
1 Transnational environmental crime: excavating the complexities – an introduction

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The term ‘transnational environmental crime’ (TEC) seems to have entered the academic lexicon in different contexts in Michalowski and Bitten (2005) and Elliott (2007a). It has since gained currency as a specific ‘term of art’ within criminology (White 2011), governance and regulation (Bisschop 2015), international political economy (Elliott 2014), international law, and even in security studies (Elliott 2007b). The phrase has also come to be used in the sphere of global public policy, often as a development of earlier and more limited concepts such as international environmental crime (see, for example, Gosling 2014; Stoett 2015).

As many of the chapters in this volume indicate, there is no universally accepted definition of transnational environmental crime in international law as there is, for example, of transnational organized crime. The United Nations Convention against Transnational Organized Crime has a rather tortuous definition of what makes criminal activity transnational. A crime is transnational if it is committed in more than one state; is committed in one state but a substantial part of its preparation, planning, direction or control takes place in another state; or is committed in one state but has substantial effects in another state (Article 3). André Bossard, former Secretary General of the International Criminal Police Organization (INTERPOL), has a much simpler definition: the activity must be recognized as a criminal offence in at least two countries as a result of international or national law and a border must be crossed (cited in Friman and Andreas 1999, p. 5). In the case of transnational environmental crime, this border-crossing can involve the perpetrators, the products and/or the illegal profits.

For our purposes, transnational environmental crime involves, and is defined as, cross-border trading of species, resources, waste or pollutants in violation of prohibitions or regulatory regimes established by multilateral environmental agreements (MEAs), or in contravention of national laws. It includes the trafficking of illegally logged timber (sometimes called ‘stolen’ timber); the illegal trade in endangered, threatened and protected species; the transboundary dumping of toxic and hazardous

waste, including electronic waste (e-waste); and the black market in ozone depleting substances (ODS) or other prohibited or regulated chemicals. In these contexts, TEC is a concept that identifies multiple offences. It forms a category of crime in a socio-normative rather than in a strictly legal sense.

TEC is reputed to be one of the fastest growing areas of criminal activity, worth many billions of dollars to criminal syndicates around the world. It is almost obligatory in any discussion of transnational or global crime to point out the difficulties in providing accurate evaluations of the size of a black market or the profits that accumulate to it. As with all other forms of illegal trade, figures on the exact size and value of these kinds of transnational environmental crime markets rely partly on extrapolation from actual seizures and partly on speculation and guesswork. According to Nellemann et al. (2014, p. 13), the total monetary value of different forms of transnational environmental crime could be anything between US\$70 billion and US\$213 billion annually. The expansion of TEC black markets is a consequence, albeit an unintended one, of a globalized liberal political economy. Globalization, Peter Andreas (2002, p. 40) has argued, 'creates a new opportunity structure for those involved in criminalized markets'. As with other forms of criminal endeavour, crimes associated with illegal extraction, harvest and waste have become increasingly transnationalized as those involved take advantage of freer trade, increases in the frequency and volume of commodity shipments, fewer border controls, and easier transfers of funds through global financial and banking systems that offer more opportunities to launder profits into 'legitimate' enterprise. TEC is also, somewhat paradoxically, a function of the growth in global environmental governance. The entry into force of a series of MEAs designed to regulate the kinds of activities that generate negative environmental externalities or (in some cases) to prohibit the transboundary movement of the products of that activity has created incentives for increasingly profitable black markets.

This volume provides an opportunity to mine the complex dynamics of transnational environmental crime. Those dynamics function across the drivers of illicit trade and the political economy of supply and demand. They characterize the environmental, economic, social and political consequences of proximate and cross-over crimes associated with TEC sectors. Finally, they shape the governance, regulatory and enforcement challenges that face state and non-state actors working internationally, domestically and locally to prevent TEC, its constituent activities, and to minimize and manage its consequences.

DRIVERS: SUPPLY AND DEMAND

The TEC sectors that are grounded in illicit harvest or extraction such as illegal wildlife trade, timber trafficking and, to some extent, the illegal fishing at the core of fisheries crime rely on a political economy of 'lootable commodities' – those that are 'high in value but have low economic barriers to extraction' (Farah 2010, p.2) – and 'uncritical markets [that] ensure that there are buyers for goods at the right price, regardless of how they are obtained, processed or transported' (Nellemann et al. 2010, p. 34). These markets are driven by both price and cost differentials. Those differentials occur when expected returns (price) are higher than for analogue legal trade, when 'demand exceeds the supply of legal products' (in the case of timber, for example) (OECD 2011, p. 7), and when compliance with regulations (cost) can be avoided through illegal practices as is the case in the black market in ODS and hazardous waste. At the same time, some forms of illegal activity may be a key means of survival for some in the face of poverty. As Andreas (2002, pp.37–8) suggests, 'in many places . . . the criminalized economy has been a crucial source of both revenue and employment', although this can also increase vulnerability to the more organized and systematic forms of criminal activity.

