Borderless nature and science: Dual aspects of opportunities and challenges of transboundary conservation: a role for science?

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Political borders do not stop nature. Transboundary conservation (TBC) aims at reaching conservation goals through cooperation between nations along a border. Many types of transboundary conservation areas (TBCAs) and different cooperation levels exist. The first cases of TBCA emerged in North America and Europe in the 1930s, reaching other continents afterwards and growing considerably from the 1980s onwards. (Vasilijević *et al.*, 2015). The current crisis in biodiversity loss calls for protection of species and species habitat and is a warning for the importance of connectivity in conservation (Lausche *et al.*, 2013; Vasilijević *et al.*, 2015). The connectedness within TBCAs does not only include landscape features, biota and biological processes, but also humans or even pollution and disaster. The consideration of local human populations is part of the most recent biodiversity discourse, 'people and nature' (Mace, 2014) and involves migration, welfare and peace components (Barquet, 2015). The potential benefits to TBC being numerous, motivations and objectives for the establishment of TBCA can differ. TBC needs however to deal with biological conservation besides the consideration of economic and social aspects and this from its initial steps. While being established with the purpose of conservation, initiatives are not always supported by scientific data. Baseline data and standardization are indeed not necessarily secured. Even when available, these scientific data are not necessarily translated into policy or legal frameworks (Lim, 2015). The science-policy interface (SPI) includes some serious challenges and calls for effective communication, translation and mediation between the science and policy spheres (WIOMSA, 2020). In this sense, the general objective of this research was the identification of opportunities and challenges of TBC as well as the need and usefulness of scientific data in support for TBCA initiatives. This is being studied through a case in East Africa, more specifically the proposed coastal TBCA between Kenya and Tanzania, over a coastal stretch of approximately 100 km. A scientific project, the Trans-Coast project (2016-2021) offers scientific support to this proposed TBCA. Trans-Coast aimed at implementing research on 'Transboundary coastal processes and human resource utilisation patterns as a basis for a Kenya-Tanzania conservation area initiative', while identifying further research needs and the SPI terrain between the two countries. A major terrestrial TBCA is already shared between Tanzania and Kenya and a marine TBCA between Tanzania and Mozambique. Cooperation for effective conservation does exist in the region. However, the proposed coastal TBCA might introduce unique challenges and benefits. The comparative framework can be used for informing coastal TBCA planning. The study is mainly based on scientific and grey literature and surveys or semi-structured interviews with actors in various sectors. We present the above-mentioned benefits and challenges to the proposed coastal TBCA as well as the sectors or stakeholders that might facilitate or challenge the TBC process. Moreover, a deep look into the results of the Trans-Coast project reveals knowledge gaps and potential levers for scientific arguments regarding the implementation of the TBCA. Finally, patterns in the attitudes of policy-makers regarding scientific input could be observed. It is indeed the potential uptake of science into policy that is what many scientists strive at.

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