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EDITED BY
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AND Ineke Haen Marshall

ECO-CRIME AND JUSTICE

ESSAYS ON ENVIRONMENTAL CRIME

emerging crimes emerging policies Series

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KRISTIINA KANGASPUNTA AND INEKE HAEN MARSHALL

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Ineke Haen Marshall and Kristiina Kangaspunta

INTRODUCTION

The careless or illegal exploitation of the natural environment is by no means a recent development. Long before former US Vice President Al Gore's documentary *An Inconvenient Truth* made the dangers of the nonchalant and predatory use of our planet's resources painfully real to large audiences, toxic waste was dumped in rivers and oceans, there was clear felling of forests and timber smuggling, and threatened or protected species (both animals and plants) were transported and traded for profit. Some of this took place locally, some of this crossed national borders. Some of this was perfectly legal, and some of this had been declared illegal either by local, national or international statutes. Sometimes the harm done was obvious to even the most casual observer, but very often it was not. Sometimes it was the work of one individual or a small group, but frequently networks or organized crime groups were involved. Occasionally, an individual, community group or NGO voiced their complaint, but more often than not there was a deafening silence. Now the silence has been broken – for reasons we can only speculate about, but which clearly include the 'greening' of politics, the emergence of local and global grassroots environmental justice movements, and the growing concern of large corporations with the damaging public relation effects of being viewed as 'eco-hostile'. A tipping point has been reached where enough voices speak out loud and urgently to place environmental harm as a high priority item on the policy agenda.

The publication before you aims to add a strong voice to the debate. The authors hope to contribute to the articulation of *a global research agenda on environmental crime*; a research agenda based on commitment to the following three principles: (1) Recognition of the value of *evidence–based* policy-making (over policies based on expediency, political pressures, or purely economic considerations); (2) Willingness to appreciate the importance of *theoretical insights drawn from different disciplines* to guide policy, and (3) Concern with *balancing human and ecological rights*. This Introduction provides the context for this effort.

Environmental crime: a problem crying out for a collaborative approach

Depending on background and disciplinary language, we use different vocabularies to describe the threats associated with ecological harm, natural resource crime, 'green' crime, or 'environmental crime'. For present purposes, we choose to use the latter term (*environmental crime*) as the most inclusive and appropriate. We may disagree on the best descriptive term to use, but most of us *do* agree that we are faced with a serious problem of global proportions. A problem that is in urgent need of containment. A problem that – more often than not – crosses local and national borders. A problem that cries out for the concerted joint efforts of collaborative teams of dedicated experts, scholars, policy makers, citizens and community action groups, local and international organizations and NGOs. Alarmed by the potentially harmful and devastating consequences of environmental harm, many policy initiatives, both at the supranational level of the UN, as well as at national levels, often including NGOs, have been developed[1] (see Elliott's paper, this volume). At the same time, numerous descriptive reports, case studies and analyses of ecologically harmful and/or criminal behavior have begun to accumulate worldwide, ranging from rather superficial and simplistic accounts by a few concerned individuals or community groups, to carefully documented research documents produced by experts. Good policy needs to be based on sound research. And that is what the papers in this volume are all about.

The experts involved in research and thinking on environmental harm come from a variety of academic backgrounds, such as geography, chemistry, oceanography, genetics, biology, botany, ecology, environmental studies, and climatology, which is not surprising in view of the very complex and often very technical nature of the focus of inquiry. Because of the global and international character of much of the behavior, as well as the social processes and dynamics involved, experts also come from the fields of international relations, globalization studies, sociology, political science, public health, industrial relations, international law, policy studies and – last but not least – criminology.[2] Each discipline approaches the topic from its very own vantage point, but there is growing awareness that a *multi–disciplinary* approach (i.e. the collaboration of teams of experts from different fields) is preferred. True multi-disciplinary collaboration is very difficult to achieve, although some promising inroads have been made. The contributions in this book provide examples of just such attempts to approach the problems of environmental harm from a diversity of perspectives [i.e. criminology (chapters 1 and 2, White and South), international relations (chapter 3 El-

1 It should be noted that some of these policy initiatives were proposed quite a long time ago, before worry about environmental harm became a popular concern. One of the first international efforts to address environmental crime in the UN crime prevention policy framework was the workshop on Environmental protection at national and international levels: potential and limits of criminal justice, organized by UNICRI at The Ninth United Nations Congress on the Prevention of Crime and the Treatment of Offenders, in Cairo, Egypt 1995, see .A/CONF.169/16.

2 The involvement of a diversity of disciplines is also reflected in the wide variety of scholarly publication outlets that are used to present theoretical and empirically–based visions on environmental crime and related issues.

liott), and sociology (chapter 4 Faber)]. Three of the four papers were originally presented at a panel at the American Society of Criminology (St. Louis, USA, November 2008), a panel on 'green criminology' focusing on the question of how criminology (and related disciplines) may play a role in developing a global research agenda on environmental crime.[3]

What does criminology have to offer to the study of environmental harm?

Criminology has come only relatively recently to the study of environmental harm, or 'green' crime; publications using this term start around 1990 [see White (this volume) and South (this volume)]. The academic discipline of criminology covers a wide range of approaches to the study of law, crime and social control, and is done by people from many different backgrounds and disciplines in different parts of the world (only a small fraction refer to themselves as 'criminologists').[4] National, social and cultural factors permeate the practice of science deeply; thus, there are as many 'criminologies' as there are nations in the world. Yet, there is a common core which ties different national versions of 'doing criminology' together: criminology is *the scientific (i.e. empirically–based), multi–disciplinary study of the creation of law, the breaking of laws and the responses to having broken the law.* [5]

The history of criminology goes back more than two centuries, according to some even longer. Criminology as a *scientific* discipline became established in Europe and North America starting some hundred years ago, with its intellectual roots in psychiatry, psychology, biology (medicine), and sociology, and more recently also drawing from economics and neurophysiology, among other fields. An incredible amount of empirical research on crime and law currently exists, mostly in and about western countries. Numerous theories (about why people break the law, why society makes certain laws, why laws are – or are not – enforced, and so on) have been developed, tested, and either discarded or adjusted to incorporate new findings. Although nobody claims that criminology has managed to solve 'the crime problem', there is no doubt that we have accumulated a wealth of sound knowledge about crime and deviance, knowledge that may be applied to the problem of environmental harm – and what may be done about it. How insights derived from criminology may be useful to theory, research and policy related to environmental harm will be discussed in depth in the four papers in this volume. It may be useful to briefly highlight the main points (on the relevance of criminology to the problem of environmental harm).

First, criminology (including the sociology of deviance) is explicitly concerned with *normative behavior*. An important focus is why most people follow most rules and norms (in-

3 The fourth paper, by Daniel Faber, will be presented in a follow–up panel at the 2009 American Society of criminology meeting (Philadelphia, November 2009).

4 See Ineke Haen Marshall, "The Criminological Enterprise in Europe and the United States: A Contextual Exploration", *European Journal on Criminal Policy and Research 9* (2001): 235–257.

5 See Edwin Sutherland, *Criminology*. (Philadelphia: J.B. Lippincott, 1947).

cluding legal ones) most of the time (i.e. the study of conformity). Is it the threat of (legal) sanctions and punishment? Or is it our internalized conscience which provides intrinsic rewards for doing the right thing? Differently, why do some people and some groups break the rules occasionally, or even consistently? Where do they find the rationalizations to justify their anti-social behavior? What is the role of the (sub) culture? Do people make simple cost-benefit calculations (as suggested by rational choice theory)? The body of criminological knowledge in the area of rule-breaking and conformity is of direct relevance to research and policy-making in the area of environmental harm.

Second, criminology assigns a central role to the significance of *inequality, power and politics in the criminalization processes*. Crime is, per definition, a politically-based phenomenon, since it is a state-sanctioned behavior. Criminologists want to understand how and why laws are *created*. After all, no (criminal, secular) laws are written in stone from the beginning of mankind; laws are social products. Criminologists analyze the role of interest groups, claims-makers, and power brokers in the development of legislation. Closely related is the study of the how and why of the *enforcement* and the *administration* of law. No law is ever enforced 24/7, consistently, without exception and completely unbiased. There is a huge amount of empirical research to document the central role of power and inequality, albeit this research has been done mostly in the western world. Theoretical and empirically-based insights drawn from the extensive body of criminological knowledge about the power dynamics involved in law-making and law enforcement provide enormously promising resources for the study of these issues related to environmental harm and crime.

Third, over the last quarter century, criminology has developed a keen interest in *victimization*, in particular the differential distribution of harm based on social and economic inequality. In many instances, crime victim groups have been able to significantly influence legislation and crime policy. In many cases of environmental crime, the harm is diffused and not immediately evident, making victim advocacy much more problematic.

Fourth, students of crime and deviance have developed expertise in *investigating secretive, socially harmful behavior*. Most of criminology has focused on 'street crime' or 'common crime', for example, robbery, assault, rape, homicide, burglary, purse snatching, gang violence, vandalism, drug use and dealing, or prostitution. Often this research uses secondary data such as police and court records and analysis of unobtrusive measures, but there is also frequent use of participant observation, in-depth interviews, or self-report surveys. Criminologists have been less successful in getting access to white collar criminals, criminal enterprises, and corporations involved in crime, in some cases particularly involved in environmental crime; but as the many published studies attest, countless devoted researchers *have* managed to overcome tremendous obstacles (related to the power of the targets of the investigation, and the technical complexity of the criminal behavior) to arrive at carefully-documented accounts of high-level malfeasance.

Fifth, evidence–based policy to prevent and control illegal behavior has by now become a mainstay of criminology. The 'what works?' approach is exemplified by the work of the Crime and Justice Group of the Campbell Collaboration, which argues for policies based on systematic reviews of carefully designed, preferably experimental evaluation studies of pre-

vention and intervention programs.[6] Most of the systematic reviews and evaluation studies in the field of criminology have focused on traditional offenders and street crime, with some tentative attempts to venture into the area of terrorism and white collar crime. Nonetheless, we have a large body of evidence with regard to the effectiveness (or lack thereof) of different police strategies, target hardening and situational crime prevention successes (and failures), and public education programs (drug education, drunk driving, tax evasion). Criminologists also have accumulated a vast amount of empirical knowledge based on some 50 years of deterrence research (i.e. the impact on behavior of the fear or experience of the threat of legal sanctions). The lessons learned from some of these 'best practices' may be transferred to the prevention and control of environmental crime.

Sixth, criminology is rapidly becoming more *international and globalized*. There is no question that supranational organizations such as the UN have taken the lead in focusing our attention on the changing nature of crime in a globalized and internationalized world. Admittedly, conventional criminology has been a bit slow in broadening itself to include trans-national and cross-border crime. Historically, the large majority of crime studies have focused on the street-level, local offending and offenders. This rather parochial approach is close to getting remedied, as evidenced by the fast-growing number of publications by criminologists in the area of corruption, money laundering, human trafficking and smuggling of migrants, transnational organized crime, genocide, terrorism, cybercrime, and – more recently – environmental crime. Conventional criminology has a lot to offer to an understanding of emerging crimes with global implications.

Seventh, issues of justice and *human rights* are of central concern to the work of many criminologists. The political preference and political ideology of scholars involved in the study of crime, law and social control differ widely, of course. Yet, central to the discipline is a concern with justice (equal justice, fair justice), justice applied according to the rule of law. This concern has been translated in a body of scholarship on the differential application and enforcement of law (based on ethnicity, religion, gender, social class, nationality, or race), as well as on possible miscarriages of justice (i.e. wrongful convictions). Among criminologists, there is also increasing support for expanding the conventional legalistic definition of 'crime' (as violation of state law) to include violations of human rights. From there, it is only a small step to also include the right to unpolluted land, free seeds, clean water and healthy food as well as ecological rights, and non human animal rights [see White (this Volume) and Faber (this Volume)].

6 David P. Farrington and Brandon Welsh (Eds.), Special Issue of *the Annals of the American Academy of Political and Social Sciences*, (2001), "What Works in Preventing Crime? Systematic Reviews of Experimental and Quasi–Experimental Research."