As much as 25 per cent of the international trade in wildlife and plants is thought to be illegal. While supply and the pursuit of profit is clearly a factor in this trade, which is conservatively valued at US\$10 billion a year (United States Department of State 2007; Haken 2011, p.11), the chains of custody are primarily demand-driven. Those demands include foodstuffs, medicines, luxury goods, religious items, curios, construction materials, draft or working animals and subjects for biomedical experimentation (Broad et al. 2003). Nevertheless, the illegal wildlife trade is not exclusively a problem of high-value wildlife and wildlife products being traded by organized crime groups for wealthy consumers. The focus on charismatic megafauna like elephants, great apes, big cats and rhinoceros has distracted attention from the extent of high volume illegal trade in less recognizable species. Examples in this latter category include bales of dried orchids (Phelps 2015), many tonne shipments of pangolin scales (Pantel and Awang Anak 2010), boatfuls of desiccated seahorses (Baum and Vincent 2005) and shipping containers filled with kiln-dried geckoes (Caillabet 2011).

The illegal timber trade is driven in part by market demand for cheap timber and timber products. It also reflects demand for high value status goods like agarwood (Lim and Awang Anak 2010) and rosewood (EIA 2014). In addition to persistent demand for some types of wood, this TEC is sustained by commodity substitution. Loggers and traffickers turn to

new, less risky and more profitable timber species – or to manufactured products – as their primary timber products gain (often unevenly implemented) protection status under international or domestic law.

The demands that drive the black market in ODS are embedded not in consumer preferences for status goods or cultural preferences for particular kinds of consumptive goods, but in the kinds of price differentials and economic imperatives referred to above. End-users of ODS, or equipment that contains or requires ODS, are seeking to minimize costs by circumventing the need to use more expensive alternative chemicals. Those who are in the business of illegally importing or exporting ODS often do so also to evade taxes, or to find workarounds in the face of limited licences and quotas. These kinds of economic factors also feature in the illegal trade in hazardous waste, although in that sector the incentives are very much supply driven, mobilized by a desire on the part of waste producers to avoid high disposal costs and by the profit motive on the part of those who are able to sell on the waste for illegal disposal. The waste is often dumped in the world's poorest countries, with consequences that include the non-remediable pollution of water tables, river systems and local ecosystems and damage to animal, plant and human health, sometimes to the extent of extreme disability and even death.

CONSEQUENCES

The environmental consequences of various forms of transnational environmental crime are well documented. TEC is a major factor in environmental degradation, habitat loss and continued pollution. It undermines the effectiveness of MEAs and the institutions and rule-systems of global environmental governance. The illegal wildlife trade is a major contributor to species endangerment, often the second biggest threat to biodiversity after habitat loss (Zimmerman 2003, p. 1660; see also Banks and Newman 2004). It also threatens forfeiture of sustenance and traditional medicines (Broad et al. 2003), the spread of disease (Karesh et al. 2005), and introductions of invasive species (Alacs and Georges 2008). The trade in illegally logged timber, described by one observer as being of 'industrial scale' (Lawson 2004, p. 1), is a significant component of what is an otherwise legal, although often unsustainable global industry. It is a major contributor to deforestation, habitat destruction and declining biodiversity. Its ecological consequences include the loss of important environmental services such as soil quality, water retention and the stability of local climate systems. The illegal production and consumption of chlorofluorocarbons (CFCs) and other ODS contributes to ozone depletion which, in turn, is

implicated in an epidemiologically significant increase in skin cancers and cataracts, suppression of human and animal immune systems, increased vulnerability to infectious diseases and reduced productivity in plants and phytoplankton. The covert and illegal dumping of hazardous and toxic wastes results in contamination of water tables, river systems and local ecosystems. It affects animal, plant and human health, sometimes resulting in death or extreme disability, often in the world's poorest countries. Illegal fishing, part of the suite of activities that constitute fisheries crime, contributes to over-extraction of fish stocks, disruption of marine food chains and threats to marine biodiversity.

The consequences of environmental crime reach beyond impacts on ecosystems and habitat. As with other forms of systematic criminal activity, TEC and associated crimes such as bribery, fraud and money-laundering undermine good governance, corrode state institutions and compromise core values such as democratic processes and the rule of law. In the most extreme cases of high-level corruption and personal patronage, the state itself no longer functions in the Weberian sense as a provider and guarantor of public goods, but more as a 'protection racket', or kleptocracy, that sustains private appropriation, resource 'asset stripping' and rent-seeking.

Naylor (2002, pp. 3, 4) argues that black markets – and we can include TEC markets in this context – have become 'institutionally embedded in the legal economy' and, in some sectors at least, legal businesses use 'ever shadier methods'. TEC creates opportunity structures for legal companies to engage in shadow enterprise and for front or shell companies to be used to hide illegal connections and practices. Commodities and profits are laundered with the assistance of delinquent professionals and 'shadow facilitators' (Farah 2010). This is made easier because, in contrast to other forms of illicit transnational trade (in drugs for example), illegal environmental trade sits alongside a legal one – in timber, in wildlife and even in chemicals and waste.

