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Economic Incentives for Marine and Coastal Conservation
Prospects, challenges and policy implications

Edited by Essam Yassin Mohammed
International Institute for Environment and Development (IIED)
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Foreword

Marine and coastal resources provide millions of people with their livelihoods through, for example, fishing and marine tourism. They also provide a range of critical additional ‘ecosystem services’, from bio-diversity and culture to carbon storage and flood protection. Yet, across the world, these resources are fast diminishing under the weight of pollution, land clearance, coastal development, over-fishing, natural disasters and climate change.

The current sorry state of many marine and coastal resources can be attributed, partly, to the fact that (i) many of the services they provide are not traded in the market and therefore are often overused; and (ii) they are often open access, or, at best, common property. Even before G. Hardin’s renowned Tragedy of the Commons paper (Hardin, 1968), it was well understood that resources that are exploited under open access end up being overused. In the case of common property, we know, through the works of Nobel laureate E. Ostrom and others, that they can be managed sustainably, but to do so, elaborate institutional structures that ensure cooperation among the users of the resource are a must.

Direct economic incentives such as payments for ecosystem services (PES) have emerged recently as a way to tackle the two problems associated with marine and coastal resource mentioned above. Simply put, if these resources are providing valuable services to someone then that person should pay for it. Essentially, this is a way to change the non-market nature of these resources. Also, there has to be an ‘owner’ to receive payments, and therefore for economic incentives to work property rights have to be assigned to a nation, community, individual or any other well-defined group. In essence, payment for ecosystem services schemes extends the possibility for economic instruments to be used to incentivize the conservation of marine and coastal resources.

This book demonstrates how far the application of economic incentives has come by providing up-to-date coverage of how it is succeeding in incentivizing the conservation of marine and coastal resources. The authors of the book provide examples, both terrestrial and marine, from across the world that suggest that economic incentives can work to protect both livelihoods and environments. They argue that, to succeed, PES schemes must be underpinned by clear property rights to a group or individual, sound governance structures, equitable benefit sharing and sustainable finance. Case studies are included from South and East Asia, Latin America, Africa and Australia. The book explores the prospects and challenges, and draws lessons from PES and PES-like programmes from across the globe.

The publication of this book will give scholars and practitioners alike solid reference material on how payments for ecosystem services can be used to provide actors with the economic incentives to use marine and coastal resources in a manner that conserves them well into the future.

Professor U. Rashid Sumaila
Professor and Director, Fisheries Centre
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Foreword

Many of the most intractable problems we face globally and locally involve collective action to manage a shared resource. Nowhere is this more true than in the management of marine resources in general and fisheries in particular. As this collection of essays illustrates so clearly, from China, Southern Africa, Bangladesh, Mexico, Brazil and elsewhere, the combination of shared inland and coastal waters, fuzzy property rights, a mobile fish resource of considerable and rising value, difficulties in monitoring the behaviour of others, and the entry of outsider interests all combine to encourage short-term greed, free-rider behaviour and depletion of a valuable resource. It is no accident that Hardin’s famous paper on the Tragedy of the Commons1 took fisheries as one example for discussing why it is so hard to ensure long-term sustainable offtake from this mobile, fleeting resource.

Hardin’s paper seemed to put the nail in the coffin of collective management systems, whether of fish, pastures or atmosphere. His conclusion was that, while it is best to privatize such resources so that the contours of ownership and of management can be firmly aligned, in practice many resources defy such easy treatment. Rather, ‘coercive laws or taxation’ offer essential solutions. In the more than four decades since his paper came out, many new insights and evidence have been forthcoming which, while recognizing the inherent problems associated with common property resources, offer a much more varied interpretation of how these systems actually work, context by context, and the tools that can be deployed to avoid the tragedy of the commons.

Foremost amongst the theorists and practitioners working on these subjects has been Elinor Ostrom, recognized in 2009 by the Nobel Prize Committee for her contributions to Economics, an economics which goes back to earlier traditions which incorporate an understanding of politics, institutions, uncertainty and human values. Her work has shown the importance of several key elements in understanding the effectiveness of particular resource management systems, and prospects for their improvement. While providing valuable conceptual underpinning for the analysis of common property systems, above all she emphasizes the specific hold of contextual factors – the bio-physical characteristics of the resources, the nature of the social groups sharing them, the legal position of different rights holders, the history and trust built up within the social group, the ease of monitoring others’ behaviour and the capacity to exercise sanctions in the event of rule breaking.

Various instruments have been developed to address the collective action issues associated with common property resource management, as outlined in this book. These instruments bear the imprint of changing fashions in ideology and approach, and growing acceptance that we live on a planet with boundaries that cannot be infinitely stretched. At one end of the spectrum, there have been hierarchical regulatory approaches, relying on a higher authority – usually government – to set quotas for harvesting and ensure monitoring of behaviour, and, at the other end, market-based systems in which resource users are rewarded for maintaining or enhancing specific eco-system services. Several hybrid arrangements occupy the middle ground, such as community-based coastal resource management.

