Co-Design as the basis for collaboration and science to policy uptake in the Western Indian Ocean region

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Summary

Nowadays, researchers from different disciplines are expected more and more to collaborate among each other as well as with relevant stakeholders. We must move away from business-as-usual basic research to more applied and transdisciplinary research and the integration of different knowledge. Working across scientific disciplines, regions and societal groups requires new methods and concepts regarding communication, institutional arrangements and funding opportunities. Data provided by international research programs are rarely sufficiently application-oriented or context specific. What co-design is and how to use it, is not widely known or intentionally practiced in the region yet. But it can be said that Co-design is an "Iterative and collaborative process involving diverse types of expertise, knowledge and actors to produce context-specific knowledge and pathways towards a sustainable future (Norström et al. 2020)". IOC-UNESCO emphasizes the importance of Co-design and Co-design was especially highlighted in the context of the Ocean Decade. In this paper some recommendations are made to develop regional vision and guiding principles but also building multidisciplinary capacities and capitalize on opportunities provided in the UN Ocean Decade. These Opportunities are mainly to build knowledge and practice of co-design and to embed co-design more broadly across the WIO region. Suggestions for a way forward could be a regional and inter-sectoral Working Group.

1. Background and rationale

Global change and the need for sustainability calls for more integrative research with new strategies and approaches. Research questions need to be defined in interaction with civil society, governments and other stakeholders and should be guided by societal challenges and needs. Researchers from different disciplines are expected to collaborate among each other as well as with relevant stakeholders and focus more directly on producing knowledge in order to inform society and decision-makers. This means that we must move away from business as usual basic science to more applied and transdisciplinary research and the integration of different knowledge. In this context Mauser and others (Mauser and others 2013) argue that integration is an iterative process. They propose a framework of co-creation, that consists of three stages, throughout which all stakeholders are involved: co-design, co-production and co-dissemination. The term co-design is often used analogously to co-creation and can comprise all three stages.

The UN Decade of Ocean Science for Sustainable Development (Ocean Decade) is supporting such a transformative process and placing emphasis on the importance of co-design. This is seen as a useful step in illuminating how co-design can be used to shape practice in marine research and policy.

The problem

The transition to this fairly new type of research in the in marine and policy fields is not without challenges. Working across scientific disciplines, regions and societal groups requires and new methods and concepts regarding communication, institutional arrangements and funding

opportunities. Further, co-designing research questions and co-producing knowledge implies clear roles and responsibilities of all scientists and stakeholders involved. This concerns not only research projects between the global North and the global South but is also explicitly an issue in integrative and transdisciplinary research projects on the regional and even local level.

However, the problem is illustrated here by the often encountered North-South example. Calls for funding towards collaborative research projects between global north and global south world are often applied for opportunistically as a result of emerging topics of public interest in the global south (host countries) that increase chances for a successful application. The funding calls themselves often originate from the global north, reflecting the priorities of the global north. Due to legal requirements project implementation and administration therefore also lies with partners from the global north, further strengthening the imbalance in collaborative research projects and resulting in outputs that have limited application in the collaborating countries in the global south. In the initial phase of the project/proposal conception the process is driven by partners from the global north and the ideas of the "collaborators/partners" are used as sources of inspiration to build on the legitimacy of the process and fulfill the calls requirements. Moreover, emphasis is put on the submission process, which entails collecting signatures of approval and Memoranda of Understanding (MOUs) from the partners in the global south to justify collaboration yet offer limited flexibility to these countries to shape the design of the project - presenting "ready-made", predesigned projects to the global south partners. At the end of the project, the original data, in many cases, remains with the collaboration partner from the north with limited access for the partners from the global south for further research or use in science-based decision making. This disparity through all phases of a research project - design, implementation as well as generation and translation of results - can lead to frustration and distrust among research partners in the host countries.

Situation in the WIO region

In the WIO region the problems described above are already being addressed in part by the Nairobi Convention and in particular by the Western Indian Ocean Marine Science Association (WIOMSA). Some success with marine research co-design approaches, e.g., as a requirement for collaboration with resource users, has been achieved within The Marine and Coastal Science for Management (MASMA) Programme (WIOMSA 2017). However, what co-design is and how to use it, is not widely known or intentionally practiced by many governments, scientists, research organizations and policy organizations in the region yet. The current use of co-design in marine research is fragmented but not entirely lacking. But so far frameworks are missing guiding through co-design processes, and it needs more knowledge of co-design in general practice. Co-design so far is little practiced amongst research organizations and even less on the sectoral and policy-making level.