The development of a global research program: the basics

Criminology – like other social and hard sciences – follows the basic steps of the scientific method, which is reflected in the papers in this Volume. Basically, we want to (1) clearly define the problem, including developing a classification of what types of phenomena fall under the category of 'environmental crime' (i.e. *conceptual clarification*); (2) empirically document the extent of the problem through reliable and valid indicators (i.e. *measurement of extent and seriousness*); and (3) understand and explain why environmental crime occurs (*develop and test theories*). Moreover, criminology is a *policy*-oriented discipline, which means that the results of research and theoretical thinking need to be translated into reasonable policy-initiatives.

Conceptual clarification

The very first step in any research program is to figure out what it is we are trying to understand and control: What is 'the problematic'? This is a very familiar process for criminologists, who have spent considerable efforts in debating the proper focus of study within their discipline: is it crime, deviance, anti-social behavior, rule-breaking behavior, or social harm? Some argue in favor of developing a general theory of crime,[7] while others think it is more beneficial to focus on trying to understand 'anti-social' or rule-breaking behavior in general (regardless of whether this behavior is against the law or not)[8]. Others argue in favor of focusing on more narrowly defined crime categories (i.e. drug-related gang violence, or sexual abuse of children, or serial murder). 'Crime' is a very broad, heterogeneous concept, which covers a wide range of very different behaviors and situations. It is only reasonable that – for research, theoretical and policy purposes – we try to arrive at a number of more *homogeneous* categories (white collar, violent, property, organized, transnational, victimless, predatory, environmental crime and so on). The challenge remains in developing typologies of crimes that are meaningful and useful, and that are accepted by everybody involved.

With regard to environmental crime, some questions remain unresolved about the range of behaviors it covers, as well as what would be the most useful ways to develop typologies of environmental crime (based on type of victim and offender, local or global, related to air, water, or ground, and so on). There is always a tension between a general ('grand') approach and a more focused approach (i.e. 'environmental crime' vs. illegal harvesting of trees in Indonesia). A research agenda – by necessity – moves back and forth between the general big picture to case-studies and details (see Elliott, this Volume). The authors in this book do devote considerable attention to the conceptual clarification of what is to be explained, and

7 See, for example, Michael Gottfredson and Travis Hirschi, *A General Theory of Crime* (Stanford, California: Stanford University Press, 1990).

8 See, for example, Per–Olof Wikstrom, "Individuals, Settings, and Acts of Crime: Situational Mechanisms and the Explanation of Crime," in *The Explanation of Crime*: Context, *Mechanisms and Development*, eds Per–Olof Wikstrom and Robert J. Sampson (Cambridge: Cambridge University Press, 2006), 61–107.

controlled, or better yet – prevented. At this early stage of development of environmental criminology, this effort of conceptual clarification is a much needed and difficult first step in the development of a global research program.

Measurement of the extent of the problem

A second step is to clearly describe and document the extent of the problem. We know most of the strengths and weakness of familiar national and international measures of 'common' crime (e.g. United Nations Survey of Crime Trends and Criminal Justice Operations, and the International Crime Victim Survey), but, even in this case, we still have some unresolved questions about the degree to which these measures provide a valid picture of crime. Needless to say, these problems are magnified when the focus is on the emerging crime of environmental harm. Complicating the picture is the fact that much environmental harm is hidden, that it requires highly technical skills to be uncovered, and it is often committed by powerful corporations – all factors which make it extremely difficult to get a firm grasp on the exact extent and nature of the harmful behavior. The papers in this book attempt to provide some assessment of the nature and extent of environmental crime – often anecdotally, but also with hard figures. How to measure and document the extent of environmental crime will be a crucial component of a global research agenda on this topic.

Developing and testing theories

A third step involves trying to understand and explain *why* environmental crime happens. This 'why' may have to do with why certain laws exist – or do not exist – with regard to environmental crime, including problems of international law-making and cross-border policing and enforcement. More importantly, it also involves trying to understand why certain individuals, organizations, corporations, or even nation-states violate these laws. Much of crime theory focuses on individuals, but there is also a broad knowledge base on the law-violating behavior of organizations, groups, businesses and governments (e. g. corruption, white collar crime, corporate and governmental malfeasance). Lorraine Elliott's (Chapter 3) discussion of networking analysis is a good example of attempting to develop a conceptual framework capturing the 'how' and 'why' of transnational environmental crime. Daniel Faber (Chapter 4) makes a convincing case for the criminogenic effects of neo-liberal capitalism. Their papers also illustrate the importance of the use of mixed methods: that is, combine assessments of structural, macro-level theories with 'rich' and 'thick' local descriptions of reality.

Developing and evaluating policy

Criminology is a policy-oriented discipline; it aims to provide theoretically and empirically-grounded recommendations for how to deal with a particular crime problem. It is also *evidence-based*. It tries to solve pressing crime problems based on carefully evaluated

studies, rather than on mere theoretical speculation. For instance, by now there is a body of established best practices related to what is known about the potential deterrent effect of legal regulations, the limits and challenges of law enforcement in particular areas, the preventative effect of general education programs, or on how to best utilize target hardening approaches. Most of these insights are based on experiences with crimes other than environmental crime. However, there is no doubt that lessons may be drawn from such evidence as illustrated by some of the arguments made by the authors in this book, with respect to how conventional law enforcement and crime control techniques and strategies may – or may not – be useful in dealing with environmental crime.

A global research agenda on environmental crime must include questions related to (1) the study of the *transferability* of existing 'common' crime prevention and control practices to the specific problems of environmental harm, and (2) the *evaluation* of the effectiveness of current and newly developed policy measures designed to curb environmental crime and harm. In this context, it is important to caution against a blind over-reliance on 'what works'. Complete neutral and objective evidence does not exist. As perhaps no other crime, environmental harm is tied up with big business, big government, politics and power – locally, nationally and globally. There are enormous differences in power and resources between the different stakeholders. Normative and value considerations should never be left out of the picture in any research agenda. We need to respect the diverse rights (e.g., environmental, ecological, human, animal, property, legal, economic) involved in the complex issue of environmental harm. This – rather than the technical or legal solutions – may be the most difficult item on the research agenda yet.

The papers in this Volume

The first contribution, by Rob White, is a framing paper that offers an outline of a perspective and an action plan based upon an emerging eco-global criminology. The paper begins by providing an overview of four areas in which climate change and associated environmental transformations are giving rise to significant social conflict. The areas of concern include: *conflicts over environmental resources* (e.g., water); *conflicts linked to global warming* (e.g., climate-induced migration); *conflicts over the differential exploitation of resources* (e.g., bio-piracy); and *conflicts over the transference of harm* (e.g., cross-border pollution). He argues that a research agenda on these matters ought to consider how green or environmental criminology interprets and analyses such trends – by understanding such conflicts from within an eco-justice framework. Responding to these social conflicts and major ecological shifts raises the question of how criminology can best contribute to issues such as the protection of eco-human rights, the development of environmental crime prevention and law enforcement, and the enhancement of global institutions of environmental law and justice.

The second paper by Nigel South aims to build a bridge between some of the concerns of criminological theory and method relevant to a 'green research agenda' and the arenas of criminal justice and human and environmental rights. He stresses the need to develop

typologies of environmental harm that may be used to guide our research efforts. South proposes three 'building blocks' for a 'green' criminology, and he concludes with a plea to incorporate the idea of 'intergenerational justice' in any global research program on environmental harm.

The third chapter, by Lorraine Elliott, wants to develop a transnational environmental crime (TEC) research agenda that will anchor policy-relevant outcomes in a critical conceptual analysis to improve both our comprehension of TEC and our capacity for response. She sketches out the contours of a research agenda founded on the proposition that network concepts can help us (i) to understand more clearly the practices associated with transnational environmental crime transactions and (ii) to identify and evaluate effective policy responses. The chapter begins with a brief overview of the extent of transnational environmental crime. The second section looks more closely at the kinds of network concepts that can help in describing and understanding illicit cross-border transactions in the illegal wildlife trade, timber trafficking, the black market in ozone depleting substances and illegal waste dumping. She also explores market networks involved in illicit chains of custody, social networks in the form of criminal and other alliances, and political-criminal networks that complicate the state/non-state and public/private distinction. In the final section of the chapter, she offers some thoughts about a research program that would enable us to evaluate not only whether networks really count but what kind of networks count most.

In the final contribution, Daniel Faber presents an interesting analysis of what he calls the USA 'polluter-industrial complex'. His is a case study of sorts to illustrate the political-economic forces that serve to undermine efforts by legal and other regulatory agencies to curb the impact of environmental harm and which – knowingly or unknowingly – exacerbate the global ecological crisis. This paper mostly focuses on the manner in which neo-liberal policies are contributing to environmental crime in the United States, but it extends beyond U.S. boundaries into a larger critique of global capitalism. Faber's paper serves as an example of how academic scholarship can contribute to a well-grounded, multi-disciplinary understanding of the social, political, and market-driven forces that – if left unchecked – may propel the world into an ecological crisis of unfathomable proportions.

Concluding remarks

For the United Nations, Green or Eco-Crimes have relevance in at least four different aspects:

1. They impose a threat to a large number of people;
2. Organized crime is involved in many forms of environmental crime;
3. They have a negative impact on the rule of law and development;
4. Crimes against the environment can be used as a tool in military conflicts.

On the first point, Green Crime is often perceived as victimless, while in reality, however, environmental crimes can have indirect impacts on large groups of people. They can be affected by deforestation and habitat deconstruction, reducing biodiversity and causing ecological problems such as flooding. This can deprive communities of their livelihoods and trigger forced migration and population displacement. There can also be a direct impact on individuals when, for example, dumping hazardous waste pollutes the environment causing serious health problems.

The second point on organized involvement with environmental crime is well known. Organized crime groups are often involved in environmental crimes because they frequently contain transnational actions such as trafficking in natural resources, the illegal trade in fauna and flora, trafficking and dumping of hazardous waste, illegal and unreported fishing and illicit trafficking in minerals and precious stones. Organized crime groups can make large profits with small risks because of the lack of legislation and enforcement efforts in many countries.

There is an obvious link between environmental crime, development, and the rule of law. A well-functioning criminal justice system, the absence of corruption and a government bound by the rule of law are believed to be important to economic, political and social development. The failings of government structures often sustain and even reinforce (or facilitate?) environmental crime. In a corrupt environment with weak rule of law, officials can sign and forge import and export certificates, facilitating trafficking in illicit goods or just ignoring such trade. Corrupt officials can also prevent proper assessments of the nature and extent of environmental crime making it difficult for the criminal justice system to address it. At the global level, while waste is trafficked from north to south, the reverse is done in trafficking wildlife or precious metals and stones. The replacement of natural resources with hazardous waste highlights the inequality between the world's poor and rich.

Finally, military actions related to environmental crime are of great concern to the international community. Destroying and damaging the environment might be part of military actions. These can include land mines, unexploded weapons, toxic munitions, oil spills casing pollution, depleted uranium shells causing poisoning and severe health risks, the destruction of forest ecosystems with herbicides, and oil burned off emitting tons of pollutants into the air.[9]

There are 240 international treaties, conventions, and protocols related to the environment.[10] Yet several gaps remain in the normative framework, as well as in our knowledge of different forms of environmental crime. The research community has an important role in supporting international efforts to address threats related to green crime and fill the remaining gaps.

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9 Sills J., Glenn J.C., Florescu E. and Gordon T.J. (2001) *Environmental Crimes in Military Actions and The International Criminal Court (ICC) – United Nations Perspectives,* Army Environmental Policy Institute, AEPI-IFP-0502A.

10 *State of the World 2001*. 2001. The Worldwatch Institute, Washington, DC. pp. 167.

Rob White

DEALING WITH CLIMATE CHANGE AND SOCIAL CONFLICT: A RESEARCH AGENDA FOR ECO–GLOBAL CRIMINOLOGY

INTRODUCTION

The aim of the paper is to explore how eco-global criminology can value-add to our understanding of the nexus between climate change and social conflict, and contribute to the development of strategies best suited to responding to a diverse range of issues. As part of this discussion, the paper provides an overview of four areas in which climate change and associated environmental transformations are giving rise to significant social conflict. The areas of concern include: conflicts over environmental resources (e.g., water); conflicts linked to global warming (e.g., climate-induced migration); conflicts over the differential exploitation of resources (e.g., bio-piracy); and conflicts over the transference of harm (e.g., cross-border pollution).