In all these examples of common property management, certain fundamental problems need to be overcome. In the case of fish and other marine and coastal resources, it is particularly difficult to observe the population and status of the broader ecology, since much is partially invisible to the human eye, being underwater. By contrast, it is much easier to keep count of the numbers and observe the condition of cattle grazing a common pasture. Will improvements in satellite and other monitoring technologies make observation of marine resources easier and cheaper? And what is the best mix of local and high tech methods, given the non-negligible costs of acquiring and sharing information? There is also the problem of monitoring the behaviour of resource users, which may not be easy to observe. Various proxies can be used, such as the mesh size of fishing nets permissible, or control of fish landing weights. But ensuring compliance relies not only on enforcement (which is never fully effective) but also on shared values, a sense of long-term common interests, social trust and willingness to sanction each other. Often big asymmetries in power between different resource users mean that such sanctions are impossible to implement in practice. For management of both fisheries and global atmosphere, establishing a shared knowledge about the state of the resource and agreement to accept the evidence as a good basis for deciding any future management regime is also critical. A combination of outside science and local knowledge makes sense here, with indicators established which can be followed by local people as a means to see changes in the status of the wider resource base.

This book helpfully illuminates the question: do market-based systems which reward particular patterns of behaviour make more sense than establishing the institutions and rules for collective management systems? In the flush of enthusiasm for market-based solutions, a lot of pilot schemes have been established, mainly for forests, watersheds and land use and a few for coastal and marine resources. However, despite the enthusiasm generated by the prospect of ‘win-win solutions’, the evidence looks fairly thin. In a few places with strong property rights and where ecosystem services can be clearly defined, there is considerable potential for such measures to encourage more sustainable long-term management practices. But for many marine ecosystems, as with tropical forests, a set of familiar problems arises which include fuzzy property rights, difficulties in assessing the scale of service obtained, and risks of elite capture.

In the last two decades, it has been argued that incentive-based instruments such as payments for marine and coastal ecosystem services can complement or replace
regulatory approaches. It has also become apparent that the introduction of monetary incentives to reward particular behaviours can shift the framing of a situation from the moral economy to a space governed by market considerations. Increasingly, the social and moral forces guiding human behaviour are being recognized – the significance of legitimacy and fairness as guiding principles, the search to gain status relative to others, and the respect of peers in understanding why humans behave as they do. These drivers help explain the wide divergence in human behaviour from what we would expect under narrow utility-maximizing assumptions, and the reality we see before us. This collection of papers offers further evidence for the need to see resource management issues within this broader socio-institutional sphere, and the specificity of people and place in setting boundaries for what can be achieved in practice.

Dr Camilla Toulmin
Director IIED

Note

1 Introduction

Essam Yassin Mohammed

Marine and coastal resources provide millions of impoverished people across the global South with livelihoods, and provide the world with a range of critical 'ecosystem services', from bio-diversity and culture to carbon storage and flood protection (Mohammed, 2012) including recreation and amenity (Whitmash, 2011). Fisheries alone provide multiple benefits to many poor and impoverished coastal communities in many developing countries. Fish is a major source of food for the majority of poor and vulnerable communities. The sector also provides jobs to many men and women. Some 43.5 million people work directly in the sector, with the great majority in developing countries. Adding those who work in associated processing, marketing, distribution and supply industries, it supports nearly 200 million livelihoods (Barange and Perry, 2009).

Nonetheless, the importance of fisheries and marine and coastal ecosystems is often understated and ignored. According to Murray et al. (2011) this is mainly because markets do not easily capture the values of coastal and marine ecosystem services; those who control coastal resources often do not consider these values when choosing whether to clear habitats to produce goods that can be sold in the marketplace. This has led to over-exploitation and degradation of the resources, reducing the quality and effectiveness of the services they provide (MEA, 2005).

Traditional marine and coastal ecosystem conservation and management approaches mainly focus on high production, sustainable harvest, economic stability and so on (Salomon et al., 2011). The objectives of maintaining or restoring these ecosystems often conflict with the objective of increasing food supplies from the sea, because the level of resource extraction, such as fishing, required to achieve the latter typically compromises the former (Brander, 2010). Therefore, balancing marine and coastal ecosystem conservation and sustainable social and economic benefits from fisheries or other marine and coastal resource extraction activities is crucial.

The problem is further exacerbated by the failure of the long-pursued regulatory approaches to fisheries management and development to incentivize fisher and coastal communities to change their unsustainable coastal marine resource use practices. According to Arnason (2000), regulatory approaches such as mesh size regulations, total allowable catch (TAC) and fishing ground closure may enhance fish stocks, but they often fail to improve the economic situation of the