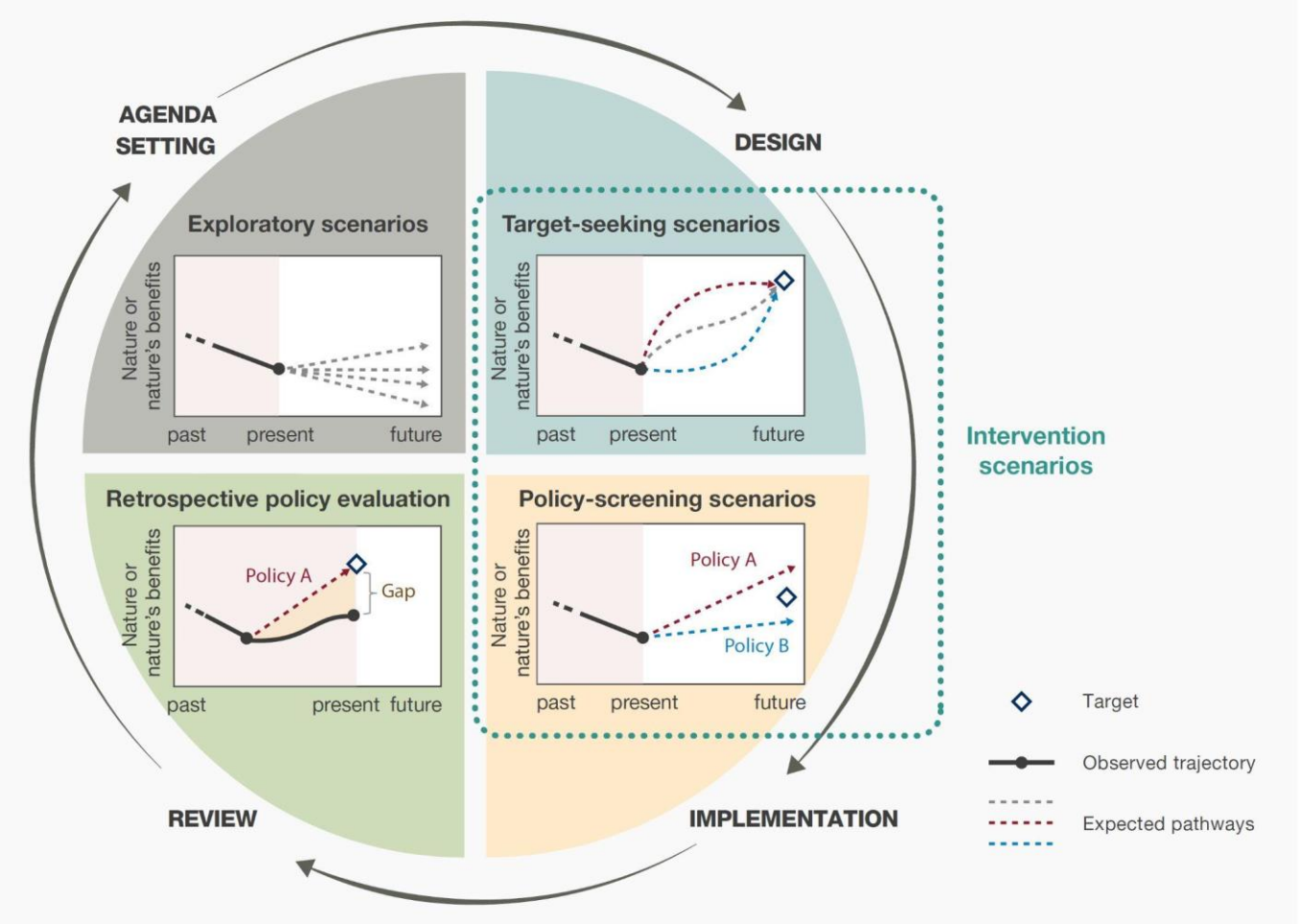
- Retrospective policy ('ex-post') evaluation – compares the observed trajectory of a policy implemented in the past to scenarios that would have achieved the intended target.