During workshops and interviews conducted in the Western Indian Ocean (WIO) region, interviewees stated the feeling that traditional North-South cooperation often neglect specific needs and expectations of the southern hosts. Other studies (UK Collaborative on Development Sciences 2017) (Schmidt and Neuburger 2017) found similar results, highlighting that data provided by international research programs are rarely sufficiently application-oriented or context specific. The influence of host countries in shaping the focus of international research activities is limited. (World Bank 2016) This erodes trust between partners and can lead to disinterest in further collaborations. In consequence, the projects often don't go beyond the project life but end as soon as the funding comes to a close.

As mentioned before, this disparity is not exclusive to North-South partnerships; regional cross-boundary initiatives, e.g. research on migratory species or even collaboration among national institutions on the same topic, bear the same risks. Key questions need to be unpacked:

- What are the expectations on key aspects of the partnership?
- Are the goals consistent on all sides?
- How are the workload and competencies distributed among the partners?
- How is data collected, analysed and shared? It frequently also transcends the project itself.

Co-Design Approaches

If we want to generate innovative science which addresses the current complex human-natural issues we will need to integrate the knowledge and traditional wisdom of many diverse stakeholders beyond the scientific community (Morton and others 2015) and work in a transdisciplinary and inclusive environment. The process of co-designing collaborative inter- and transdisciplinary research projects, across complex issues, has the potential to mitigate many of the challenges mentioned above. It recognizes the importance of non-scientific (e.g. local or traditional) knowledge as well as the co-production of knowledge by researchers together with practitioners and other stakeholders. The term "co-design" has received considerable attention in several contexts (e.g. knowledge production, product or design development, policy design and dissemination of results) in the past years but is not clearly defined yet (Moser 2016). A recent publication proposes a definition that is based on literature, experiences and perspectives of researchers and practitioners as "*Iterative and collaborative process involving diverse types of expertise, knowledge and actors to produce context-specific knowledge and pathways towards a sustainable future*." (Norström 2020)

We propose an adaptive framework to jointly develop research projects and policies based on a common agenda and a shared vision. A good example for such an adaptive approach is the four-step approach developed by Future Earth Coasts – Our Coastal Futures, which aims to engage stakeholders for joint problem definition, goal setting and strategy development. A key point of this approach is the establishment of a reliable partnership among stakeholders, a mandate to act (and an institutional framework for doing so), and joint definition of targets. (Future Earth Coasts 2018) The co-design and co-production will involve scientists, regional decision makers, the private sector, non-government organizations as well as local and indigenous knowledge-holders.

2. Linkage to regional and global processes

Making research relevant for host countries and decision-making processes begins with a joint agenda setting. Projects that base their collaboration on co-design, co-production and co-dissemination are more likely to be context specific and respond to local (policy) and societal needs. In this way, co-design is an important building block to bridge the science-policy gap and work towards a prosperous and sustainable future. It can support efforts of the Science-Policy Platform of the Nairobi Convention to protect, manage and develop the Western Indian Ocean in partnerships and at regional level.

IOC-UNESCO, as the coordinating body for the upcoming Ocean Decade**,** has put an emphasis on the importance of co-design. In that regard, IOC organized several regional workshops in the preparation of the implementation plan to offer opportunities to "co-design mission-oriented research strategies in line with the 2030 Agenda and continental and regional initiatives […]". (IOC UNESCO 2020) Co-design was highlighted in the context of the Ocean Decade by kicking off the Ocean Decade Virtual Series with a session on "Co-designing the science we need for the Ocean Decade". This series emphasized that the Ocean Decade has the ambition to trigger

a revolution in ocean science by providing a framework for collaborative and participative research and better integration of diverse knowledge systems, disciplines, sectors and stakeholders.

The "Our Coastal Futures" approach developed by Future Earth Coasts, which aims to provide a forum for regional coastal stakeholders to jointly take transformative actions towards the Sustainable Development Goals is a regional example of co-design.

3. The subject matter being addressed by the paper – i.e. state-of-the-art

The initiative MeerWissen – African-German Partners for Ocean Knowledge of the German Federal Ministry for Economic Cooperation and Development has integrated a co-design process in its funding program for African-German partnership projects. Proposals for projects to be supported under MeerWissen are developed collaboratively and a co-design workshop is key to bringing all partners together. Over the course of two days, representatives of the African and German institutions involved in the project, reflect on their partnership, agree on rules for their collaboration and work jointly together on finalizing the project concept.

