

1. Introduction

The workshop was constructed in two parts. In each part, papers were delivered by two presenters followed by a roundtable discussion. This report provides a summary of the key points of discussion, drawing on both the papers presented and the roundtable discussions.

2. Scientific, Social Sciences, and Legal Perspectives on Marine Ecological Resilience

The discussion began with the task of defining the terms ‘resilience’ and ecological resilience. Three forms of resilience were identified - engineering resilience (viz. steady-state equilibrium), ecological resilience (viz. ability to withstand, absorb and bounce back from shocks) and social-ecological resilience (viz. governments and institutions taking an integrated approach to understand the problems affecting the marine environment).

It then moved on to consider marine ecological resilience from a variety of perspectives. Noting, for example, that a social science perspective requires an understanding of the social construction of ecological issues. This includes an understanding of how awareness of the problems of the marine environment can be raised such as: the need for strong scientific evidence to support claims for action; the need to champion and sustain public interest in the issue; the need to secure media attention; the need for dramatization, (e.g. Greenpeace blocking the entrance of Coca Cola’s London headquarters with a 2.5 tonnes sculpture adorned with plastic bottles); the need to provide economic incentives, especially in the private sector, to encourage behavioural change; and the need to ensure appropriate leadership through institutional sponsors to guarantee legitimacy and continuity in management.

From a legal perspective, ecological resilience is a relatively new term and an agreed meaning has yet to crystallise in international environmental law. What is notable, however, is that the explicit mention of the term ‘resilience’ in global and regional instruments has increased in frequency in the last decade. References are most commonly seen in instruments that relate to climate change, such as the 1992 United Nations Framework Convention on Climate Change’s definition of adverse effects of climate change and the 2010 United Nations General Assembly Resolution on Oceans in relation to global coral bleaching events and the resilience of coral reefs. There is also extensive use of the term ‘resilience’ in the context of ocean acidification. This can be seen notably in the United Nations General Assembly Resolutions on ‘Oceans and the Law of the Seas’ (e.g. building resilience of marine ecosystems against ocean acidification). On the other hand, ‘resilience’ is not used very often within international instruments in other important areas such as fisheries.

The workshop addressed additional questions including: How can law respond to issues of ecological resilience when scientists cannot yet provide advice on achieving ecological resilience with certainty? How do we create adaptive law or law that is robust enough to withstand the challenges imposed by human activities without entrenching problems within the environment? How do we address the challenges of linking regulatory regimes? Other issues were also raised. For instance, the problem of the mismatch between jurisdictional and ecological boundaries as a barrier to the effective engagement with ecological resilience in practice and questions of who should be involved in the management of ecosystems.

3. Scientific, Social Sciences, and Legal Perspectives on Natural Resource Use, in Particular ‘Geological Resources’, in Line with Marine Ecological Resilience

Ensuring a balanced relationship between law, science, and technology is essential to enhance marine ecological resilience. All too often the lack of consideration for law, science and technology, or the exclusive focus on one of these areas, has led to the most infamous examples of environmental disasters (‘Black Swan Events’) such as the 2011 BP Deepwater Horizon oil spill in the Gulf of Mexico. There comes a point at which law is not sufficient, either because it is ill-equipped to deal with environmental problems or because it has simply not been designed for this purpose. For instance, response action plans required under legislation regulating oil drilling at sea may only be applied after an incident has occurred, when the marine ecosystem has already been harmed. There is scope then for more proactive plans to be required of the oil industry. Incorporating such change is, however, a challenge in that the relevant law is often shaped by socio-economic considerations alone. It is therefore important to reach a point where science informs law particularly in regulating the extraction of hydrocarbons. Only informed regulation can effectively prevent environmental disasters from taking place and encourage marine ecological resilience.

The natural character of law may well explain these shortcomings. Law has always been an instrument that adapts to the dynamic of human activities. In this sense, law, especially environmental law, could be perceived as an *apologia* for law that is usually facilitative of socio-economic progress, rather than ecological concerns. It tries to mitigate but does not ultimately prevent ecological degradation. However, environmental law is evolving and could move from being part of the problem to being part of the solution. Environmental law is changing notably in supporting the establishment of networks of marine protected areas (MPA) to promote ecological resilience. But even protective measures such as marine protected areas remind us that social impacts are to be taken into consideration as part of ‘marine ecological resilience’ (for example, the rights of Mauritian fishermen have to be taken account of in the Chagos MPA as a result of the 2015 International Arbitral Award).

One way to counter this perceived bias is to give certain bodies of water the status of legal persons. Such status has already been granted in the cases of the Whanganui River in New Zealand (Whanganui River Claims Settlement Act, 2017) and the Rivers Ganga and Yamuna in India (Mohd. Salim v Uttarakhand State (2017)). Accordingly, one proposal that could be advanced is that once a global network of MPAs, proposed on a scientific basis, and designated to incorporate socio-economic concerns, has been established, each individually designated MPA could be granted legal personality and managed in similar fashion to these New Zealand and Indian rivers.

4. The Role of MERGeR

The discussion confirmed the validity of MERGeR’s mission to provide an interdisciplinary forum in which solutions to the challenges of integrated approaches to regulation can be developed. It is clear that such integrated approaches are needed to address the many challenges of the marine environment posed by an ever-increasing range of anthropogenic activities (e.g. deep-seabed mining, oil drilling, marine seismic surveys, and over-fishing). The goal of marine ecological resilience cannot be achieved unless it is considered as a heterogenous whole, comprising not only legal but also scientific, political, economic, and social implications. A better appreciation in terms of development of geological resources is also needed. For instance, is it worth exploiting a resource if there is a risk of greater harm to the environment (e.g. developing a resource in a geologically unstable area)? The question that needs to be asked is not whether a resource can be exploited, but rather should we exploit this resource. To this effect, the support of all disciplines (including ethics) should be sought to define what is meant by ‘marine ecological resilience’ and how it can be achieved.