Transnational environmental crime also has substantial economic consequences for developing countries in terms of development prospects and potential to develop legitimate environmental markets. The World Bank (2006) estimates that the illegal trade in timber and timber products alone costs timber-producing countries about \$US5 billion a year in lost government revenue. This trade is also estimated to depress world timber prices (with consequences for the legal industry) by something between 7 and 16 per cent because the companies and agents involved pay no taxes or fees and are able to use cheap labour (*Economist* 2006). The High Seas Task Force (2006, p. 3) reports that illegal, unreported and unregulated fishing 'imposes significant economic costs on some of the poorest countries in the world' through loss of resources available to stakeholders, lower export

revenues and higher operating costs for legitimate fishers. TEC creates insecurity for those who constitute its labour force, such as fishing crews or chain-saw operators. These people's participation is often driven not by greed or profit motives, but by survival needs. Their exposure, 'bit-player' status and lack of resources leave them susceptible to prosecution. TEC undermines their security. It likewise destabilizes communities by exposing them to the consequences of environmental degradation and to violence.

RESPONSES

TEC has achieved a growing policy salience. Indeed, as the chapters in this volume demonstrate, the topic has become increasingly open to treatments focusing on legality, economics and criminality. This stands in contrast to past research and writing, which tended to focus narrowly on environmental management, failures in domestic legislation and non-compliance with international regulatory norms. TEC is an illicit international political economy. Its governance mechanisms reach deep into law enforcement and transnational crime prevention. They rely on public and private spheres of action and a complex, transnational multiple-actor base.

One of the challenges for governments dealing with TEC is finding the right in-country regulatory and operational mix across prevention, detection, apprehension and prosecution. Economic incentives, command-and-control strategies and law enforcement at exchange points along illicit chains of exchange and custody are all important. Pursuing and punishing perpetrators is obviously important. Yet enforcement also includes closing illegal markets, seizing contraband, surveilling suspects and sites and gathering financial intelligence to expose corruption, fraud and money-laundering. This mix of domestic policy instruments, while extensive, is only one component of the 'systems of [authoritative] rule-making, political coordination and problem-solving' (Held and McGrew 2002, p. 8) that constitute and define the reach of global TEC governance.

At a global level, TEC governance is fragmented, but also increasingly (perhaps somewhat counter-intuitively) focused. It is given form through myriad multi-level partnerships and networks that seek to enhance capacities, disrupt criminal activity and protect the environment. The broad sweep of rejoinders ranges from efforts to eradicate markets (demand reduction), ensure effective legal frameworks, strengthen law enforcement, promote sustainable livelihoods and encourage economic development (see, for example, London Conference 2014). These transnational responses to TEC are informed by the variable forms of institutional

geometry that Biermann et al. (2009) call ‘governance architectures’. Their variability makes the international architecture for TEC uneven. There is no single instrument or institution whose primary purpose is to establish norms, policies and procedures for combating transnational environmental crime. Rather, TEC governance is articulated through international and transnational environmental policy on the one hand, and often separate border control, crime prevention and enforcement on the other.

As noted above, an emphasis on illegality and criminality is increasingly central to understanding, tracking and responding to transnational environmental crime. Yet this focus is both complex and contested in a number of ways. First, definitions of illegality and criminality rely on legislative and regulatory frameworks. International treaties are not always effective promoters of such frameworks. For example, of the key MEAs, only the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal specifically refers to criminality (Article 4(3)), requiring Parties to introduce legislation to prevent and punish illegal trafficking in hazardous waste that occurs in contravention of the Convention and subsequent amendments and decisions. Article VIII of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) requires Parties to penalize trade that violates the Convention, but does not specifically describe such violations as criminal or illegal. The CITES Parties have adopted a series of resolutions on illegal wildlife trade including those that declare all trade in a particular species (sturgeon) or product (bear gall) to be effectively illegal. Parties are exhorted to strengthen their controls on illegal trade, to avoid encouraging illegal trade, and to enhance their efforts to combat illegal trafficking across the full enforcement spectrum. The Montreal Protocol on Substances that Deplete the Ozone Layer itself says nothing about illegal trade. The Meeting of the Parties under the Montreal Protocol has adopted a series of decisions on illegal trade – although the Parties conspicuously avoid using the terms ‘crime’ or ‘criminal’ with a focus on more effective tracking and reporting systems.

Second, responses to TEC have, at times, been driven by an emphasis on combating public ‘bads’ associated with criminality rather than securing public goods associated with conservation and environmental protection. As a result, laws and enforcement are often indiscriminate to the context of the ‘crime’. Subsistence hunting and logging are cast as infractions that can attract significant penalties. Individuals and communities engaged in poverty-driven poaching or illegal logging are frequently criminalized as equally as offenders functioning at much higher levels. Moreover, communities that have been excluded from traditional lands (sometimes now given over to protected parks), or prevented from accessing culturally

important forest resources, may fall foul of governments if they attempt to regain access. In extreme cases, their actions may even be seen as insurgency.