Different types of scenarios and their applicability in policy making and implementation (Source: IPBES 2016 http://ipbes.net/scenarios)

Methods and technology use may differ, but most scenario studies share some important common characteristics. This includes the main scenario building phases (Guerra et al. 2017):

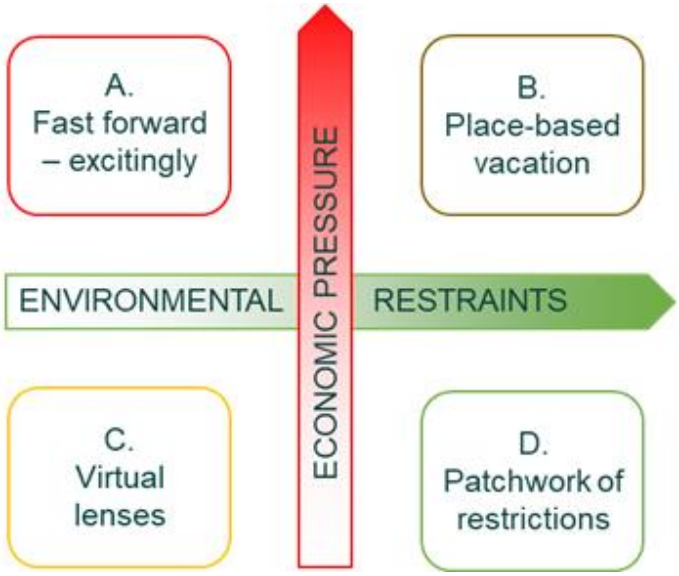
- Where the major tendencies for a specific region or subject and the drivers of change that underpin these tendencies are defined and formulated sometimes with the help of axes into different plots.
- Translating the identified scenarios qualitatively or quantitatively into variables and assessing or modelling the impact of these changes on the environment and society.

- Usually using visualisation techniques such as artistic depictions, map outputs, aerial photography manipulation or applying iterative agent-based modelling.

Furthermore, scenario building usually utilises a participatory approach either by involving stakeholders in identification of the drivers of change, scenario building, initial feedback, or final public assessment of results.

Applications of scenario building in the Land-Sea-Act case studies

The Estonian case study applied the exploratory scenario method to address land-sea interactions within coastal tourism and mobility context. Based on the previous scoping, Maritime Spatial Planning (MSP) developments and stocktaking stage four plausible scenarios were plotted on two axes and then titled.



Four explanatory scenarios on integrated coastal mobility and tourism planning on 'Environmental restraints' and 'Economic pressure' development factor axes

A list of relevant topics (values of tourists and travellers, safety of the Baltic Sea area, trends in global economy (e.g. sharing and circular economy), urbanisation and recreational economy, information and communications technology, mobility and accommodation, environmental condition and climate change, aging population and silver economy, destination shaping and co-creating of heritage, interested parties, stakeholders, and responsible bodies) influencing tourism and mobility were furnished with short statements for each of the scenarios. These notions were eventually elaborated into four more than a page-long narrations with the help of university students, a local stakeholder meeting and local schoolchildren's workshops. Each of these scenarios received a depiction by an artist (see figures), and the stories had to be "translated" into a place-based visual language through a series of consultations.

The picture shows the current situation (contains fragments from several coastal villages in northern Estonia) (illustration: Aleksandra Ianchenko 2020)

The built scenarios with condensed descriptions and artistic visualisations were assessed via a survey of inhabitants (N = 758) and enterprises (N = 100) of the case study area. Both favoured Scenario B. Place-based vacation as the most likely to happen (with open answer explanation possibility), as well as the most pleasant if it were to happen, despite differences in the opinions between inhabitants and enterprises and in the likelihoods of individual scenarios to take place.

