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Linking small-scale fisheries to international obligations on marine technology transfer

Elisa Morgera, Mara Ntona*

Strathclyde Centre for Environmental Law & Governance (SCELG), University of Strathclyde Law School, Lord Hope Building, 141 St James Road, Glasgow G4 0LT, UK

A B S T R A C T

This article analyses the interplay between inter-State obligations to increase scientific knowledge, develop research capacity and transfer marine technology in accordance with Sustainable Development Goal (SDG) 14.a, with a view to contributing to enhanced implementation of the international law of the sea (SDG 14.c), and providing access for small-scale artisanal fishers to marine resources (SDG 14.b). It proposes to do so by relying not only on the international law of the sea, but also on international biodiversity law (particularly the Convention on Biological Diversity) and international human rights law (particularly the human right to science). The article seeks to provide a reflection on the opportunities arising from a mutually supportive interpretation of different international law instruments with regard to the means of implementation for SDG 14 in synergy with other SDGs (particularly SDG 17 on 'Partnerships for the Goals' and its targets related to technology transfer, capacity-building and partnerships).

1. Introduction

Scientific knowledge and technology perform several important functions in the fisheries sector, including enhancing the productivity of fishery resources and the effectiveness of fishing activities, informing the regulation of fishing effort, and supporting the elaboration and implementation of strategies for the sustainable management of marine living resources. More specifically, science and technology can improve forecasting of the location of fish stocks based on physical conditions such as current circulation, temperature and salinity [1]. In turn, data on the probable location of fish stocks leads to improved catches and profits. Fisheries science further seeks to develop methods for assessing population size and sustainable rates of fishing. Single-species assessments remain the primary basis for scientific advice geared towards maintaining or restoring commercially valuable fish stocks above levels that can produce maximum sustainable yield (MSY). On the other hand, fisheries science is "gradually becoming more ecological", moving away from its traditional focus on the assessment of MSY for individual species towards multi-species stock analyses and a wider focus on ecosystem-based management at multiple scales [2, p. 380, 3]. Significant in this regard is the contribution of marine science to the identification of biogeographical boundaries and the subsequent delineation of management units; the identification of areas that warrant protection due to their importance for biodiversity and ecosystem services; and the adoption of precautionary reference points for conservation and management purposes [4].

Technology also plays a key role in the implementation of management decisions. One example is the introduction of technical improvements with a view to increasing the selectivity of fishing gears, thus reducing discards and minimizing the impact of fishing activities on marine biodiversity and ecosystems [5]. Moreover, technological advances such as satellite tracking systems are crucial for the purposes of monitoring and enforcement against illegal, unreported and unregulated (IUU) fishing, which is integral to the promotion of an ocean-based bioeconomy [6]. The implementation of international obligations on cooperation in marine scientific research and marine technology transfer, however, continues to lag behind, particularly towards developing States, where small-scale fisheries feature very prominently.[1]

This article analyses the interplay between inter-State obligations to increase scientific knowledge, develop research capacity and transfer marine technology in accordance with Sustainable Development Goal (SDG) 14.a, with a view to contributing to enhanced implementation of the international law of the sea (SDG 14.c), and providing access for small-scale artisanal fishers to marine resources (SDG 14.b). It proposes

* Corresponding author.
E-mail addresses: elisa.morgera@strath.ac.uk (E. Morgera), maria.ntona@strath.ac.uk (M. Ntona).

[1] The plurality of terms used to describe small-scale fisheries, including artisanal, inshore, traditional, municipal and subsistence, is a testament to the lack of consensus on how to talk about different categories of fishing. Some of these terms feature more prominently in specific geographical contexts. At the global level, it is perhaps more useful to refer to a list of the main dimensions that often characterise small-scale fisheries: D.S. Johnson [7], p. 749.

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to do so by relying not only on the international law of the sea, but also on international biodiversity law (particularly the Convention on Biological Diversity)[2] and international human rights law (particularly the human right to science).[3] The article seeks to provide a reflection on the opportunities arising from a mutually supportive interpretation of different international law instruments with regard to the means of implementation for SDG 14 in synergy with other SDGs (particularly SDG 17 on 'Partnerships for the Goals' and its targets related to technology transfer, capacity-building and partnerships). The reflection starts from observing an increasing linkage in international policy-making between marine technology transfer and small-scale fisheries, as well as the challenges and risks of this approach. The central part of the article explores the inter-State obligations related to technology transfer, focusing on the duty to cooperate and to share information with a view to fleshing out the concept of partnerships for sustainable development.[4] The article concludes by suggesting how the international law of the sea can be better implemented to enhance international cooperation on marine technology transfer to the benefit of small-scale fisheries, on the basis of the normative standards of the human right to science and the lessons learnt in international biodiversity law, with a view to contributing to the synergetic implementation of the SDGs through genuine partnerships.

It should be noted from the outset that the article acknowledges, but does not focus on, the crucial role played by intellectual property rights (IPRs) in the implementation of the provisions of the international law of the sea and international biodiversity law regarding scientific and technical cooperation[5] – an issue that has also received considerable attention in the policy[6] and academic discourse on the human right to science [11,13,14]. This article rather endeavours to complement the well-documented debate, with a view to shining a light on other critical legal questions relating to innovative forms of international cooperation geared towards strengthening the capacity of States and the actors involved in the small-scale fisheries sector to meet the SDGs.