Third, the international frameworks provided by agreements such as CITES are marked by disputes over how to manage illegality. Debates over interventions such as a trade ban call into question whether they are productive or counter-productive as enforcement tools. Moreover, CITES's structural reliance on precautionary principles, coupled with one-size-fits-all treaty provisions, imposes technical and reporting requirements that are difficult for some of its Parties to meet. As Rosaleen Duffy points out in this volume, such approaches are controversial also because they rely on an 'ideal type' model of how markets work.

STRUCTURE OF THE BOOK

The volume and our collective analysis of the causes and consequences of transnational environmental crime is structured around three broad themes and purposes: context and scene setting, sectors and cases, and governance, agency and strategies. Those first three parts of the book – 19 chapters in all – bring together a wealth of interdisciplinary expertise across international relations and global governance, security studies, international law, criminology, development studies and conservation biology. Many of the authors in this volume have successfully traversed or contributed to the so-called science–policy interface. Some bring to their academic analysis expertise in enforcement, regulation and civil society. Others whose professional lives have been primarily in academe have nevertheless engaged extensively with the public policy and practitioner community, contributing their expertise to institutional working group meetings, formal and informal inter-institutional arrangements, side events at international negotiating meetings, and so on.

There is a fourth section consisting of a number of shorter chapters that we have called, as an indicative guide, practitioner contributions. We invited a number of experts from within the TEC community of practice to draw on their experience in policymaking, governance and enforcement to provide short introductions to and overviews of key institutional arrangements and, in one case, the contextual challenges of enforcement responses.

Context and Scene-setting

This current chapter is followed by four chapters that explore key conceptual discourses and empirical narratives that help to frame a more effective understanding of transnational environmental crime. In her chapter on criminal networks, Lorraine Elliott explores networks as entrepreneurial structures for managing so-called black trade, as logistic trails and as illicit chains of custody. As she points out there, while much of the public policy and enforcement lexicon on TEC sectors claims a central role for criminal networks of some kind, the terminology is often indiscriminate and unclear. Elliott sets out to correct for this lack of clarity by developing a framework for analysis that identifies such networks in associational, interactional and transactional terms. This, she suggests, can tell us something about how commodities in various TEC sectors are actually traded through movement along a network of exchange, rather than focusing only on points of supply and points of demand or final sale.

TEC networks cross national boundaries by definition, but their basic functioning is contingent on local conditions. In the next chapter, William H. Schaedla explores the enabling sociocultural, economic and political facilitators underlying transnational wildlife crime. He makes a case that clear understandings of these factors are required in both applied and theoretical attempts to tackle the problem.

The final two chapters in this first section of the volume turn to two versions of the security dimensions of transnational environmental crime. Lorraine Elliott interrogates the ways in which the language and practice of 'security' have been joined with various forms of transnational environmental crime, particularly the illegal wildlife trade. Such joining, as she points out, has been particularly prominent in growing fears about the links between TEC and threat finance for militia and terror groups. While not denying the potential tactical attractions of this securitizing move, Elliott explores the empirical weaknesses of many of the claims on which such security narratives are based. She also explores the reinvigoration of a longer-standing trend in the militarization of conservation, querying both the appropriateness and effectiveness of such responses.

Sophie Saydan turns to the human security impacts of TEC activities. In her focus on the human toll, Saydan examines both the immediate and systemic impacts on people and their communities that arise in sectors such as the illegal wildlife trade, fisheries crime, and illegal logging and timber trafficking. She documents physical endangerment and loss of life, systematic abuse through the use of unfree labour, and the toll that arises from disruption to individual and community livelihoods through loss of cultural, ecological and social amenity.

Key Sectors and Case Studies

The chapters in Part II together provide a comprehensive insight into key TEC sectors – the illegal wildlife trade, the international trade in what is sometimes referred to as stolen timber, fisheries crime, hazardous waste, the black market in ODS and crime associated within carbon markets and emissions trading schemes. In her chapter on the illegal wildlife trade, Rosaleen Duffy exposes the complexities of this trade along the illicit chain of custody, suggesting that these complexities confound efforts to characterize this trade as a singular category of illegal and criminal practice. In this context, she also challenges assumptions about the relative role of poverty and wealth as drivers of supply and demand, calling instead for a more nuanced and sophisticated approach that accounts for local political economies on the one hand and the social construction of categories such as poaching on the other.

Tanya Wyatt's chapter picks up on these themes of diversity, offering insights into what she refers to as the uncharismatic and unorganized aspects of the illegal wildlife trade, although she is quick to point out that 'unorganized', in contradistinction to 'organized' crime, does not mean unplanned. Her focus on the role of collectors, the pet trade and various consumptive uses also points to the involvement of developed countries not just as a source of demand but also as a source of supply, something that is often passed over rather quickly in contemporary political narratives on the illegal wildlife trade.