The paper argues that a research agenda into these matters ought to consider how green or environmental criminology interprets and analyses such trends – by understanding such conflicts from within an eco-justice framework. In other words, what can we learn from new thinking within criminology about environmental issues, and how can these ideas be utilised in addressing issues of growing global significance. As will be seen, responding to these social conflicts and major ecological shifts raises important questions relating to the protection of eco-human rights, the development of environmental crime prevention and law enforcement, and the enhancement of global institutions of environmental law and justice.

Essentially this is a framing paper, an outline of a perspective and an action plan. After briefly describing issues pertaining to climate change and social conflict, the paper focuses on two key areas for discussion. The first concern is to indicate the ways in which eco-global criminology can contribute to seeing, understanding, interpreting, and conceptualising the nature of environmental issues and problems. The second area of interest has to do with how criminology can inform how to act, intervene, do something, and respond generally to environmentally-related matters. The paper draws from diverse areas of criminological research and theory in order to identify lessons that can be learned and to identify those areas requiring further exploration.

Climate Change and Social Conflict

As recent study of environmental harm has demonstrated, borders do not mean much in the case of many instances of environmental harm, especially those pertaining to contamination, pollution and the movement of materials/particles through water and air.[1] Nor do borders have much material relevance when it comes to environmental harm associated with global warming. Climate change affects us all, regardless of where we live, regardless of social characteristics. However, the effects of climate change, while felt by everyone, are not the same for everyone. Claims to a universal victimisation in fact belie crucial differences in how different groups and classes of people are placed quite differently in relation to key risk and protective factors. Social conflict linked to climate change is as much as anything a reflection of social inequality, and not simply determined by changes in environmental conditions.

It has been observed that those most vulnerable to the 'consequences of consequences' of climate change are people living in poverty, in under-developed and unstable states, under poor governance.[2] Indeed, it has been estimated that over half the world's population is potentially at risk.

> *There is a real risk that climate change will compound the propensity for violent conflict, which in turn will leave communities poorer, less resilient and less able to cope with the consequences of climate change. There are 46 countries – home to 2.7 billion people – in which the effects of climate change interacting with economic, social and political problems will create a high risk of violent conflict.*
>
> *There is a second group of 56 countries where the institutions of government will have great difficulty taking the strain of climate change on top of all their current challenges. In these countries, though the risk of armed conflict may not be so immediate, the interaction of climate change and other factors creates a high risk of political instability. These 56 countries are home to 1.2 billion people.*[3]

The consequences of global warming will thus impact most heavily on those least able to cope with climate-related changes.

The global ecological situation is unlikely to improve very much, if at all, in the near future. Indeed, there is every chance that things will get much worse before too long, particularly as the Arctic heats up. The damage will be felt in the form of extreme weather events, increased competition for dwindling natural resources, outbreaks of disease and viral infec-

1 See for examples, R. White, *Crimes Against Nature: Environmental Criminology and Ecological Justice* (Devon: Willan, 2008); C. Schmidt (2004) *"Environmental Crimes: Profiting at the Earth's Expense"*, *Environmental Health Perspectives* 112, no2 (2004): A96–A103; United Nations Environment Programme, *Global Environment Outlook* (New York: UNEP, 2007; and R. White (ed), *Environmental Crime: A Reader* (Devon: Willan Publishing, 2009).

2 D. Smith, D. and J. Vivekananda, *A Climate of Conflict: The Links Between Climate Change, Peace and War* (London: International Alert, 2007).

3 Smith and Vivekananda, *Climate of Conflict*, 3.

tions, further extinctions of species, continued pressure to trade off food for fuel, and the list goes on.

As indicated, one consequence of global trends is an expected upsurge in social conflict. Borders certainly do count when it comes to responding to transborder harms and to incidents that bring with them the transference of harm from one country to another. Social conflicts are essentially conflicts between different sets of people, and between different nation-states. In either case, there is clearly a need for regulation, resolution, and in some instances, restitution.

Figure 1
Climate Change and Social Conflict

Conflicts over Environmental Resources
e.g., water – anti–privatisation protests and diminished clean drinking water resources (Bolivia, South Africa, Israel, Palestine)
e.g., food – food riots particularly in relation to grain prices associated with tension between crops for food and crops for bio–fuel (Mexico, Haiti, Indonesia, Cameroon)
e.g., fish – competition between local fishers and commercial and industrial fishers, leading to 'war' over specific fisheries (Canada, Spain)
Conflicts Linked to Global Warming
e.g., climate–induced migration of peoples – 'environmental refugees' (South Pacific Islands)
e.g., demographics – population size and profile (such as structural ageing) linked to distribution, availability and carrying capacity of land (China)
e.g., loss of territory and border disputes – receding coastlines and desertification (Egypt, Greenland, Canada, Russia, USA)
Conflicts over Differential Exploitation of Resources
e.g., indigenous people and bio–piracy – theft of plants and indigenous knowledge and techniques under guise of legal patent processes (Brazil, Peru)
e.g., subsistence versus industrial production – uses of bio–technology such as GMOs and other forms of technology to increase yields beyond the norm and beyond precaution, for profit purposes (Zambia)
e.g., conflicts over energy supply – related to the concentration of world's hydrocarbon reserves in specific regions (Iraq, Iran, Venezuela)
Conflicts over Transference of Harm
e.g., cross–border pollution – movement of pollutants through fluid medium such as water, or via air currents (China, Russia, Germany, Hungary)
e.g., transborder movement of toxic waste – corruption of companies and organised crime in re–distributing waste to countries of least resistance, or the oceans and deserts of the world (Somalia, Ivory Coast, Nigeria)
e.g., circulation of pollution and waste – such as concentration of plastics in specific geographical locations and planetary sinks (Ocean gyres, Antarctic ozone hole)

Figure 1 provides a survey of likely areas of conflict in the foreseeable future. The conflicts include those pertaining to diminished environmental resources, to the impacts of global warming, to differential access and use of nature, and to friction stemming from the cross-border transference of harm. The figure also indicates some of the countries already implicated in some of these forms of conflict.

The urgency of and need for progressive criminological intervention is illustrated by this kind of charting up emergent social issues related to climate change. Managing social conflict, much less dealing with the grossest incidences of environmental harm, will demand great resolve, sharpened analytical tools and high level strategic thinking. It also demands that we interrogate the causes of specific conflicts, the general deterioration of global environmental systems and the distributions of power, energy and wealth on a world scale. The transnational corporation stands at the apex of global social and economic power, while the nations of the G8 occupy the commanding heights of the (increasingly fragile) political world order. Confronting the present realities of the North-South divide, and the legacies of imperialism and colonialism, constitute yet another dimension to the social conflicts mapped out above. Indeed, underpinning many of the conflicts occurring 'elsewhere' (i.e., in the non-Western world) are processes and decisions made in the metropole – the United States and the European Union. Grain for bio-fuel rather than food is one example of how conflict over food in some countries has its origins in changes in commodity production in another.

The critical lens of environmental criminology

At a descriptive level we can identify many different sorts of social conflict that stem from or are closely associated with climate change. In developing an environmental research agenda we need to consider what kind of value-adding that criminology can provide to interpretation and action on these issues. To put it simply, what distinctive contribution can criminology make with respect to issues surrounding global warming? One answer is that it can offer both conceptual innovation and technical prowess to the deliberations. Each is important to forging new pathways to understanding and to the development of appropriate policies and practices of intervention.

Gaining perspective: an eco–global criminology

An *eco–global criminology* refers to a criminological approach that is informed by ecological considerations and by a critical analysis that is worldwide in its scale and perspective.

How we interpret and respond to global developments depends upon how we define environmental harm, how we envisage the protection of human, ecological and animal rights, and how we understand the power and interests that underpin recent trends and issues.[4] For critical environmental criminology there is no doubt that new typologies of

4 See for example, Y. Situ and D. Emmons, *Environmental Crime: The Criminal Justice System's Role in*

harm have to be developed, new methodologies for global research instigated, and new modes of social control devised if we are to adequately address the present issues.

Figure 2 summarises the basic propositions about the nature of environmental harm in relation to three approaches: conventional criminology, an ecological perspective, and green criminology.[5] There are important areas of overlap and synergy between these three approaches to environmental issues. Activity such as illegal fishing, for example, is of concern to the conventional criminologist as it would be to the marine scientist and the green criminologist. But, for the latter two perspectives, so too would be the harms associated with fish farms, such as spread of infections and use of carcinogenic substances to ward off fungus among penned fish populations. Indeed, the distinction between sustainable/non-sustainable is increasingly important in terms of how harm is being framed and conceived. Yet, as green criminology in its various strands indicates, the notions of legal/illegal and sustainable/non-sustainable themselves need to be interrogated from the point of view of eco-justice. This takes us into the realm of eco-philosophy and the value of living and non-living entities, as much as into the practical determination of how best to conceptualise harm.[6]

Protecting the Environment (Thousand Oaks: Sage, 2000); G. Hayman and D. Brack, *International Environmental Crime: The Nature and Control of Environmental Black Markets* (London: Sustainable Development Programme, Royal Institute of International Affairs, 2002); M. Lynch, "The Greening of Criminology: A Perspective on the 1990s", *The Critical Criminologist 2*, no.3 (1990): 1–4 and 11–12; P. Beirne and N. South, N. (eds), *Issues in Green Criminology: Confronting Harms Against Environments, Humanity and Other Animals* (Devon: Willan, 2007); and White, *Crimes Against Nature*.

5 R. White, "The Criminalisation of Environmental Harm", *Criminal Justice Matters* (London: Centre for Crime and Justice Studies, King's College, 2008).

6 White, *Crimes Against Nature*.

Figure 2

Three Approaches to Conceptualising Environmental Harm

Conventional Criminology

Legal conceptions of harm as informed by laws, rules and international conventions.

Key issue is one of legality, and the division of activities into legal and illegal categories.

- Illegal taking of flora and fauna – which includes activities such as illegal, unregulated and unreported fishing, illegal logging and trade in timber, and illegal trade in wildlife
- Pollution offences – which relates to issues such as flytipping (illegal dumping) through to air, water and land pollution associated with industry
- Transportation of banned substances – which refers to illegal transport of radioactive materials and the illegal transfer of hazardous waste.

Ecological Perspectives

Ecological wellbeing and holistic understandings of interrelationship between species and environments.

Key issue is that of sustainability, and the division of social practices into benign and destructive from the point of view of ecological sustainability.

- Problem of Climate Change – in which the concern is to investigate those activities that contribute to global warming, such as the replacement of forests with cropland
- Problem of Waste & Pollution – in which the concern is with those activities that defile the environment, leading to things such as the diminishment of clean water
- Problem of Biodiversity – in which the concern is to stem the tide of species extinction and the overall reduction in species through application of certain forms of human production, including use of genetically modified organisms.

Green Criminology

Justice conceptions based upon notions of human, ecological and animal rights and egalitarian concerns.

Key issue is weighing up of different kinds of harm and violation of rights within the context of an eco–justice framework.

- Environment rights and environmental justice – in which environmental rights are seen as an extension of human or social rights so as to enhance the quality of human life, now and into the future.
- Ecological citizenship and ecological justice – in which ecological citizenship acknowledges that human beings are merely one component of complex ecosystems that should be preserved for their own sake via the notion of the rights of the environment.
- Animal rights and species justice – in which environmental harm is constructed in relation to the place of nonhuman animals within environments and their intrinsic right to not suffer abuse, whether this be one–on–one harm, institutionalised harm or harm arising from human actions that affect climates and environments on a global scale.

Source: R. White, *The Criminalisation of Environmental Harm*

The research agenda offered by environmental or green criminology is one that expresses a concern that there is an inclusive definition of harm, and that a multidisciplinary approach is adopted to the study of environmental harm. For example, there are a number of intersecting dimensions that need to be considered in any analysis of specific instances of environmental harm. These include consideration of who the victim is (human or non-human); where the harm is manifest (global through to local levels); the main site in which the harm is apparent (built or natural environment); and the time frame within which harm can be analysed (immediate and delayed consequences). Many of the key features pertaining to environmental harm are inherently international in scope and substance. Expanding our vision to incorporate the large and the small, the ecological and the social, the temporal and the spatial – these are essential to a theoretically informed analysis of social conflict and climate change.

There already exists ample documentation of environmental harm across many different domains of human activity. One task of eco-global criminology is to name these harms as 'criminal', even if not considered illegal in conventional terms. Those who determine and shape the law are very often those whose activities need to be criminalised for the sake of planetary wellbeing. Environmental harm is thus intrinsically contestable, both at the level of definition, and in terms of visions of what is required for desired social and ecological change. The question of power is of vital concern to eco-global criminology.

