Summary in English

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Mapping barriers to sustainable development with interactive management: coastal areas of the Pomeranian province (Poland) and marine areas off the coast

Marine and coastal ecosystems have always played a crucial role in sustaining human well-being. However, these valuable resources are not adequately protected nor used sustainably, putting at risk current and future generations. Aware of these threats, national and international communities have long attempted to provide solutions for more environmentally-friendly social and business models. Indeed, the idea of sustainable development is one of the most commonly recognised and widely accepted efforts towards such (behavioural) change. Behavioural change cannot be, however, achieved without people. More precisely, it cannot be achieved without a good understanding of the people's opinions, attitudes and beliefs. Consequently, marine and coastal ecosystems will not be protected appropriately if there is insufficient social support for their conservation and sustainable use. This increased recognition of humans' role in a transition towards a more sustainable world has led to calls for more of social science expertise (or perspectives) in marine (co-) management. These calls should be understood as giving 'the voice' and 'the agency' to the relevant stakeholders.

This dissertation is an answer to such calls. It gives the voice to the plethora of marine stakeholders to gain a deeper understanding of how these stakeholders conceptualise marine sustainability and how they perceive barriers to (more) sustainable marine and coastal ecosystems. By doing that, my research documents the current levels of knowledge on the sea and its sustainable development carving the path towards more evidence-based marine education and sustainable marine management.

Giving the voice to the stakeholders themselves requires the use of deliberative methods. For this purpose, I have used the system science Interactive Management methodology, which is designed to address complex issues (such as sustainability and marine ecosystems management) with a diverse group of participants. Interactive Management allows not only to understand the structure of the problem and the relations between its components, but it also stimulates co-creation of the collective vision of the problem at hand. Interactive Management is implemented in the form of a collaborative workshop. In this study, I organised ten workshops related to the coastal and marine ecosystems of the Pomeranian province. Seven of them were run with the representatives of the maritime sectors ('food supply', 'transport', 'energy', 'tourism and leisure', 'human health', 'a place to live' and 'nature conservation'), gathering primary stakeholders, secondary stakeholders, and influencers in one room. I also organised three workshops for the representatives of the coastal

communities, i.e., the general public, to capture the opinions of the actors who are less dependent and, therefore, less closely related to the marine environment. I then analysed the results of these workshops both individually (each workshop separately) and collectively (in two groups: seven maritime stakeholders' workshops; three coastal community workshops).

The representatives of the maritime sectors and the coastal communities generated a variety of barriers (420 and 166, respectively) that — in their opinion — hinder the path towards the sustainable development of the sea and the coast. These barriers addressed all three pillars of sustainable development. However, no group of stakeholders in this study embraced strong sustainability ambitions fully. There was a broad consensus that sustainable development is about balancing social, economic and environmental needs, and that, therefore, protection of the environment cannot take priority over the other two dimensions. Both the representatives of the maritime sectors and the coastal communities reached such a consensus, with some voices of opposition coming mainly from 'a place to live' and 'nature conservation' workshops. There was also no evidence that the sectors more dependent on healthy marine ecosystems were more willing to acknowledge nature conservation's primary role. The reservations towards this managerial paradigm were shown regardless of the participants' background, be it 'food supply' and 'tourism and leisure' on hand, or 'energy' or 'transport' on the other.

Barriers related to 'attitudes', 'knowledge' and 'public involvement in decision-making' were recognised as the most critical challenges by the maritime sectors' representatives. Among these three groups, inadequate attitudes were suggested as the area where social interventions could bring the most noticeable change, and — through this change — stimulate improvements in all other fields of human activities. Although emphasising the role of the attitudinal change to achieve sustainable development, the respective sectors considered themselves as relatively environmentally friendly, acting — as much as the market allows — towards a more sustainable world. This narration suggests a relatively low internalisation of sustainable development, especially that the primary responsibility (and, therefore, the blame) for the current failures was put on governments and public authorities. However, it does not mean that the relevant stakeholders have not noticed issues related to their own activities and sectors. Although perhaps not as common as expected, some voices called for the sectoral management reform. Such voices were most evident in the 'food supply' workshop, but other sectors (such as tourism and human health) also suggested some possibilities for improvements within their own domains.

Similarly to the participants coming from the maritime sectors, the representatives of the coastal communities identified issues related to 'knowledge', 'attitudes' and 'public participation' as most problematic for achieving the ambitions of sustainable development. However, this group's narratives (unlike the maritime sectors) were remarkably disconnected from 'the sea' and 'the coast'. To a lesser extent, this disconnection was also evident for the more general notion of the 'natural environment' (or environmental pillar of sustainable development). Indeed, the coastal citizens focused on sustainable development's social and economic dimensions, leaving the environment outside the sustainability discourse. This

narrative suggests that — despite the considerable educational efforts undertaken in the past — the general public still knows relatively little about sustainable development, and even less about its marine context.

Therefore, coastal citizens of the Pomeranian province are not truly coastal as they are unaware (and consequently do not appreciate) relations between the healthy ecosystems and their well-being. What is perhaps quite promising (and distinguish this group from the maritime sectors) is that the coastal citizens were willing to take much more responsibility for not acting sustainably. They blamed the governments and businesses but also themselves, which actually provides hope for fostering behavioural change in the long run.

This dissertation is the first (and possibly the only) study that systematically maps and analyses the barriers to sustainability and their interrelations. By approaching the problems through the lens of the marine stakeholders and giving the voice to the stakeholders themselves, my study contributes to exploring the knowledge gaps and popular myths concerning marine ecosystems and marine sustainability ambitions. These contributions allow for formulating some advice for marine management, research and education.

The general recommendations stemming from my study are the following. Firstly, social science expertise, including public perception research and social marketing, will be essential to raise awareness and promote pro-environmental behavioural changes. Secondly, this expertise will be crucial to properly shape social participation and explore the issue of limited trust between the planners and managers and participating stakeholders. Thirdly, education scientists should play an essential role in designing educational campaigns and school curricula for ocean-literacy. They should revise their efforts (since current seems not to be successful) to educate about sustainable development.