Eve de Coning traverses similar complexities in the development of a new concept – fisheries crime – to describe what are, in many respects, forms of behaviour associated with unsustainability as well as illegality. As well as describing the kinds of activities that might fall within the reach of fisheries crime, de Coning also traces the institutional context within which this term has been elaborated. In doing so, she sheds light on the contextual challenges for defining what constitutes such crimes. Her analysis of pragmatic policy perspectives, legal-procedural perspectives and socio-legal perspectives exposes the problems that context can create for enforcement agencies. Yet for de Coning, fisheries crime is more than a descriptive category that encapsulates multiple illegal practices; it also constitutes a paradigm shift in the way that we can think about those practices, and therefore in the kinds of compliance strategies that are available to the multiple agencies who need to work together, often across borders, in response to those crimes.

David Humphreys adopts a similar kind of process tracing in his chapter on forest crime and the international trade in illegally logged timber, explaining how a national level problem has been internationalized

as a political as well as an environmental and economic issue. There is, as he points out, no internationally agreed definition of illegal logging. In part this is a consequence of the lack of a legally binding multilateral agreement on forests. It is also the result of wide-ranging legal and regulatory domestic frameworks that, even within countries, let alone between or among them, are often inconclusive on what constitute forest crimes or illegality. Humphreys explores how these governance gaps – and the compliance gaps that they create – have been addressed through a variety of formal arrangements and voluntary practices that seek to manage both demand and supply-side incentives. The challenge, as he points out, is that the legal and illegal trades are often so tightly entangled, and penalties often so weak, that such measures are likely to be insufficient to stem illegal logging and the associated trade.

The next chapter turns to the downside of production and consumption – waste – as a commodity that is traded across borders, with most illegal trade occurring most often from developed to developing countries. Lieselot Bisschop examines the varieties of waste, with case studies of e-waste and ship-recycling and ship-breaking as exemplars of the way in which what is discarded has actually become a valuable commodity. Picking up on themes that de Coning and Humphreys have also explored in their chapters, she points out that the overlap of legal and illegal sectors means that criminal practices can occur at multiple stages along a waste chain of custody involving legal corporations, organized crime groups and individual smugglers alike.

Many of these patterns are repeated in the illegal trade in ODS that Ning Liu, Vira Somboon and Carl Middleton address. In a detailed analysis of the ODS black market – drivers, participants, routes and methods of concealment – they point to the specific involvement of the ‘white collar end of crime’. In some ways, the political economy of the illegal trade in ODS shares with the illegal hazardous waste trade the pursuit of low-cost options and opportunities. In the case of illegal waste, the motivation is avoiding high costs of disposal in the country of production. In the case of ODS, the economic drivers are a function of the continued demand for cheaper but prohibited or controlled chemicals as well as, often, attempts to evade financial imposts such as tax and licence fees. Liu, Somboon and Middleton make explicit what is implicit, to varying degrees, in other chapters in this part of the book – the importance of enhancing the whole enforcement chain rather than just focusing on interdiction and seizures.

The complexities of markets are also central to Carole Gibbs’s and Michael Cassidy’s chapter on carbon crime, in which they provide a detailed examination of existing and potential forms of illegal practices in emissions trading schemes. This is a different example of the ways that

criminal actors can insert themselves into a legitimate market. In this new form of transnational environmental crime, the commodity – various forms of emissions and offset credits – takes a virtual form. As they point out, in contrast to the other kinds of commodities explored in this volume, there are no tangible goods to be transported or warehoused or for which (fraudulent) import and export documents need to be issued. Yet there are some analogies with other black markets. Criminal activity is attracted by high rewards for relatively little risk. The illegal trade – buying and selling – is often characterized by the extensive use of shell and buffer companies. Strategies such as phishing and hacking, which are used to undertake fraudulent transactions and to steal carbon credits, have some parallels in the way that smugglers obtain legitimate or fraudulent CITES documentation.

The final chapters in this part of the book offer more detailed geographic case studies – one on China and one on South Asia. Yunbo Jiao explores what he calls China's prominent yet ignoble role in the black markets in wildlife, timber and ODS. His chapter provides detailed empirical case studies of each of these sectors, based on a close analysis of publicly available seizure reports and trade figures. The picture that he reveals is a sobering one, particularly in terms of the global reach of the trade into and out of China and the level and sophistication of organization involved in managing this trade. Jiao also demonstrates how Chinese authorities have sought to respond to this trade, and to the international pressure that it faces, through improving legislation, strengthening inter-agency cooperation and coordination, and participating in international enforcement efforts. Jiao's guarded optimism is tempered by his recognition that enforcement of national administrative and criminal frameworks is often inconsistent and that more is required for China to improve its record in this regard.