Engaging the World: Centre–Periphery Studies

Analysis of environmental harm does not only require acknowledgement of diverse conceptions of harm, and the ways in which power and vested interests shape what is deemed to be harmful. It also demands that we listen to the voices of the less powerful. In academic terms, this translates into forms of knowledge production and knowledge consumption that is truly global in scope.

For instance, Connell queries whose knowledge, whose perspectives, and whose ideas come to dominate our understandings of the social world in the West.[7] In a nutshell, whose voices are heard, and whose perspectives are not addressed? The answer is that it is those in the metropoles of the United States and Europe who dominate world narratives on climate change, as well as issues directly relevant to criminology.[8]

The hegemony of the centre influences the criminological project, whether this is in regards to terrorism or to environmental harm. For example, there are hegemonic accounts of how 'globalisation' is conceived, and great selectivity in which authors are perceived to be authorities on the processes and effects of such. As Connell points out, rarely are authors, writers and researchers from the south (read, developing countries, Indigenous peoples,

7 R. Connell, Southern Theory: *The global dynamics of knowledge in social science* (Sydney: Allen & Unwin, 2007).

8 I. Marshall, "The Criminological Enterprise in Europe and the United States: A Contextual Exploration", in *Global Criminology and Criminal Justice: Current Issues and Perspectives*, eds. N. Larsen and R. Smandych (Peterborough, Ontario: Broadview Press, 2008).

Islamic scholars and so on) consulted, read or acknowledged in the academic studies and research of the centre.[9] This occurs even when the topic is their own country, and when the issues are of most pertinence and direct relevance to themselves and their people.

Thus, from what vantage point are we going to assess global environmental changes and the social conflicts taking place in many different parts of the planet? Those who undertake research are themselves physically grounded in the world – they live and work and play in specific places. They are embedded within particular intellectual fields and cultural contexts. To speak of the transnational or the global, therefore, demands an appreciation that the 'transnational' is very often conceptually located within familiar scholarly universes. The development of a truly eco-global criminology will require breaking the chains of parochialism, elitism and (implicitly) a colonialist mentality.[10]

The expertise required to undertake research is a perennial issue: outside 'experts' are the bane of many a developing country's existence insofar as local knowledge and capacity building is ignored in favour of relying on 'trained' personnel from the metropole. On the other hand, the political realities within some nation-states suggest that it may be best that an 'outsider' carry out the research if issues of safety, security and independent knowledge production are at stake. Insider/outsider relationships are contingent, therefore, upon local resources, staff availability and political contexts, and thus require 'sensitivity to situation' on the part of researchers.[11]

Such sensitivity in turn points to the importance of collaboration as a guiding concept of transnational research. How can one be sensitive to situation if you are not actually talking and engaging with local people (including local intellectuals, broadly defined)? The notion of outsider/insider is a real and meaningful distinction that is forged in the crucible of local experiences, longstanding cultural traditions, relationship to imperial power and positioning in the wider global political economy. Bridging the gap requires dialogue (not monologue), listening (not lecturing) and give-and-take interchange (not just giving, or just taking).

Informed expertise is built upon processes that expand the horizons of knowledge and that, as part of this, incorporate the insights of many people from many different backgrounds. This involves reference to Indigenous knowledges and technologies[12], as well as regional non-metropole social thought.[13] It includes the wisdom of the fisher and the farmer, the local resident and lay person, as well as the trained scientist.[14] Those who have lived and worked in the same area for years, are frequently those who notice the small changes that are the harbingers of bigger transformations to come.

9 Connell, *Southern Theory*.

10 R. White, "Researching Transnational Environmental Harm", *International Journal of Comparative and Applied Criminal Justice* 33, no2 (2009).

11 White, "Researching Transnational Environmental Harm".

12 L. Robyn, "Indigenous Knowledge and Technology", *American Indian Quarterly* 26, no2 (2002):198–220.

13 Connell, *Southern Theory*.

14 White, *Crimes Against Nature*.

Putting Things into Context: Global–Local Integrations

The struggle for basic food provision has intensified over the past two years and is set to continue well into the future. Anti-privatisation protests have taken place in countries like Bolivia and South Africa in regards to provision of clean drinking water. Food riots have occurred in places such as Mexico, Haiti, Indonesia and Cameroon, as grain prices skyrocket and food availability has declined.

The exploitation of the world's natural resources by the major transnational corporations occurs through the direct appropriation of lands, plants and animals as 'property' (including intellectual property as in the case of patents). It also occurs through the displacement of existing systems of production and consumption by those that require insertion into the cash-buyer nexus, in other words, the purchase of goods and services as commodities. This has happened in the area of food production as it has in other spheres of human life.

Analysis of world grain trade over four decades from 1950 demonstrates a major shift in the status of developing countries from exporters of food to importers of food.[15] Africa, for example, was virtually self-sufficient in grain production in 1950; by 1998 it was heavily reliant upon outside producers. Western Europe, by contrast, has gone from net importer to major exporter of grains. North America, and Australia and New Zealand, have systematically increased their share of world grain production over the same period of time.

This shift in world grain trade is best explained in terms of neo-liberal economic restructuring, which has transformed countries such as The Philippines from a net food exporter to a net food importer. The process has involved structural adjustment practices, under the auspices of the World Bank and the International Monetary Fund. This has consisted of the simultaneous phenomenon of state divestment from agricultural production (e.g., lifting of price controls on fertiliser), and trade liberalisation that has allowed heavily subsidised US and EU meat and grain producers to flood host markets with cheaper commodities. For example, 'From $367 billion in 1995, the total amount of agricultural subsidies provided by developed-country governments rose to $388 billion in 2004. Since the late 1990s subsidies have accounted for 40 percent of the value of agricultural production in the European Union and 25 percent in the United States'.[16] The result has been the collapse of local producer capacities and markets; and the transformation from self-sufficiency amongst peasant producers to national dependency upon corporate supplied food.[17]

This has not been without a major cost in global terms, as well as for the major producer countries. For example, there has been a major expansion in cropland worldwide. 'Viewed in a wider historical context, more land was converted to cropland in the 30 years after

15 H. French, *Vanishing Borders: Protecting the Planet in the Age of Globalization* (New York: WW Norton & Company, 2000).

16 W. Bello, "How to manufacture a global food crisis: lessons from the World Bank, IMF, and WTO", (Transnational Institute, 16 May 2008) (http://www.tni.org/detail_page.phtml?&&act_id=18285) [accessed 3 June 2008].

17 Bello, "How to manufacture a global food crisis".

1950, than in the 150 years between 1700 and 1850'.[18] The environmental impact is loss of habitat and biodiversity; soil water retention and regulation; disturbance of biological cycle; increase of soil erosion, nutrient depletion, salinity, and eutrophication. For humans, there is greater exposure to agrochemicals in air, soil and water.

Many of the contemporary environmental harms are related to how the basic means of life of humans is being reconstituted and re-organised through global systems of production. For example, the 'globalisation of food production and manufacture and the use of new technologies and chemicals in farming and food processing have created a variety of risks to humans, non-human animals, the environment and health'[19] and in many cases we still do not know the longer term effects of new developments in the food area. What is happening to food generally is symptomatic of how commodification is taking place vis-à-vis all aspects of human life and in all parts of the globe.

Patent protection ensures that the big agribusiness companies are able to control markets and production processes.[20] This is based upon patents of existing organic materials (that is, through bio-piracy) and technological developments (that is, through genetic modification of organisms). The point is to make direct producers – the farmers – reliant upon commercially-bought seeds (and related products such as fertiliser and pesticides).

The interests of agribusiness are also reflected politically in terms of how some governments are responding to issues such as climate change. For example, the push toward biofuel production reflects the interests of large agricultural businesses, who can patent the monocultural crops designed as 'energy crops'. Restoring and protecting trees, while ecologically more sound and efficient, would be less profitable.[21] Moreover, keeping the ball in the court of the 'new technologies' of genetically modified organisms (GMOs) means less attention to the devastation wrought by current legal and illegal logging, which is likewise profitable for the businesses and organised criminal syndicates involved in both first and third world countries.

Powerful interests, including car manufacturers and grain farmers, have benefited from the search for energy alternatives to fossil fuels. The shift to biofuel is seen as a key source of green fuel supply for the world's car manufacturers. Greater demand for biofuel crops such as corn, palm oil or soya also means that farmers are finding the growing of such crops very lucrative economically. However, the trend toward biofuel is generating its own problems[22], such as food price rises and food shortages.

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18 UNEP, *Global Environment Outlook*, 86.

19 H. Croall, "Food Crime", in *Issues in Green Criminology: Confronting Harms Against Environments, Humanity and Other Animals*, eds. P. Beirne and N. South (Devon: Willan, 2007).

20 See White, *Crimes Against Nature*; I. Mgbeoji, *Global Biopiracy: Patents, Plants, and Indigenous Knowledge* (Vancouver: UBC Press, 2006).

21 M. Munro, "Biofuels come up short as way to reduce carbon load, study finds", *The Vancouver Sun* (17 August 2007): A3.

22 Reuters 'Committee calls for biofuel moratorium' (21 January, 2008) [accessed 21.01.2008]; Reliable Plant, "New study favors tree over corn as biofuel source". (Nov/Dec 2007) [accessed 21.01.2008]; News.scotsman.com, "Burning issue: Biofuel targets and subsidies: is it time for a moratorium?" (21 January, 2008) [accessed 21.01.2008].

Biofuel production in places such as the United States and the European Union is encouraged through strong incentives and mandates, such as tax credits, and energy legislation such as mandatory blending requirements. As indicated, the advent of biofuels has helped to push up prices for grains worldwide, and to bolster the prospects of the grain producing countries.[23] It has, however, been accompanied by ecological costs in the form of degraded environments and social costs in the form of high prices for food, especially in less developed and import-dependent countries.

This kind of analysis – one that examines specific events such as food riots from the point of view of global processes – offers insights into the causes and consequences of particular trends. Importantly, eco-global criminology provides a framework for explaining social disorder within specific regional and national contexts. It also provides an eco-justice framework that can illuminate the close interconnections between exploitation of environments, nonhuman animals and humans via dominant systems of production and consumption.

Taking Action on Environmental Issues and Harms

Environmental criminology has to have a forward-looking component if human, biosphere and nonhuman interests are to be protected into the future. This means interventions now to guarantee environmental wellbeing later. Differences in opinion over future consequences means that those who take action now (such as protesting against a large polluting pulp mill) for the sake of up-and-coming generations may well be criminalised in the present. But the history of law reform is built precisely upon such tensions. This has implications for both crime prevention and policing practices, which in turn opens the door to further research questions and opportunities.

The uncertainties surrounding future impacts and consequences means that debate will occur over when preventative measures need to be introduced as a precautionary measure. This is especially so in relation to global warming and the debates over what to do about climate change. The politics of ecological sustainability will inevitably collide with the interests of economic growth, since greater adherence to the precautionary principle will almost always lead to curtailment of existing profit-making enterprises.

Preventing Harm: Dealing with Risk and Pre–Caution

Environmental crime prevention encompasses a range of substantive considerations. It must deal with acts and omissions that are already criminalised and prohibited, such as illegal fishing or illegal dumping of toxic waste. It must also come to grips with events that have yet to be designated officially as 'harmful' but that show evidence of exhibiting potentially negative consequences. Environmental crime prevention likewise has to negotiate different kinds of harms, as these affect humans, local and global environments, and nonhuman animals.

23 D. Mitchell, "A Note on Rising Food Prices", Draft World Bank paper, circulated on–line by The Guardian Newspaper, website (guardian.co.uk/environment, 2008). [accessed 11 July 2008].

One of the mandates of eco-global criminology is to foster greater attention, analysis and action in regards to environmental harm. From the point of view of environmental crime prevention, the tasks are both instrumental and symbolic. We want to put into place strategies that protect certain peoples, places and creatures. At the same time, we want to signal to the community as a whole that this particular project is significant and that it expresses our collective values about 'what counts'. For instance, the establishment of 'green zones' in the Great Barrier Reef Marine Park is important, not only because it secludes certain areas from human interaction, but it sends a strong message that ecological wellbeing does count in human calculations of marine interests. Likewise, as we think about what can and needs to be done about climate issues, we have to be cognisant that combating global harms will require a full spectrum of techniques, technologies, expressive symbols and community inputs.

