Learning Marine Spatial Planning with a Serious Game

Finding space for 7,000 MW of wind in the Dutch EEZ of the North Sea

by David Goldsborough

To experience and appreciate the challenges involved in marine spatial planning (MSP), students enrolled in two MSP courses play stakeholder roles in a realistic serious game. The serious game is played with the participatory online MSP tool *SeaSketch*, and tackles the contemporary Dutch marine renewable energy challenge.

Realistic Assignment
The context of the assignment is based on the Dutch government's North Sea 2030 strategy. Key to this strategy is the expansion of the current and planned capacity of offshore wind in the Dutch North Sea. In light of the Dutch 2050 100% renewable energy goal and the 2017 ratified Paris Climate Agreement, it is expected that an additional capacity of 7,000 MW offshore wind farms will be required, which should be up and running by 2030. The involved stakeholders, played by students, are assigned different perspectives on the development and the locations of these additional wind farms. In the game, stakeholders have to identify their preferred locations, which should be located outside already designated or proposed areas. The students have to negotiate with each other in formal meetings. The Ministry of Economic Affairs and Climate Policy decides on the final designation of the offshore wind locations. In recent years, we have played the game with six stakeholders: Ministry of Infrastructure and Water Management, Ministry of Economic Affairs and Climate Policy, Ministry of Agriculture, Nature and Food Quality, TenneT (a leading European electricity transmission system operator), the fishing industry, and nature conservation.

Learning Objectives
The game offers students the opportunity to apply legal and policy aspects of marine spatial planning, experience stakeholders' perspectives on use of marine space, and use structured approaches for MSP. The main objective is to acquire negotiation skills based on a planned strategy and to communicate spatial plans.

Learning Tasks
Each player shares their spatial plans with *SeaSketch*, and in the final stages of the game with a policy brief, including their proposal for new wind areas. This policy brief is a "concise summary of a particular issue, the policy options to deal with it, and some recommendations on the best option. It is aimed at government policy makers and others who are interested in formulating or influencing policy. Policy briefs can take different formats." The policy brief can be an advocacy brief, which "argues in favour of a particular course of action" or an objective brief, which gives "balanced information for policy maker to make up his or her mind," as outlined by the Food and Agriculture Organization's Food Security Communications Toolkit. The policy brief should be short and attractive, and mainly targets the decision maker, i.e., the Ministry of Economic Affairs and Climate Policy. It reflects on the outcome of the first two meetings, and its goal is to convince the decision maker of a proposed way forward.

Each stakeholder also writes a short content and reflection report outlining their game strategy, as well as the development of the game in general. As a final task, each student
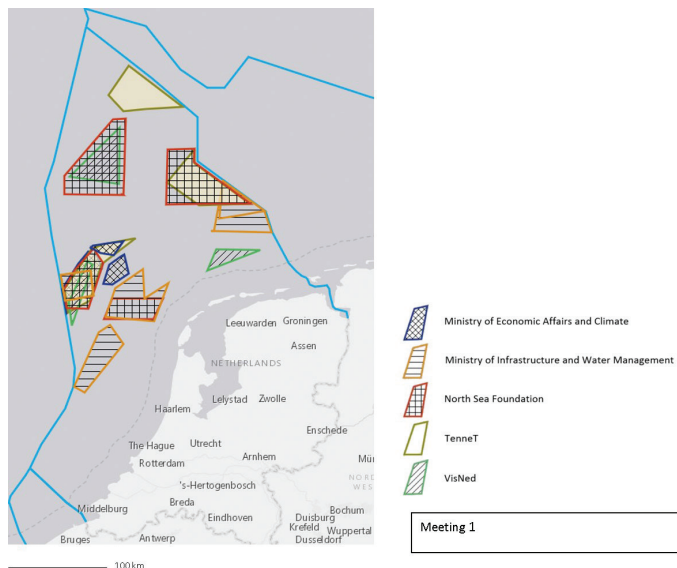
Figure 1: Intermediate result of MSP serious game played at Van Hall Larenstein in 2018. The screenshot is taken from SeaSketch. The North Sea Foundation is a Dutch non-governmental organization and VisNed represents five Dutch fishing industry producer organizations.

writes a short paper in which they consider their role as a stakeholder, and they articulate their personal take-home message regarding the serious MSP game.

Participatory Process
Depending on the length of the course the serious game runs for five weeks (nine-week part-time B.Sc. course) or one week (two-week full-time M.Sc. course). In the game, the Ministry of Economic Affairs and Climate Policy chairs three or four formal meetings, which includes preparing an agenda. Each meeting cannot exceed two hours, and the agenda must be e-mailed in advance to other stakeholders so that they can prepare. The lecturer plays no active role in the participatory process, but can provide guidance as a senior advisor for the stakeholders. In between the formal meetings, the players are free to communicate with each other and set up small-scale meetings, e.g., to gather additional information, seek coalitions, or try to influence each other.

Sharing Plans with SeaSketch
The following example is taken from the serious game that was played in 2018 with B.Sc. students at Van Hall Larenstein. Five stakeholder roles were assigned, and the areas that were initially proposed can be seen in Figure 1. The students used SeaSketch, a powerful tool that enables online sharing and discussion of spatial plans. It is easy to use and, in the 2018 course, no moderation was required to support the online spatial discussions. In the shown example, the five stakeholders succeeded to find consensus. Other runs of the game provided different results, ranging from coalitions between a few stakeholders to complete disagreement among them all, requiring the Ministry of Economic Affairs and Climate Policy to come to a final decision.

Learning Experience
So far, the game has always yielded a unique outcome, and was taken very seriously by the students. The proposed solutions often have a parallel in real MSP problem solving. The serious game illustrates the difficulty of negotiating with limited data and knowledge, the skills required to finding common ground, and the influence individuals can have on participatory processes. Ultimately, students are exposed to the challenges of social, economic, and ecological trade-offs related to sustainable development and MSP.

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