Samir Sinha explores similar challenges in his analysis of transnational environmental crime in South Asia. In contrast with Jiao's focus on sectors, Sinha's case studies focus on two species: the iconic tiger and the lesser known Red Sanders, described in his chapter as a small to moderate-sized deciduous tree, increasingly endangered as a result of demand for its high quality timber and as a natural source of dyes. Whereas China has become a primary source of demand for illegal trade in wildlife and timber, Sinha shows how South Asia is increasingly an important supplier of such commodities. He provides a detailed historical analysis of transboundary demand for wildlife specimens, identifying lines of continuity and parallels with colonial era practices. Yet this chapter also recognizes a shifting smuggling and enforcement landscape, made more complex by market opportunism, new consumption demands as the wealth map of the world

has been redrawn and, as other chapters have acknowledged, the degree of planning and investment that smugglers commit to these enterprises.

Governance, Agency and Strategies

Part III of the volume collects five chapters that explore in more detail the kinds of strategies and techniques that governments and other actors can and do use in response to the challenges of transnational environmental crime. Together they provide insight into the governance and regulation of TEC, understood here as rule-making and steering mechanisms that function in a multi-level and polycentric context and that assign agency to non-state actors as well as to governments. This section of the book starts with Antonio Cardesa-Salzmänn's chapter exploring how key MEAs have addressed illegality and, in particular, the criminalization of such illegality. As he notes, one of the consequences of the trade and trade provisions of key MEAs – his focus is on CITES, the Montreal Protocol and the Basel Convention – has been the counter-intuitive development of incentives for black markets and illegal trade and the significant compliance issues that have arisen in this context. Key to this have been what he describes as the substantive mismatches in the implementation and enforcement of domestic legislative measures that incorporate central provisions of MEAs on illicit trade in controlled commodities. Cardesa-Salzmänn also makes the important point, however, that the MEAs are best seen as foundational documents of what have become dynamic legal regimes. It is within this dynamism that space has been created for normative and operational conversations that have expanded to include the global crime prevention and criminal justice communities of practice.

In his chapter, Gregory Rose explores in more detail, from an international legal perspective, the challenges that arise in the fight against TEC. In doing so, he sets out the formal definitions that distinguish crime from non-compliance and exposes some of the jurisdictional challenges that face governments in their efforts to harmonize national laws and international institutions in their efforts to develop mechanisms for law enforcement cooperation. As he notes, despite the kinds of engagement and coordination that Cardesa-Salzmänn identifies in his chapter, international environmental law has not yet formally meshed with transnational criminal law.

The next two chapters in this part of the book develop further this examination of regulatory and enforcement cooperation and coordination, with a particular focus on so-called horizontal arrangements that facilitate and acknowledge the role of non-state actors in formal and informal arrangements. As Julie Ayling notes in her chapter, restricting

supply has often taken precedence over demand reduction in public policy and enforcement responses to TEC. As a corrective, Ayling explores the kinds of purposeful interventions that can support efforts to manage and reduce demand with a focus on illegal wildlife, an area in which she suggests ideas and action are in short supply. This chapter traverses the complexity of demand, revealing the need for a more nuanced and more systematic approach to demand reduction. In doing so, and in response to these challenges, Ayling constructs a conceptual and practical argument for a whole of society approach to which third parties – or non-offending, non-state actors as she describes them – can and should be expected to contribute.

The following chapter takes this exploration one step further in its focus on a particular form of systematic horizontal cooperation in its study of Wildlife Enforcement Networks (WENs). As William H. Schaedla and Samir Sinha explain, WENs were founded on the idea that single agency, single country approaches are insufficient in an age when illicit wildlife supply chains span the globe. WENs are intended as mechanisms for better enforcement cooperation between countries and for improved inter-agency cooperation within participating countries. Yet as this chapter demonstrates, and echoing some of the analysis in Ayling's chapter, WENs are also heavily invested with, and reliant on, inputs from non-governmental organizations (NGOs). As Schaedla and Sinha suggest in their detailed analysis of this new paradigm for TEC law enforcement, this comes with advantages and disadvantages. It facilitates financial and technical assistance to participating governments and agencies, but risks them losing their ownership over the process to perceived foreign and civil-society agendas.

In the final chapter in this third substantive part of the book, Rob Ogden turns to an exploration of the use of forensic techniques to support law enforcement efforts at national and international levels, particularly in the battle against the illegal wildlife trade. He starts with the observation that, in contrast with the use of forensic techniques to identify or confirm a perpetrator in other forms of crime, in TEC the focus of enquiry is often reversed. Thus, through identifying the details of specific specimens – including whether it is from a species protected in trade – forensic evidence is used to demonstrate that a crime has occurred in situations where the perpetrator has been clearly identified. As well as explaining the kinds of forensic techniques available to law enforcement agencies, Ogden also examines how the increasing use of such techniques is helping to shift forensic science from a niche application within non-human victim crime to a more mainstream component of international law enforcement.