One of the key lessons from conventional crime prevention is that it ought to be based largely on a *problem–solving*, rather than policy-prescribed, model of intervention.[24]

Different kinds of places lend themselves to different sorts of environmental harms and different kinds of intervention. Some issues are of a planetary scale (e.g., global warming), others regional (e.g., oceans and fisheries), some are national in geographical location (e.g., droughts in Australia), while others are local (e.g., specific oil spills).

Different kinds of harm likewise tend to call forth different kinds of responses. For example, generally speaking, environmental issues can be categorised according to three different types of harm.[25] *Brown* issues tend to be defined in terms of urban life and pollution (e.g., air quality), *green* issues mainly relate to wilderness areas and conservation matters (e.g., logging practices), and *white* issues refer to science laboratories and the impact of new technologies (e.g., genetically modified organisms). Conceptualising environmental issues in this way helps to demonstrate the link between environmental action (usually involving distinct types of community and environmental groups), and particular sites (such as urban centres, wilderness areas or seacoast regions).

A problem-solving approach to crime prevention demands a certain level of specificity. That is, general pronouncements about the nature of harm need to be accompanied by particular site or harm analysis. Here there is much to learn from conventional crime prevention methods and techniques that can be applied specifically in regards to environmental harms. Two particular types of crimes will be discussed in order to illustrate this.

We can envisage a wide range of techniques, approaches and strategies to environmental crime prevention vis-à-vis illegal fishing.[26] However, while suggestive of possible interventions, the application of general crime prevention knowledge and techniques only makes sense and 'works' when put into specific fishing contexts. Studies of particular types of il-

24 A. Sutton, A. Cherney and R. White, *Crime Prevention: Principles, Perspectives and Practices* (Melbourne: Cambridge University Press, 2008).

25 White, *Crimes Against Nature.*

26 White, *Crimes Against Nature.*

legal fishing, such as abalone, lobster and toothfish, show great variation in motives, techniques, local cultures and scale of operation.[27] Also, for example, while incentives might be crucial to forestalling illegal fishing by Indonesian traditional fishers in Australian waters, trade-related regulation would be more appropriate as a means to deal with large-scale illegal fishing.[28] In other instances, a variety of situational measures can be applied that have a distinct marine application.[29] The specificity of the harm ought to drive the particular type of intervention that is adopted in any given situation. This, in turn, requires close analysis of the multiple facets of each type of harmful activity.

New techniques of crime prevention, in the area of burglary prevention for example, can be productively used in regards to specific sorts of environmental crime. For instance, the 'market reduction approach' could well be effective in responding to transnational environmental harms such as illegal trade in endangered species.[30] This involves a shift in focus from the individual offender, to the broader markets within which trade in illegally acquired goods is carried out. The market reduction approach, as applied to the illicit endangered species trade, seeks to identify the routine patterns of those involved: poachers, handlers, and consumers – those who hunt, transform, transport, and buy the wildlife (the likely offenders); the precise wildlife being hunted, transformed, transported, and purchased (the suitable targets); and those whose remit is to actually conserve and protect those species (conservators, police, customs, and wildlife officers). Schneider argues that such an approach can be expanded beyond its current use (in dealing with conventional crimes such as burglary and the stolen goods market) into the realm of non-traditional types of property crime such as the illegal trade in endangered flora and fauna.[31]

While the specificity of the harm demands specificity in response, there are some forms of environmental harm that cannot be contained easily due to the enormous scope of the problem. For example, the transnational movement of and illegal dumping of toxic waste will require international cooperation amongst nation-states and social movement activists. Coordination of environmental crime prevention will require free exchange of information and constant surveillance, as well as creative thinking vis-à-vis grappling with issues such as scarcity of water, diminished food sources and expanded need for adequate waste treatment

27 R. Tailby and F. Gant, *"The Illegal Market in Australian Abalone", Trends & Issues in Crime and Criminal Justice No.225.* (Canberra: Australian Institute of Criminology, 2002); J. McMullan and D. Perrier, "Lobster Poaching and the Ironies of Law Enforcement", *Law & Society Review*, 36, no.4 (2002): 679–720; G. Lugten, "Big Fish To Fry – International Law and Deterrence of the Toothfish Pirates'", *Current Issues in Criminal Justice*, 16, no.3 (2005): 307–321; and K. Anderson and R. McCusker, *Crime in the Australian Fishing Industry: Key Issues.* Trends & Issues in Crime and Criminal Justice, No.297 (Canberra: Australian Institute of Criminology, 2005).

28 M. Lack, *Catching On? Trade–related Measures as a Fisheries Management Tool* (Cambridge: TRAFFIC International, 2007).

29 R. Smith and K. Anderson, *Understanding Non–compliance in the Marine Environment.* Trends and Issues in Crime and Criminal Justice, No. 275 (Canberra: Australian Institute of Criminology, 2004).

30 J. Schneider, "Reducing the Illicit Trade in Endangered Wildlife: The Market Reduction Approach", *Journal of Contemporary Criminal Justice*, 24, no.3 (2008): 274–295.

31 Schneider, "Reducing the Illicit Trade in Endangered Wildlife".

facilities. Climate change and how to deal with it will ultimately require global action. It will also involve the criminalisation of what today is considered acceptable practice. For example, the imposition of severe water restrictions, and harsher penalties in regards to wasteful water use, is just one harbinger of things to come.

Applying Eco–Human Rights: States, Security and Refugees

As with conventional crime prevention, displacement may well occur where good environmental crime prevention measures are introduced. For example, a tightening up of regulation in respect to the shipment of toxic waste in Europe or the USA may well force companies to re-locate their factories to places such as Mexico and Africa where vulnerable governments have less rigid controls on production and waste treatment. The Not In My Back Yard (NIMBY) syndrome will produce unintended consequences that perpetuate environmental harm. Therefore, a global perspective is essential when it comes to environmental crime prevention.

So too, when subsistence fishing, farming and hunting withers due to overexploitation and climate change, then great shifts in human populations and in resource use will take place. The environmental refugee poses a whole new set of questions for criminology.[32] Indeed, the relationship between environmental change, climate-induced displacement and human migration is already generating much angst within some Western government circles and is reinforcing the development of a fortress mentality within particular jurisdictions (whether this is the joined-up countries such as the European Union or discreet nation-states such as Australia). While the phrase 'environmental refugee' is contentious[33], displacement of people due to environmental-related causes has major legal, human rights and national security concerns.[34] This is not a new problem, as such migrations have been experienced in Southern Africa[35] and are presently at the top of the agenda for many Islanders living in the South Pacific.

From the point of view of national interests and international security, the mass movement of peoples is generally presented as a significant problem.[36] In particular, there is a popular inclination to view third-world ecological ruin as first and foremost a threat to first-world

32 See for example, Refugees Studies Centre, *Forced Migration Review, Issue 31 – Climate Change and Displacement*, October 2008 (Oxford: Oxford Department of International Development, 2008).

33 S. Castles, *Environmental Change and Forced Migration: Making Sense of the Debate*. New issues in refugee research, Working paper no.70 (Geneva: Evaluation and Policy Analysis Unit, United Nations High Commissioner for Refugees, 2002).

34 J. McAdam and B. Saul, "An Insecure Climate for Human Security? Climate–Induced Displacement and International Law", in *Human Security and Non–Citizens: Law, Policy and International Affairs*, eds. A. Edwards & C. Fertsman (Cambridge: Cambridge University Press, 2008); Refugees Studies Centre, *Forced Migration Review.*

35 M. Singh, "Environmental Security and Displaced People in Southern Africa", *Social Justice*, 23, no.4 (1996): 125–133.

36 J. Solano and B. Ferrero–Waldner, *Climate Change and International Security*, Paper from the High Representative and the European Commission to the European Council. (Brussels: European Union, 2008).

stability and existing wealth. For eco-global criminology, the challenge is to critique and respond to images and constructions of the climate-induced migrant as someone who should be subjected to criminalisation and law enforcement rather than humanitarian issues.[37] The reaches of state security are expanding beyond state borders through varying forms of preemptive action in order to restrict the migration process. The so called 'Pacific Solution' in Australia, for example, had meant the detainment of asylum seekers off-shore in neighbouring island states, rather than allowing them entry into Australian territory proper. As environmental conditions deteriorate due to global warming, the size and extent of migration will be shaped by geography, global power relations and defence of human rights.

What the issue of migration and issues relating to particular kinds of resource use indicate (e.g., traditional fisheries versus commercial) is that people in different circumstances have different kinds of choices. The small-scale subsistence fisher has much less power, and exercise of agency, than does the large-scale trawler operator. Disparities in power and resources ought not to translate into seeing the more vulnerable and disadvantaged as easy targets for crime prevention (analogous to dealing with 'street crime') while the criminal actions of corporate polluters and large-scale organisations receive less concerted attention. Moreover, the plight of the dispossessed and disadvantaged means that often any environmental destruction brought about by their actions (cutting down of forests, overfishing) is best remedied by social justice initiatives rather than criminal justice interventions, whether these take the form of crime prevention or law enforcement. Similarly, the person with no land and no natural resources already faces a huge and daunting task to survive – to be subjected to ill treatment and placed in prison (i.e., detention centres) constitutes an additional harm that violates their very being.

Social conflicts stemming from ecological changes are not easily resolved. One area that contemporary criminology can usefully be drawn upon in order to deal with such conflict is that of peacemaking criminology.[38] The basic philosophy of this strand of criminology is that we cannot solve violence or human suffering with more violence and more human suffering. Instead, it is argued that humanistic and restorative principles need to be adopted at the level of dealing with the offender, and in dealing with wider social conflicts as well. The emphasis is on transformative strategies that are themselves premised upon participatory forms of conflict resolution.

Peacemaking criminology, therefore, tends to stress mediation, conflict resolution and reconciliation as preferred methods with which to deal with human suffering and wrongdoing. Non-violent ways of thought and action are essential to the peacekeeping conception of restorative justice. McEvoy argues that contemporary peacemaking criminology should include:

- An explicit focus on jurisdictions where actual political or ethnic conflicts are occurring.
- A recognition of the idea that political engagement is necessary and that conflict trans-

37 S. Pickering, *Refugees & State Crime* (Sydney: Federation Press, 2005).

38 H. Pepinsky and R. Quinney (eds) *Criminology as Peacemaking* (Indiana University Press, Bloomington, 1991).

formation be based upon the objective of trying to make a difference.

- A substantive engagement with human rights discourses, particularly as a counterweight to those sorts of moral relativism that can impede practical intervention.
- A reframing of the evaluation of 'what works' into a political rather than a technical exercise, thereby acknowledging the profound transformations in individuals, groups and communities that peacemaking criminology, somewhat ambitiously, wishes to make manifest.[39]

Philosophically, and increasingly at a practical level of intervention, peacemaking criminologists wish to challenge violence, repression and humiliation as preferred modes of conflict resolution – whether this be at the level of individuals, groups, families, communities or nation-states. Conversely, drawing upon human rights discourses and restorative justice activities such as community mediation, and by stressing the positive value of non-violent alternatives and the vital need to address the material reasons for social differences, peacemaking criminology aims to transform social settings in more profound ways than traditional criminal justice approaches. This, too, is not without its own controversies.[40]

All of this is highly relevant to discussion of social conflicts arising from scarcity of food and water, the harms that flow across regions and borders, and the forced migration of people from their homes due to climate change.[41] Peace building will necessarily involve a holistic approach to not only social institutions and political processes, but ecological conditions and environmental rights. It will also have to address issues of state denial of government and corporate wrongdoing, and public indifference to the plight of people, environments and nonhuman animals located 'somewhere else'.[42]

Policing and Environmental Conflict

Social conflict inevitably means police intervention – of some kind. The policing of public order represents special challenges for the police, operationally in terms of choice of tactics and strategies, and politically with regard to the social environment within which events take place. Such policing is highly visible, and has a high impact. Failure to prevent violence through police inaction, or escalating violence through police intervention, are constant dilemmas faced by police as they respond to specific kinds of events and situations. This includes responding to situations generated by climate change – food riots, conflicts over water, protests against carbon emissions from coal-powered plants, and the list goes on.

The assumptions about the policed, the techniques and style of intervention, and the opera-

39 K. McEvoy, "Beyond the Metaphor: Political Violence, Human Rights and 'New' Peacemaking Criminology", *Theoretical Criminology*, 7, no.3 (2003): 319–46.