While, for administrative reasons the funding is channeled only through the German partner, setting up a co-design process helps ensure that the views of all partners are reflected in the project idea. This does not only help in building trust among partners and create a basis for a collaboration built on shared responsibility and ownership, it also increases the chances of the research being relevant and useful for all partnering parties and countries. Insights and expertise from the host countries' representatives are essential in designing a project that links well to the political systems, fits the local context and responds to real needs. With this collaborative approach, MeerWissen seeks to set new standards for research collaborations and knowledge transfer the field of marine sciences.

This co-design approach should evolve over time and go beyond the joint design of projects, to living a co-design process throughout the duration of the project. Such a process needs to include discussion and agreements on data storing and data sharing, on analyzing results and developing capacities, on purchasing equipment and questions of ownership, and lead to an open dialogue and dissemination of findings among different societal groups. The projects need to also consider the broader picture: Which other stakeholders might hold an interest in the generated data or results? Are other institutions currently working on a similar topic and might be willing to share resources or expertise? Who else might hold important information or traditional knowledge that might be incorporated into the project? These questions could be addressed by incorporating the "CARE Principles for Indigenous Data Governance", which were released in 2019 by the Global Indigenous Data Alliance (GIDA). The CARE principles expand on the principles outlined in FAIR (Findable, Accessible, Interoperable, Reusable) data to also include Collective benefit, Authority to control, Responsibility, and Ethics, to ensure data guidelines address historical contexts and power differentials. (Wikipedia 2020) When it comes to designing policies based on project result it is imperative to incorporate the knowledge and needs of marginalized groups of interest such as indigenous communities or small businesses.

4. Recommendations which can be both of a technical and/or policy nature

For the implementation of co-design approaches, an institutionalization similar to that of participation processes on a regional level may be considered. However, this requires strong political support and the will to eventually anchor such approaches formally if necessary. First

and foremost, it remains to be clarified what co-design actually means in practice and how it benefits political decision-makers, but above all how the benefits affect the people concerned. If a participatory co-design approach is properly applied:

- Political decision-makers are involved from the very beginning in defining the problem, moving away from purely theoretical research to applied and real-world challenges
- All relevant actors and their positions are clear from the outset
- Decision-making strategies can be scientifically substantiated
- Due to the participatory character, thee views of all stakeholders can be directly incorporated
- A common agenda and common vision can be jointly developed from the very beginning reinforcing the potential of a common yet scientific result supporting a quick application, for instance for political strategies, policy decisions and communications
- Stakeholders benefit from the transparent decision-making and the opportunity to participate in every step of the research process

<u>In order to create the needed political will and support it is recommended:</u>

- To promote co-designing in ocean science and management as one of the effective ways for implementation of the UN Decade Ocean Science for Sustainable Development (2021-2030) in the WIO region.
- To develop a regional vision and guiding principles for co-designing in ocean science and management.
- To initiate short-term and long-term projects/programmes aiming at building multidisciplinary capacities, which are key for the continually building and strengthening application of co-design approach.
- To capitalize on opportunities provided in the UN Decade Ocean Science for Sustainable Development (2021-2030) and other regional and global initiative particularly in relation to supporting co-designing approaches.
- To create opportunities for scientists and decision-makers in the marine sector, to build knowledge and practice of co-design in a more consistent and coordinated way to support collaboration and science to policy uptake.
- To embed co-design more broadly across the WIO region within marine and coastal research and policy programmes, promoting science-policy uptake.

As second step, to convey a competence base for co-design methods, a knowledge transfer approach with a (digital-) modular system is conceivable, which can be called upon depending on the challenges at hand. But to conceptualize and create a competence base in the region, a regional and inter-sectoral Working Group (WG) could be established, which could:

- Design and coordinate the process of phrasing a joint vision.
- Collect and analyze lessons learned and successes in co-design.
- Define criteria for research partnerships in the region (similar to e.g. the Bremen Criteria (ZMT 2015)).
- Test, review, adapt and apply existing guidelines for co-design and promote their implementation.
- Review how investigation of research partnerships and co-design approaches in the region can be funded; e.g. through the MASMA programme.
- Create awareness for the relevance of co-design in the research community as well as among decision-makers.
- Support the exchange of experiences as well as the development of capacities of researchers and decision-makers for co-design.

- Proactively approach funding organizations and partners (from the Global North) and encourage funding mechanism that incorporate a co-design and partnership approach.

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