Practitioner Contributions

Part IV of the volume presents a number of shorter pieces, written by expert practitioners in the field, to introduce and evaluate some of the key agreements and associated institutional arrangements that have become central to the TEC regulatory, operational and enforcement landscape. For these contributions, we asked authors to provide an introduction to the institution or arrangement under consideration, including its background and history, its purpose and practice in the TEC context, its institutional architecture and, where appropriate, the challenges that it faces. Ezra Clark, Tatiana Terekhova and Margarita África Clemente Muñoz explore, in turn, the Montreal Protocol and the OzonAction Networks established under that agreement, the Basel Convention and CITES.

Each explores the ways that the respective agreements have developed more robust, more creative and often more complex responses to the challenges of illicit trade than the original treaties might have anticipated, reflecting Cardesa-Salzmann's observations in his chapter about MEAs as the basis for dynamic legal and enforcement regimes. Each also points to some of the challenges that face these key MEAs, in the form of modest financial resources, competing priorities for governments, uneven inter-agency cooperation and loss of institutional capacity. Yet each chapter also demonstrates ways in which Parties, sometimes in conjunction with other actors including NGOs, have used network and coordination strategies to meet these challenges. Clark's chapter, for example, explores the way that the OzonAction Networks, under the United Nations Environment Programme's auspices, have made good use of established networks to work with individual countries both at the national and regional level. Terekhova also points to the need for good operational networks of competent authorities and enforcement officers, both at the national and international level, although as she notes this is less well-developed in the Basel Convention context. Nevertheless, she also describes the advances that have been made in developing legal clarity on definitions of waste to close loopholes in terminology, and in developing technical guidelines to provide more effective direction to stakeholders. Clemente Muñoz points out that even when terminology and technical criteria are well established and agreed, treaty implementation can still be difficult. She makes clear in her coverage of the CITES process for non-detriment findings that sufficient skills and resources are critically important to meeting the Convention's objectives of sustainable use and trade.

These issues of capacity building and network practices are explored in some detail in each of the next three practitioner contributions which focus, in turn, on INTERPOL, the United Nations Office on Drugs and Crime

(UNODC), and the International Consortium on Combating Wildlife Crime (ICWC). In his contribution on INTERPOL, Grant Pink pays particular attention to the need for coordination between law enforcement agencies and environmental regulatory agencies, as well as the challenges that need to be overcome for such coordination to be effective. In this regard, he examines not only the history of INTERPOL's Environmental Crime Programme and its reinvention as an Environmental Security Sub-Directorate, but also its coordination role in operational and capability terms as well as in communication and advocacy. This theme of institutional evolution is evident also in Giovanni Broussard's contribution on UNODC where he focuses not so much on actual operational coordination but on the importance of a criminal justice framework for responding to transnational environmental crime. As he points out, UNODC has become central to this framework through its work on support for targeted program activity focused on wildlife and forest crimes, on knowledge building through threat assessments and evaluations, and on the delivery of technical assistance.

Both Pink and Broussard reference the involvement of INTERPOL and UNODC respectively in the ICCWC. Edward van Asch's chapter explores the ICCWC as both a formal agreement and a declaration of intent by the five partner organizations (CITES, INTERPOL, UNODC, the World Bank and the World Customs Organization). As he points out, what is in effect a networked arrangement balances individual agency autonomy and expertise with the need for efforts to be aligned in what the ICCWC itself calls a formidable and coordinated response to wildlife crime. Van Asch shows how the ICCWC has evolved to develop a more coherent strategic mission that aims to address capacity and coordination gaps in the way that governments and enforcement agencies battle transnational wildlife crime, a mission that has come to have a regional and global reach.

Both Broussard and van Asch touch upon regional initiatives in the Asia-Pacific in their respective contributions. Vinciane Sacré turns attention to the European context and to an initiative for information exchange – EU-TWIX (European Union–Trade in Wildlife Information eXchange) – that is based on a partnership between the European Union and the wildlife monitoring NGO, TRAFFIC. As she points out, EU-TWIX has become more than the strategy for secure information exchange that was envisaged as its key purpose when it was established in 2005. Rather, through daily use by enforcement officials to communicate with colleagues across Europe, it has become a unique opportunity for monitoring trade trends at the national and EU-levels as well as a potential model for information exchange networks in other parts of the world.

Many of the contributions in this part of the book focus on initiatives

and institutions that are designed to enhance law enforcement responses to various kinds of transnational environmental crime. In the final chapter, Daniel W.S. Challender and Douglas C. MacMillan offer some thoughts on the importance of moving beyond enforcement practices to find ways of supporting interventions that can also take account of the social, economic and cultural supply and demand drivers of illicit trade (as with a number of other chapters in this part, their focus is on the illicit wildlife trade). In this regard, they echo the focus in the chapters by Duffy and Wyatt in particular on the complexities associated with poverty, tenure rights, rural livelihoods and cultural traditions and the need for positive and locally focused incentives for conservation.