40 E. Stanley, *Torture, Truth and Justice: The Case of Timor–Leste* (London: Routledge, 2008).

41 See for example, Smith and Vivekananda, *Climate of Conflict*.

42 S. Cohen, *States of Denial: Knowing About Atrocities and Suffering*. (Cambridge: Polity Press, 2001).

tional strategies employed in dealing with events such as riots all impact upon the course and consequences of these events. The policing of demonstrations in recent years, for example, has been accompanied by critical examination of policing practices, including police violence and over-reaction, whether this be Melbourne, Seattle or Genoa.[43] Three main interrelated strategic areas for protest control have been identified[44]: *coercive* strategies (e.g., use of weapons and physical force), *persuasive* strategies (e.g., discussion between police and protestors), and *information* strategies (e.g., widespread information gathering before, during and after a protest). Years of experience with demonstrations, across many different national contexts, have been consolidated into forward planning and preventative work that draw upon coercive, persuasive and information strategies. Simultaneously, protest movements likewise have learned from experience how to maximise their political impact, even if this, at times, leads to conflict with police.

It would seem that 'low profile' policing and good respectful practice is generally more effective than a coercive paramilitary style of policing.[45] Reaching for the 'big stick' may in fact antagonise protagonists and generate the kinds of violence that good policing is meant to minimise. Again, police stereotypes and attitudes toward hooligans have been shown to influence how police contribute to the conflict, including the escalation of conflict.[46] Could the same be said about police stereotypes of environmental activists and protestors?

Further issues of public order policing relate to matters such as the influence of the wider political environment on specific event policing, the tensions between paramilitary styles and peacekeeping modes of operation, and the precipitation and amplification of violence due to the policing approach adopted. Good practice in public order policing is hard to separate from political pressures to operate in particular ways. Whether it be policing of hooligans, anti-globalisation protests, environmental activists or rioters, the method of intervention has practical as well as symbolic purchase.

For example, a comparison of public order policing in Canada and Bolivia around anti-globalisation demonstrations provides disturbing evidence of the politicisation of policing to the detriment of good policing practice. It is argued that police tactics are increasingly being influenced by transnational political agendas, which are about avoiding embarrass-

43 J. McCulloch, "Paramilitary Surveillance: S11, Globalisation, Terrorists and Counter–Terrorists", *Current Issues in Criminal Justice*, 13, no.1 (2001): 23–35; P. Gillham and G. Marx, "Complexity and irony in policing and protesting: The World Trade Organization in Seattle", *Social Justice*, 27, no.2 (2000): 212–237; D. Della Porta and H. Reiter, "The Policing of Global Protest: The G8 at Genoa and its Aftermath", in *The Policing of Transnational Protest*, eds. D. Della Porta, A. Peterson and H. Reiter (London: Ashgate Publishing, 2006).

44 Della Porta and Reiter, "The Policing of Global Protest".

45 C. Stott, O. Adang, A. Livingstone and M. Schreiber, M., "Variability in the collective behaviour of England fans at Euro2004: 'Hooliganism', public order policing and social change", *European Journal of Social Psychology*, 37 (2007): 75–100.

46 C. Stott, "Police expectations and the control of English soccer fans at Euro 2000", *Policing: An International Journal of Police Strategies & Management*, 26, no.4 (2003): 640–656; S. Reicher, C. Stott, P. Cronin and O. Adang, O. (2004) "An integrated approach to crowd psychology and public order policing", *Policing: An International Journal of Police Strategies & Management*, 27, no.4 (2004): 558–572.

ment, instead of the use of the most appropriate, effective and non-violent methods.[47] In contrast to the 'negotiated management' policing that is adopted in many other public order situations, in the specific case of anti-globalisation events the emphasis tends to now be on escalated use of force and extensive coercion. This, in turn, has major implications for public order policing in other areas, and the relationship between police and the policed in future planned and spontaneous events.

Not all policing is about policing environmentalists or dealing with street level disorder stemming from eco-global changes. Policing, as well, deals with investigation and prosecution of environmental offenders.

Global issues demand global responses. This pertains to policing as much as it does to laws, policies and overall environmental strategies. Dealing with global warming, and the specific contributing factors to global warming (including both legal and illegal carbon emissions, legal and illegal logging practices, systematic reductions in biodiversity via extensive reliance on GMOs, extinction and endangering of species, etc.), ultimately will call forth concerted coercive action to combat environmental harm. The role and capacities of the police are essential in this regard.

However, existing police practices in regards to environmental crime (much less other forms of environmental harm) presently leave much to be desired. A scoping analysis of law enforcement practices and institutions in Brazil, Mexico, Indonesia and the Philippines found common problems across the different sites.[48] They included:

- Poor interagency cooperation.
- Inadequate budgetary resources.
- Technical deficiencies in laws, agency policies, and procedures.
- Insufficient technical skills and knowledge.
- Lack of performance monitoring and adaptive management systems.

These challenges are global in application, although the specific nature of the challenge will vary depending upon national and regional context. Basically the message is that more investment in enforcement policy, enforcement capacity and performance management is essential regardless of jurisdiction.

More thought also has to go into how best to organise environmental law enforcement. One thing seems to be clear, and that is that there is a need for contemporary policing to be highly flexible and to include diverse organisational forms pertinent to the tasks at hand. This will vary from country to country. For example, in Israel there is a special group of Green Police whose job is specifically related to environmental offences; in The Netherlands

47 J. Sheptycki, "Policing Political Protest When Politics Go Global: Comparing Public Order Policing in Canada and Bolivia", *Policing and Society*, 15, no.3 (2005): 327–352.

48 A. Akella and J. Cannon, *Strengthening the Weakest Links: Strategies for Improving the Enforcement of Environmental Laws Globally* (Washington, DC: Center for Conservation and Government, 2004).

such policing is expected to be carried out by all police and, accordingly, general training in environmental policing is part and parcel of ordinary police training. The operational form of policing will also vary depending upon the nature of the problem. For instance, in some cases 'flying squads' may be created, that are comprised of personnel from different agencies and that reflect interagency collaboration and expertise relevant to the issue at hand. Thus, tackling the problem of Mafia control over the waste disposal industry in Naples will demand different organisational and tactical requirements than dealing with illegal fishing off the coast of Tasmania. The specific crime in question will shape the organisational make–up and operational activities of environmental law enforcement.

Study of transnational policing has also noted a number of trends that signal greater movement toward global systems of law enforcement.[49] Key aspects include:

- Negotiation of bilateral and multilateral law enforcement agreements.
- Creation of bilateral and multilateral law enforcement organisations, working groups and conferences.
- Inclusion of foreign police agents in training programs (and training of police from other countries in their own country).
- Stationing of liaison officers in foreign countries.
- Role of transnational moral entrepreneurs who mobilise popular opinion and political support and lobby governments.

Environmental law enforcement will require collaboration between different nation-states and police services. It may well also require the setting up of some form of planetary police, preferably backed up by an International Environment Court (or equivalent) with requisite United Nations support. This is especially so if we are to adequately deal with environmental matters such as those pertaining to the international spaces of our oceans (e.g., pollution, concentrations of plastic, illegal fishing, transference of toxic materials).

As noted above, the development of capabilities in the specific area of environmental law enforcement is necessary, and somewhat inevitable given world trends. An important part of this development must include the development of an ecological consciousness and sense of environmental justice amongst enforcement personnel.

> *The common sentiment that a cop is a cop no matter whose badge is worn, and a criminal a criminal regardless of citizenship or where the crime was committed, serves as a form of transnational value system that can override both political differences and formal procedures. It provides the oil and glue of international law enforcement.*[50]

Understanding the complexities of environmental issues is an important step in forging a transnational value system protective of specific biospheres, nonhuman animals and human interests.

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49 P. Andreas and E. Nadelmann, *Policing the Globe: Criminalization and Crime Control in International Relations* (New York: Oxford University Press, 2006).

50 Andreas and Nadelmann, *Policing the Globe*.

Conclusion

The question of how to define the problem is an intractable and necessary part of the development of eco-global criminology. Many areas of harm to humans, environments and nonhuman animals are presently not criminalised. This includes such destructive, degrading and de-humanising practices as clearfelling of old growth forests, reliance upon battery hen forms of egg and poultry production, and use of depleted uranium in weapons. From an analytical point of view, conceptualisation of harm ought not to rely upon the legal-illegal distinction *per se*, especially since some of the world's most environmentally disastrous practices are in fact still legal. Eco-global criminology may well entail the exposure of negative, degrading and hazardous practices as a prelude to the banning and close control of such practices. New concepts of harm, as informed by ecological sciences and environmental values, will inevitably be developed as part of this process.

A good illustration of this was provided recently in an English court case involving six Greenpeace activists.[51] The six has been charged with criminal damage after being involved in scaling and defacing a chimney at a plant at Kingsnorth, in a location earmarked for the development of a new generation of coal-fired plants. At the conclusion of the eight-day trial, the jury decided that the activists had been justified in causing damage to the coal-fired power station due to the larger threat of global warming. The jurors thus accepted the defence arguments that the six defendants had 'lawful excuse' (under the Criminal Damage Act 1971) to damage the property at the power station to prevent even greater damage caused by climate change.

An eco-global criminology cannot fail to acknowledge the significance of such cases. For they go to the heart of the changes needed today if planetary wellbeing is to be secured. Criminology as a whole has much to offer in this process. As this paper has demonstrated, an ecological consciousness demands that we re-think conventional notions of crime and harm. Yet, as the paper also shows, the tools and techniques of criminology can, in turn, be usefully deployed to protect and conserve environments and peoples at risk.

Ultimately we need to go beyond parochial viewpoints and those perspectives that frame harm in terms of national or regional interests. Our loyalty has to be to the planet as a whole, rather than being bound by a narrow prescriptive patriotism based on nation. The nation-state remains an essential platform for concerted action to deal with the causes of environmental harm, as well as mitigating the worst symptoms of such harm. But the global nature of the problem – climate change – means that inevitably our collective survival will require planetary cooperation and worldwide action. For eco-global criminology, this is best undertaken under the guidance of an eco-justice framework, rather than protection of existing privilege or might makes right strategies. For the latter only lead to further violation of rights, and the downward spiral to our mutual destruction.

51 M. McCarthy, "Cleared: Jury decides that threat of global warming justifies breaking the law", The Independent, 11 September 2008. (http://www.independent.co.uk/environment/climate–change/cleared–jury–decides–that...) [accessed 10 October 2008].

Nigel South

ECOCIDE, CONFLICT AND CLIMATE CHANGE: CHALLENGES FOR CRIMINOLOGY AND THE RESEARCH AGENDA IN THE 21ST CENTURY[1]

1 I am grateful to the Department of Sociology, University of Essex, for providing support from the Research Endowment Fund to assist with attendance at the ASC in 2008. I am also grateful to my colleagues Dr Karen Hulme and Professor Francoise Hampson in the School of Law at Essex for sharing their ideas and work with me.

INTRODUCTION

In recent years, increasing attention has been paid to the crimes and harms committed by governments, trans-national corporations and military apparatuses against humanity, against other animal species and against the planet.[2] The panel at which this paper was first presented (and this subsequent volume) represent very welcome signs of growing interest in the recent development of such a green or environmental perspective in criminology.[3]. The brief for the presentations at the ASC panel was to provide directions toward a research agenda concerning crimes against the environment and the natural world and the objective of this resulting publication – to take academic presentations and debate into the policy and practice circles of UNICRI and similar readerships – is an exemplary one. In this chapter I aim to build a similar bridge between some of the concerns of criminological theory and method relevant to a green research agenda and the arenas of criminal justice and human and environmental rights.

2 Nigel South and Piers Beirne, "Introduction" in South, Nigel and Piers Beirne., eds. Green Criminology (Dartmouth: Aldershot and Brookfield, 2006), xiii– xxvii.

3 Nigel South, "A Green Field for Criminology?: A Proposal for a Perspective" *Theoretical Criminology* 2, no 2 (1998): 211–234; Piers Beirne and Nigel South. eds. *Issues in Green Criminology: Confronting Harms against Environments, Humanity and other Animals* (Cullompton, Willan, 2007); Rob White, *Crimes Against Nature: Environmental Criminology and Ecological Justice* (Cullompton, Willan, 2008).