2. SDG linkages related to marine technological transfer and small-scale fisheries

In the 2030 Sustainable Development Agenda (Agenda 2030) [15], technology is enshrined in SDG 17 as a key means of implementation, while 14 targets explicitly refer to "technology" and 34 relate to issues that tend to be discussed in technology terms [16]. Interestingly for present purposes, technology features in the SDG 14 targets explicitly as well as implicitly: on the one hand, the rationale of developing a global effective innovation system for sustainable development informs a target that expressly seeks to increase scientific knowledge, develop research capacity and catalyse the transfer of marine technology, with a view to improving ocean health and enhancing the contribution of marine biodiversity to the development of developing States (MoI 14.a) [16]. In addition, even though technology is not mentioned in the issue-specific, qualitative targets elaborated under SDG 14 in connection to marine pollution (SDG 14.1) and ocean acidification (SDG 14.3), the improvement of overall technology performance arguably forms part and parcel of these targets' underlying rationale [16].

As the UN Global Sustainable Development Report 2016 notes, technology is crucial "for achieving the SDGs and reaping the benefits of synergies among them, as well as for minimizing trade-offs among goals" [16, p. xiv]. On the other hand, the Report acknowledges technology not only as a tool for achieving a higher degree of social inclusion and cooperation, but also as a potential source of conflict [16]. Ultimately, the effectiveness of technology policies will depend on the extent to which they are grounded in scientific knowledge and take into account the complexities of technology change, transfer and diffusion, and the unique circumstances of the country in question (including technical, economic, institutional, legal and behavioural barriers vis-à-vis IPRs, private sector capacity, mismatched needs, trade tariffs and limited access to trusted information, knowledge and capital) [16]. The Report calls for comprehensive, non-discriminatory and transparent cooperation among developing and developed States as well as for inclusive innovation policies that systematically take into account the interests of "underserved populations" and prevent impoverished and future populations from being forced to accept technologies that are ill-suited to their needs and chosen by others [16, p. 49].

Linkages between inter-State obligations related to marine technology transfer and the choice of small-scale fishing communities have been addressed by Gupta and Vegelin, who have called for accounting at the global level for the needs of least developed and developing States, encouraging meaningful participation in UN processes, adopting equity principles, as well as context-sensitive capacity-building, technology transfer and financial support, with a view to focusing on sectors of high vulnerability, such as small-scale fisheries, in order to enhance human well-being in its many manifestations [17]. This inclusive development approach also draws on the concept of relational inclusiveness, which "recognizes that poverty and ecological degradation are often the result of actions taken by others because of increasing inequality in society and the substance and process of politics" [17, p. 439]. SDGs 10 ("reduced inequalities"), 16 ("Peace, justice and strong institutions") and 17 are thought to explicitly embody relational inclusiveness, putting pressure on developed States "to take their responsibilities seriously and to work through multilateral institutions" [17, p. 444]. However, Gupta and Vegelin note that the relevant SDGs "do not collectively represent a powerful enough relational text that challenges *status quo* politics and existing power relations to create more conducive conditions for enhancing inclusive development" [17, p. 444].

These considerations should be related to the role of information and communication technologies (ICTs) in the fisheries sector. ICTs refer to technologies that facilitate communication and the processing of information by electronic means and include everything from radio and television to telephones (fixed and mobile), computers and the Internet. ICTs are increasingly being used across the fisheries sector, from resource assessment, capture or culture to processing and commercialization. Some of these technologies are specific to fisheries (e.g., sonar for locating fish), while others are general purpose applications (e.g., Global Positioning Systems (GPS) used for navigation and location finding, mobile phones for trading, information exchange and emergencies, radio programming with fishing communities, Web-based information and networking resources) [4, 18]. The Declaration of Principles of the World Summit on the Information Society (WSIS) highlighted the potential contribution of ICTs in building "a people-centred, inclusive and development-oriented Information Society, where everyone can create, access, utilize and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving their quality of life" [19, para 1, 20, 21]. The Declaration further underlined that the sharing and strengthening of global knowledge for development "can be enhanced by removing barriers to equitable access to information for economic, social, political, health,

[2] 1992 Convention on Biological Diversity (CBD), 1760 U.N.T.S. 79. For a detailed account of the technology transfer regime put in place by the CBD, see M. Ntona [8]. It is worth noting that the provisions of the CBD on scientific cooperation and technology transfer have been further elaborated upon in a number of thematic decisions adopted by the CBD Conference of the Parties (COP) with regard to marine and coastal biodiversity. See, for instance, CBD Decision VII/5 (2004) Annex I, Operational Objectives 1.3(d), 3.4(c) and 3.5, and Part IV paras (b), (e)-(h) and (j); CBD Decision VIII/21 (2006) para 9; CBD Decision VIII/22 (2006) para 4(f); CBD Decision IX/20 (2008) para 25; CBD Decision X/29 (2010) paras 20 and 34; CBD Decision XI/17 (2012) paras 19–23; CBD Decision XII/23 (2014) para 3(c); CBD Decision XII/23 (2014) para 3(k) and Annex, para 11.1.

[3] Universal Declaration of Human Rights (1948) UN Doc A/810 at 71, Article 27.

[4] Which is the key theme of the 2017 UN Oceans Conference: UNGA [9], para 4.

[5] See infra, n. 19 and 20.

[6] UNGA [10]. Note also that the first general discussion in the Committee on Economic, Social and Cultural Rights (ECOSOC) on the right to science focused on intellectual property rights (IPRs), at its 24th Session (13 November – 1 December 2000).