AN AGENDA FOR FURTHER RESEARCH

This volume reflects the current state of a wide range of sophisticated empirical, analytical and conceptual research on transnational environmental crime. Many of the chapters also identify shortcomings in that research and areas for further work. Some of these gaps have to do with the way TEC and responses to it are defined. Others relate to the way treaties, enforcement efforts or demand-reduction strategies function. Still others seek better understandings of practices or processes that constitute TEC. They emphasize three fairly broad and, at times, overlapping categories: the nature of markets, the conditions for effective enforcement and the frameworks that underpin global TEC governance.

Continued research effort to understand the nature of supply and demand in TEC markets is essential. Duffy, for example, argues that more work is needed to understand how new markets for wildlife products develop and grow. She sees such research working in conjunction with investigations of the relative roles of wealth and poverty in sustaining illegal trade. Ayling makes a similar call for thorough research into influences on the motivations of varied consumer groups. She suggests that demand has not yet received the close attention needed to tailor effective strategies against wildlife consumption. Without this kind of research, she points out, demand-reduction efforts may prove both ineffective and a waste of limited resources. Wyatt also identifies biases in the way wildlife crime is understood and addressed. She suggests that an emphasis on charismatic species and organized crime leaves much wildlife smuggling unaddressed and unresearched.

Calls for continued research on the demand side of TEC trade are complemented by the observation that the means by which black markets are provisioned merit similar ongoing investigation. Challender and

MacMillan identify the importance of further research not only on actual sourcing situations but on the conditions likely to make supply-side actions effective countermeasures to TEC. Their particular concern is whether increasing legal supply (through the possible use of farmed or ranched wildlife or fish stocks) can dampen incentives to poach and prevent demand from reaching dangerous levels. As they point out, more research and evaluation is warranted in this regard.

Building a more robust understanding of markets in specific sectors draws attention to the need for continued work on the factors that influence criminal opportunities. Gibbs and Cassidy, for example, suggest that research on carbon crime should explore whether changes in the management of emissions trading schemes (through the use of value-added tax laws or through adjustments to carbon registries) create or diminish such opportunities. Humphreys points to a current lack of evidence on whether fear of prosecution for importing illegally logged timber will motivate traders to seek timber with clear guarantees of legality and, in turn, whether prosecution can be implemented on a scale sufficient to deter illegal loggers in exporter–producer countries. Saydan suggests that there is also a need to expand the focus on supply, demand and disincentives to explore the consequences of assumed relationships and conjectural settings. In particular, she calls for further research on the probable indirect costs of TEC markets – such as those associated with high levels of corruption – on other economic sectors such as foreign investment, poverty alleviation and employment.

The second component of this agenda for further research focuses on enforcement and conditions that will strengthen involvement by lawmakers, police, inspectors, customs/border protection officials, prosecutors and judges. De Coning explains the need for research that investigates what value is added to law enforcement through the development of new paradigms, particularly, in her case, the fisheries crime approach. Broussard suggests, indirectly, that more work is required to understand not just the stronger role that actors of the criminal justice system need to play in responding to transnational environmental crime, but also the conditions under which such a role can be played. Jiao also identifies gaps in coordination and communication between agencies in different countries. He argues that by developing shared understandings of legality, appropriate enforcement procedures and standards will improve transnational enforcement (he is focusing here on China and timber illegality but the point applies to research across other countries and sectors as well).

In developing the third theme of a future research agenda, many of the chapters refer both explicitly and implicitly to the need for a better understanding of global governance, often in the context of actual policy and

TEC enforcement needs. In his chapter on South Asia, Sinha is clear in his arguments about the importance of continued research on ground-level enforcement. He also directs attention to research that will support the development of legal and policy frameworks that spell out clear, long-term road maps for conservation and sustainable trade in species of national, regional and international significance. Broussard also points to the problems associated with a lack of harmonized legislation and definitions. He highlights the importance of research, examining how these legal and descriptive gaps affect transnational responses from states. In this context, Rose suggests that the time is ripe for innovative legal work to address cross-jurisdictional challenges in the fight against transnational environmental crime. He calls, in effect, for research on what he terms the missing legal framework and for a study of common and divergent patterns in international model practices in environmental criminal law.

The questions posed by contributors to this volume and the research opportunities identified by them make clear that TEC is, and will continue to be, a broad and challenging topic. The chapters here show that transnational environmental crime language has likewise been applied widely across different fields of academic and enforcement endeavour. As we explained earlier in this chapter, the term carries no universal definition. We have attempted to avoid confusion and focus discussion herein by concentrating on TEC as a category of crime that involves cross-border trading or smuggling of species, resources, waste and pollutants in violation of MEAs, or in contravention of national laws. This description is one that allows for further collaborative, transdisciplinary research and policy development. We feel strongly that the kind of cooperation and conversation between conservationists, criminologists, economists, market authorities, political scientists, regulators, sociologists and other specialists that is evidenced in this volume will be essential to addressing TEC-related problems. We hope this book and the analysis and insights that it generates provides a useful start.

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