Outlining the Concerns and Agenda for a Green Criminology

Let me start here with a word and a couple of definitions. The noun 'ecocide' is defined in the 2006 Random House Unabridged Dictionary as meaning "The destruction of the natural environment by such activity as nuclear warfare, overexploitation of resources, or dumping of chemicals." More sharply, the Penguin Dictionary (2007) offers: "Destruction of the natural environment to the extent that it is unable to support life." In using this word I am not arguing that we are collectively and globally as yet on the brink of ecocidal catastrophe but the term is certainly (and literally) a word of warning and its origin as dating from the late 1960s (according to the Random House Dictionary) is a signal of late-modern awareness of the ecocidal tendencies of advanced (and now many developing) nations. It is with various indicators of such ecocidal threats that I am concerned here.

At the 2008 ASC, I noted that ten years previously, Margaret Zahn had given her Presidential Address to the Society on the subject of 'Thoughts on the future of criminology'. At that time there was very little published work on the idea of a green criminology but Zahn was astute when she noted that the subject of the environment and environmental crime would be one arena in which "We need to test and develop theory." Refreshingly, Zahn did not make the assumption that it was still sufficient to accept that the term 'environmental crime' should be limited to its traditional useage by criminologists to describe spatial patterns of crime in urban settings. Instead she noted that:

> *…Pollution of our rivers and oceans is causing global mass extinctions and a significant reduction in biodiversity. The impacts for life on this planet are far–reaching. Particulate pollution annually kills … four times [more people than] … homicide. … With more focus on environmental crime will come a new definition of victims to include species other than humans and a definition of offenders to include those who pollute for convenience … [and] for profit. Just as Sutherland's white–collar crime expanded our crime paradigm (1949), … environmental crime will change it in the future.*[4]

Elsewhere[5] I have suggested that we should therefore develop a 'green perspective' within criminology and Walters[6] has elaborated on what such an approach should and should not encompass:

> *Green criminology must not be reduced to green party politics [but] must be a position premised on the principles of environmentalism and broader issues of environmental justice. … Moreover, a green criminology must harness discourses in both risk and rights. It*

4 Margaret Zahn, "Presidential Address - Thoughts on the Future of Criminology." *Criminology, 37 no. 1* (1999): 2.

5 South, *Green Field.*

6 Reece Walters, "Crime, Regulation and Radioactive Waste in the United Kingdom." P. 199 in *Issues in Green Criminology: Confronting Harms against Environments, Humanity and other Animals*, edited by Piers Beirne and Nigel South (Cullompton, Willan, 2007), 199.

must be a 'global criminology', one that examines notions of transnational justice within expanding global economies.

In the related field of environmental law many principles and precedents are now well established at national and international levels although the laws themselves are by no means secure or implemented consistently[7]. Nonetheless, what is relevant from a criminological perspective is that most of the practical problems that such law turns upon are also matters for criminological consideration and research, for example: law enforcement relating to criminal and civil offences[8]; interventions relating to conflicts and their resolution[9]; international treaties that are dependent on compliance and regulation[10]. On a broader canvas, policies of criminal justice and health agencies and the mission statements of numerous non-governmental organisations all draw attention to problems and themes for future work that should prompt a more joined-up set of responses than have been managed to date. In the developing literature of a green criminology, in journal articles and book collections from around the world, it is recognised that the challenge of pursuing new directions requires both stock-taking of past and available research evidence, as well as the identification of new questions and projects. For these purposes it will be worth returning to Lynch's[11] early, path-finding essay on proposals for the greening of criminology that included a research agenda that remains comprehensive and still highly relevant nearly two decades on.

Climate, Crime and Conflict: The Global Context

According to many commentators, conflicts of the future will increasingly be fought over environmental resources[12]. Although this may mean global warming and accumulating resource poverty will heighten existing tensions or accelerate processes of exploitation this may also mean that conflict occurs more frequently and intensely in resource-rich states or regions. As Pearce[13] observes:

More dangerous than environmental poverty are environmental riches. … Particularly in poor countries, nature's bounty seems to stymie economic development, cripple govern-

7 Michael O'Hear, "Sentencing the Green Collar Offender: Punishment, Culpability and Environmental Crime." *The Journal of Criminal Law and Criminology 95, no 1* (2004).

8 Yingyi Situ and David Emmons. *Environmental Crime: The Criminal Justice System's Role in Protecting the Environment* (Thousand Oaks, Ca., Sage, 2000).

9 Michael L. Ross, "How Do Natural Resources Influence Civil War? Evidence from Thirteen Cases". *International Organization*. 58 (2004).

10 *Environmental Investigation Agency, Environmental Crime: A Threat to our Future* (London, EIA International, 2008).

11 Michael Lynch, *The Greening of Criminology: A Perspective On the 1990s.* Critical Criminologist, no 2, (1990).

12 Chris Abbot, *An Uncertain Future: Law enforcement, national security and climate change* (Oxford, Oxford Research Group, 2008).

13 Fred Pearce, "Blood Diamonds and Oil". *New Scientist, 29th June, 174 no 2349* (2002), 36.

ments, fill the pockets of rebels and all too often trigger protracted civil wars. Today's rebels are more interested in liberating diamonds than repressed peoples. Worse, they finance their start–up costs by promising foreign interests a share in the spoils of war.

In Angola for example, the long civil war of twenty-seven years was paid for by the wealth produced by the abundant natural resources available – diamonds and oil. Boekhout van Solinge[14] has also described the cases of conflict diamonds from Sierra Leone and conflict timber from Liberia as forms of natural resource exploitation that fund wars with enormous costs in terms of human life and suffering. Here harms and crimes are caused by those involved in the destruction and misuse of environmental resources and traditional lands; those who exploit nature without regard to questions of justice about ownership and rights; and those supplying illegal markets and supporting arms dealing and wars based upon the sale of valuable but controlled and sometimes irreplaceable natural commodities. If the rate of plunder and depletion of such resources does not merit organised intervention then the degree of cruel conflict related to this should.

In a world of talk about global security and human rights we must acknowledge that such goals will never be fully realised unless we can preserve the planet and also demonstrate genuine regard for environmental rights. In the introduction to a recent book on the subject of 'Global Harms', Sollund[15] argues that:

Natural resources and non–human animals are used and exploited it appears simply because we can, with an exceptional disregard for the ecosystems and individuals who suffer from it. … [E]cosystems and wildlife do not have sufficient protection through the legal system … consequently ecological crime must be more seriously addressed through international instruments like the UN. UN soldiers are sent in to protect human beings in the case of conflict. Maybe it is time UN soldiers should be applied to protect forests and wildlife as well.

Whether this is likely may depend on various factors that motivate action and influence political agendas but it is the case that in countries rich and poor, the environment is subject to theft and exploitation and in need of protection. Furthermore, just as in the fight against other forms of crime there is a need for specialist policing and enforcement of agreements and rules. In turn, of course, such efforts may well face familiar impediments such as inadequate resources, unhelpful legal barriers and the temptations of corruption or inertia.

These forms of plunder, piracy and profiteering are both old and new. What is relatively recent, at least in terms of consequences and comprehension, is the disregard for care of the planet that has led to climate change. In February 2008, an international conference held in Geneva brought together experts on climate change, human rights and migration and warned of a future in which pressures from global warming could force would-be migrants

14 Tim Boekhout van Solinge, "Crime, Conflicts and Ecology in Africa." Pp. 13–34 and "The Land of the Orangutan and the Bird of Paradise under Threat." Pp. 51–70 in *Global Harms: Ecological Crime and Speciesism*, edited by Raghnild Sollund. (New York: Nova Science Publishers, 2008).

15 Ragnhild Sollund, "Introduction: Towards a Greener Criminology." in *Global Harms: Ecological Crime and Speciesism*, edited by Ragnhild Sollund (New York: Nova Science Publishers, 2008), 9.

into the market of illegal people smuggling as areas like sub-Saharan Africa's agricultural drylands are degraded. In the words of Kyung-wha Kang, U.N. Deputy High Commissioner for Human Rights, speaking at the conference, 'Ultimately climate change may affect the very right to life'.

A Green Perspective for a Criminology for the Future

Green criminological theory and research can make fruitful links with the Sociology of globalisation and risk, and also with the scholarship of Law on environment and rights. Building upon the influential work of Ulrich Beck on Risk Society, Katja Franko Aas[16] has written of "A world in motion permeated by transnational networks and flows of goods, capital, information and cultural symbols, as well as potentially risky individuals and substances". This "world of global networks and flows introduces new notions of social ordering and exclusion … within an emerging 'world risk society'[17]" of global risks that cross all boundaries. Relatedly, Hogg[18] has drawn attention to the need for criminological theory and method to keep pace with global and social change as traditional units of analysis become less material and more questionable:

> *What happens to the conceptual apparatus of criminology and how salient are its taken–for–granted terms – crime, law, justice, state, sovereignty – at a time when global change and conflict may be eroding some elements at least of the international framework of states it has taken for granted …?*

While Hogg is referring in the main to the erosion of statehood and the instability of institutions of justice as a result of political and economic forces, there is another – at least equally significant – source of erosion of the contours and viability of some states. To put this fully into perspective, consider that based on current trends and projections, the whole or parts of some sovereign states may disappear due to climate change and environmental catastrophes. This has been discussed in work undertaken for the Economic and Social Council, Sub-Commission on the Promotion and Protection of Human Rights (Fifty-seventh Session, 2005) which addressed the 'Prevention of discrimination and protection of indigenous peoples' in States and other territories threatened with extinction for environmental reasons.

As Hampson[19] argues, "Certain States face the likelihood of the disappearance of the whole

16 Katya Franko Aas, "Analysing a World in Motion: Global Flows Meet the 'Criminology of the Other'." Theoretical Criminology 11, no 2, (2007): 283.

17 Ulrich Beck, Risk Society: Toward a New Modernity. (London: Sage, 1992).

18 Russell Hogg, "Criminology Beyond the Nation State: Global Conflict, Human Rights and the "New World Disorder"." in Critical Criminology: Issues, Debates, Challenges, edited by Kerry Carrington and Russell Hogg. (Cullompton: Willan Publishing, 2002), 195.

19 Francois J. Hampson, *The Human Rights Situation of Indigenous Peoples in States and other Territories*

or a significant part of their surface area for environmental reasons" (eg rising sea levels and salt water entering freshwater destroying agriculture, vulnerability to Tsunami tidal waves, earthquakes, volcanic eruptions). The author is concerned primarily with how such environmental disasters will force the evacuation of populations and give rise to a variety of human rights issues but in the course of such disaster and the population movement that will follow, criminologists should note the potential for crime and injustice, conflict and injury, and broader civil challenges that will follow. In recent memory, the impact of Hurricane Katrina on New Orleans is illustrative throwing up examples of social dislocation and problems facing civil order, rescue and engineering services, confusing and contradictory media reports, subsequent fraudulent insurance claims, and regional and national political impacts that have continued to ripple outward.[20]

Even with such examples, it is still difficult to fully comprehend the consequences of climate change and environmental catastrophe but in a recent report, Abbott[21] shows how increasing temperatures, rising sea levels and weather volatility could, by 2050, have led to:

- resource wars over food and water,
- the plight of up to 200 million 'environmental refugees' fleeing devastation,
- an inflation of ethnic tensions and conflicts,
- the prospect of the police and border services of countries closing down rather than opening up borders,
- and violent protests against polluters.

Previously foreseen in the images and pages of science fiction[22], these are new scenarios of harm, crime and conflict for our future reality and old responses are unlikely to be effective. What will be required is a new way of thinking, supported by a new evidence-based approach to the global challenges posed by environmental crime and conflict.

Threatened with Extinction for Environmental Reasons. Sub–Commission on the Promotion and Protection of Human Rights, E/CN.4/Sub.2/2005/28, 16 June 2005, (United Nations 2005), 2.

20 Ashley J. Craw, "A Call to Arms: Civil Disorder Following Hurricane Katrina Warrants Attack on the Posse Comitatus Act." *George Mason Law Review 14, no 3* (2007), 829–857; Jim Dwyer and Christopher Drew. "Fear Exceeded Crime's Reality in New Orleans." New York Times, September 29, 2005; Kathleen Tierney, Christine Bevc, and Erica Kuligowski. "Metaphors Matter: Disaster Myths, Media Frames, and Their Consequences in Hurricane Katrina." Annals 604 (March 2006), 57–81; Gail Garfield, "Hurricane Katrina: the Making of Unworthy Disaster Victims". Journal of African American Studies 10 (2007), 55–74; Kelly Faust and David Kauzlarich. "Hurricane Katrina Victimization as a State Crime of Omission." *Critical Criminology 16* (2008), 85–103.