Scenario B. Place-based vacation depicts the recreation economy and coastal mobility influences on the landscape by 2040 (illustration: Aleksandra Ianchenko 2020)

The Latvian case study applied the target-seeking scenario method to explore alternative pathways or options for offshore wind park development within the Southwestern Kurzeme case study area. The 'agreed-upon future target' was based on national policy objectives for use of renewable energy and coastal tourism development, as well as estimated capacity for offshore wind energy production in Latvian marine waters by 2050, which is 2.9 GW (Wind Europe 2019). In addition, the target was specified by stakeholders of the case study area during the interactive workshop and online survey. The participatory approach was also applied for scenario building – during an interactive face-to-face workshop (with *ca* 40 participants) stakeholders were divided in four groups and each group was tasked with seeking suitable locations for the offshore wind parks, taking into account the estimated energy production targets, the limitations and priorities for the sea use defined in the national MSP of Latvia, as well as possible impacts

on marine ecosystem and landscape. The relevant spatial data on marine ecosystem features and service supply, sea use information and thresholds of offshore wind park visibility from the coast were presented to stakeholders within an online map explorer developed using ArGIS Online Experience Builder platform. The four groups also discussed the opportunities and targets for sustainable tourism development in the coastal area of the Southwestern Kurzeme.

The four alternatives proposed by the stakeholders for the offshore wind park locations were later assessed by experts, calculating the impacts to marine ecosystem components, coastal landscape qualities, ecosystem service supply and human well-being. Based on the assessment results, the experts proposed optimum solutions for offshore wind energy development by 2030 and 2050 and elaborated proposals for targeting tourism development. More information is available in the Land-Sea-Act map explorer.

The Polish case study tested the exploratory scenario building method for investigating 'stakeholder visions' regarding the future socio-economic development of the Gulf of Gdańsk / the Vistula Lagoon regions with a focus on maintaining cultural values. The method was implemented through interactive stakeholder workshops. This procedure was conducted both in-person and online. The in-person version differs from the online one in duration and certain interactions. The in-person meeting involved two full days of individual and group activities, conducted in one place. The online version has the same consecutive actions; however, they involve several e-mail interactions, phone discussions, as well as online participatory workshops. In both cases the stakeholders involved in the process represented various social groups, which allowed to collect different narratives addressing the very same issue(s). The discussions are intended to focus on the future of a certain region, e.g. the Gulf of Gdańsk or the Vistula Lagoon regions with special focus on cultural values of the areas.

The adopted procedure involved four steps, which fit both of the above-mentioned forms of workshops. Firstly, the participants responded to the following question: In your opinion, what are the crucial factors, which determine or will shape the future of the region, with special emphasis on cultural values? The responses could include any arbitrary factor, which directly or indirectly influence the cultural values of the region. The cultural values are defined as both material and nonmaterial cultural heritage and peoples' lifestyles (connected to the sea) and the potential for tourism and recreation.

Once all the responses were collected, they were grouped, and the number of factor/barrier numbers were counted. At the grouping stage, factors identical (or almost identical) in content were combined. Similar factors – although, for example, with different emphasis – remain as separate items on the list. Then, the participants are requested to choose 10 most important factors, which they think would be most influential on the region's future and then 10 factors, which may have very uncertain impacts on the

region's future. In this way ranking of the factors and indication for those factors that the group has considered to be the most important was created.

The final stage involved participation of the stakeholders in an online workshop (small groups), which was aimed at discussing individual inputs on the wider discussion fora. The workshop was recorded and transcribed. The transcripts were then analysed following the content analysis based on the interpretation of the text.

The approach tested in the Polish case study highlights that the participants are not expected to have been prepared for the meeting, and the moderator simply runs the discussion to gain information based on the participants' knowledge, personal experience and the barriers, which have been chosen by the participants in the earlier stages of the study.

The stakeholders were presented with the results of their voting for the most important factors, which influence the future of the discussed region. Then the group was asked to discuss and hence create up to three scenarios for the region's development, using the chosen factors from the list (two for each scenario). The scenarios involved two crossing factor fields, which facilitated the creation of four scenarios based on the ending points and the extrema of factors' impacts.

These scenarios showed how the region may look based on the combination of discussed factors. Then the group discussed which scenario is the most/least likely to happen. In each scenario case, the stakeholders were asked for their preferred and most likely to happen scenarios.

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