21 Abbot, *Uncertain Future*.

22 Robin L. Murray and Joseph. K. Heumann. *Ecology and Popular Film: Cinema on the Edge* (SUNY Press, Albany, 2009); Fiona Kelleghan, ed. Classics of Science Fiction and Fantasy Literature. (Pasadena, Salem Press, 2002).

Suggestions for a Green Research Agenda for an Environmentally–Sensitive Criminology

In his 1990 essay Mike Lynch suggested the following as possible directions for research in the field of green criminology:

> *Study environmental and wildlife laws and regulations; investigate the social harms associated with chemical and pesticide manufacturing on a local or global scale …; analyze international treaties devoted to environmental protection; develop national and comparative studies of environmental politics and power …; investigate drug dumping in powerless third and fourth–world nations …; expose unsafe working conditions and hazards created by pesticides, both in the field and in the factory; reveal global political and economic structures responsible for the exportation of environmental hazards from industrialised, core nations to the periphery etc; and ultimately tie all such studies to political, economic and class relationships that structure these outcomes.* [23]

Evidently the programme that could be developed from these suggestions could be formidable in scope and the value of outcomes. Good examples of such work are already producing results and publication. Nonetheless, looking forward, there are still questions concerning the organisation of research, the development of methodologies and the availability of data resources that need to be addressed.

So, how do we organise and identify a future research programme? One approach may be via the adoption of a typology that provides directions for research. For example, elsewhere, colleagues and I have proposed a fourfold organisational typology to apply to the research literature.

1. Harms and crimes of air pollution.
2. Harms and crimes of deforestation.
3. Harms and crimes of species decline and animal abuse.
4. Harms and crimes of water pollution and resource depletion.
5. The proposal is that working from such a typology, questions for future research could be derived.[24]

Alternatively one could devise a framework governed by the concept of 'impact', as measured in terms of proximity along a timeline (now, impending, or future) and geography (distance – close, remote) and also the degree of seriousness of foreseeable (and, if speculating further, 'unforeseeable') consequences. Such a framework might start with a grid such as that below.

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23 Lynch, *Greening Criminology*, 4.

24 Eamonn Carrabine, Pam Cox, Maggy Lee, Ken Plummer, and Nigel South. *Criminology: A Sociological Introduction* (London: Routledge, 2009).

Crimes and Harms	Consequences
Familiar Crimes	Crime / Harms – Past and Present (now and known)
Future Crises	Regional impacts and harms (anticipated and unanticipated)
Forecast Catastrophes	Regional to Global Consequences

The grid could then be populated as the following suggestions indicate.

Proximity: Now, close and local:

Familiar Crimes	Crime / Harms – now & known
e.g. Organised crime and local and global illegal trades in disposal of garbage and hazardous waste	"The transportation and illegal trafficking of toxic waste in Italy is so widely acknowledged that an Italian dictionary has an entry for *ecomafia*."[25]

Proximity: Now and increasing in near future; local and regional:

Future Crises	Regional impacts/harms – anticipated/unanticipated
Environmental Resource Riots[26]	e.g. Riots in Xinchang, China, July 2007, calling for government to deal with water pollution caused by local pharmaceutical plant[27]

Proximity: Soon and future; regional and global

Forecast Catastrophes	Regional to Global Consequences
Environmental disasters = evacuation of populations	= human rights issues + the potential for crime and conflict that will follow

In identifying these various concerns they help us to suggest directions for criminological research that connect to important humanitarian and ecological priorities for the twenty-first century.

25 Legambiente. *The Illegal Trafficking in Hazardous Waste in Italy and Spain.* (Rome: European Commission, 2003).

26 Abbott, *Uncertain Future.*

27 White, *Against Nature*, 276.

For present purposes it may be useful to simply identify three 'building blocks' for a research programme – three fairly fundamental questions for a green criminology, from which further potential research directions could be spun-off. This can be done quite easily yet illustrates how much there is still to know and to be done. A rich, diverse and inviting research programme could be constructed and help to provide form and substance for an international green criminology network.

The three questions I pose assume that there is a global trade in environmental resources and that this is exploitative and frequently illegal, producing profits that motivate crime, underpin conflict and create victims. Note that it is the illegal and immoral misuse of the planets resources, widespread and uncontrolled pollution, failure to replenish forests and conserve green spaces, and other such actions, that have cumulative consequences leading to climate change and the scenarios outlined earlier. A research programme to help reduce such actions and hence consequences is the equivalent of a prospectus for green-crime-prevention research although we also need research on remedies and responses. In all of this, it has to be recognised that differing definitions of offences and differences of approach between jurisdictions mean that not only is enforcement hampered but data gathering and comparison are difficult. Further, we need comparative work and some harmonization of understanding and approach in areas of law and enforcement.

Some Building Blocks

How do we find out more about, and measure, environmental victimization in human communities?

An important aspect of green crimes is their link to victimization and inequalities. Indeed, we can speak of *environmental racism* as the pattern by which environmental hazards are perceived to be greatest in proximity to poor people and especially those from minority communities. As with many crimes, there are identifiable victims who are often from less advantaged groups. We can see this happening both locally and globally. The disposal of waste generally, and toxic waste in particular, as well as the siting of controversial high-pollution industries, are displaced or 'regionalised' both domestically but also in another way – by exporting them to the developing world.[28] Here the environmental victims may still remain largely hidden or forgotten, at least until catastrophe occurs. Bhopal remains the most well-known and haunting example with the anniversary of the accident marked every year by survivors and campaigners [29]. In this and many other cases, the call for social and environmental justice has been taken up within networks of activists engaged in 'toxic struggles'[30] forming part of a strengthening environmental justice movement that engages

28 Valerie Cass, "Toxic Tragedy: Illegal Hazardous Waste Dumping in Mexico," in *Environmental Crime and Criminality: Theoretical and Practical Issues*, edited by Sally M. Edwards, Terry. D. Edwards and Charles B. Fields. (New York: Garland, 1996); South, "Green Field", 218.

29 Kim Fortun, *Advocacy after Bhopal: Environmentalism, Disaster, New Global Orders* (Chicago: University of Chicago Press, 2001).

30 Richard Hofrichter, *Toxic Struggles: The Theory and Practice of Environmental Justice* (Philadelphia, PA: New Society, 1993).

with environmental racism and victimization and the need for an environmental victimology.[31] Faber and McCarthy[32] outline the objectives here:

> *… Poorer working class communities and people of color which lack the political–economic resources to defend themselves will continue to suffer the worst abuses. If, however, the interdependency of issues is emphasized, as in the environmental justice movement, so that environmental devastation, ecological racism, poverty, crime, and social despair are all seen as aspects of a multi–dimensional web rooted in a larger structural crisis, then a transformative ecological movement can be invented. This is the aim of environmental justice activism …*

Some of the problems of measurement and research we face in trying to count prevalence of offending and then assessing impact and trying to prepare for the legacy of environmental victimization, will be familiar from work on white-collar and corporate crime. For example, there have been calls for local and national crime surveys to include coverage of business crimes, consumer victimization and similar experiences[33] and suggestions that methodological problems can be addressed. However as others, such as Spalek[34], have pointed out, in the UK at least:

> *There is little political incentive to include white collar offences in the British Crime Survey as their inclusion would mean an increase in the overall level of 'crime' and vicitimisation recorded. This would place pressure on politicians to tackle this large area of social injustice, an area that … has traditionally attracted minimal state regulation since this has been viewed as imposing too many costs on business.*

One of the purposes of accruing power is to gain the privileges that it brings when used. In the case of crime and criminal justice, the use of power can re-draw the line of legality and acceptability in the interests of some but not others and privilege their position so they stand above investigation and prosecution. If there is no research and revelation about the abuse of power and over-exploitation of the environment this poses one problem. But perversely, too much public exposure can produce a negative reaction from public audiences in much the same way as it has in the face of charitable appeals following various regional and global 'crises' and 'pandemics' (famine, refugees, floods, AIDS etc).[35] So are we likely

31 Christopher Williams, "Environmental Victims: An Introduction" in Environmental Victims, edited by Christopher Williams, *special issue of Social Justice*, 23 no 4 (1996): 1–6; Michael Lynch and Paul Stretesky. "Toxic Crimes: Examining Corporate Victimization of the General Public Employing Medical and Epidemiological Evidence". Critical Criminology, 10, (2001): 153–172; Avi Brisman, "Crime–Environment Relationships and Environmental Justice." Seattle Journal for Social Justice 6, no. 2 (2008): 727–817.

32 Daniel Faber and Deborah McCarthy. *Green of Another Color: Building Effective Partnerships between Foundations and the Environmental Justice Movement* (Northeastern University: Philanthropy and Environmental Justice Research Project, 2001), 4–5.

33 Steve Tombs, "Official Statistics and Hidden Crime: Researching Safety Crimes." in *Doing Criminological Research*, edited by Vic Jupp, Pamela Davies, and Peter Francis. (London: Sage, 2000).

34 Basia Spalek, *Knowledgeable Consumers? Corporate Fraud and its Devastating Impacts* (London: Centre for Crime and Justice Studies, Kings College, 2007), 7.

35 Stanley Cohen, *States of Denial: Knowing about Atrocities and Suffering* (Cambridge: Polity Press, 2001).

to hear more of 'green fatigue'? This will certainly affect how much anyone cares about these issues and victims. This condition reflects the contemporary contradiction between greatly heightened awareness and acceptance of the facts of global warming matched by public bafflement about what to do about it, or familiar and common resort to techniques of denial and rejection. In the U.K., Phil Downing, the head of environmental research for a national polling organisation Ipsos MORI , recently suggested that there are grounds for fearing a 'backlash' in public opinion about climate change: 'There's cynicism because on the one hand we're being told [the problem] is very serious and on the other hand we're building runways [and] mining Alaskan oil; there's a lot going on that appears to be heading in the opposite direction'[36]. There is certainly a research agenda here that could examine the phenomena of 'greenwashing' and media manipulation to divert attention from green crimes.[37]

How do we find out more about illegal trading in wildlife and rare species and violation of natural environments?

In the UK, the Environment Agency web site (January 2008) notes that:

The illegal trade in endangered species is big business, estimated to be worth about £3.5 billion a year world-wide. Levels of illegal trade in some animals are bringing them close to extinction. Tourists play a part, by buying gifts on holiday made from skins or ivories of protected animals.

However, according to Wyatt[38]:

> *The shadow figure of the illegal wildlife trade is compounded by the hidden nature of the victims or objects involved – endangered flora and fauna and the often remote habitats which sustain them"*[39]*. Also, as there is no set standard to judge the value of wildlife, estimates vary incredibly across the globe*[40]*. This value is also only a monetary one generated "by existing data and other sources, (which) provide only one dimension of the value of wildlife for human well–being, and should be taken only as an indication of the minimum value of wildlife for consumptive purposes"*[41]*. In other words, the financial capital assigned to the wildlife trade does not reflect the external costs of damage to the environment nor consider other value beyond or besides the instrumental worth to humans.*

36 Juilette Jowit and Robin McKie. "'Green Fatigue' Leads to Fear of Backlash over Climate Change". The Observer, 30th December 2007, 15.

37 Greg Barak, ed. Media, Process, and the Social Construction of Crime: Studies in Newsmaking Criminology. (New York: Garland, 1994).

38 Tanya Wyatt, Personal Communication, 2009.

39 Dee Cook, Martin Roberts, and Jason Lowther. *The International Wildlife Trade and Organised Crime: A Review of the Evidence and Role of the United Kingdom* (Wolverhampton: Regional Research Institute, University of Wolverhampton / World–Wide Fund for Nature, Godalming, 2002), 7.

40 Cook et al, International Wildlife.

41 Carlos Fernandez and Richard Luxmoore. The Value of the Wildlife Trade. WCMC Biodiversity Series 7. (Cambridge: World Conservation Press, 1997), 1–2.

National and international laws exist to protect animal and plant species but apart from the under-resourcing of enforcement noted above there are other reasons why such laws can be ineffective.[42] Among these can be genuine ignorance of restrictions, or historical and culturally grounded motives for denial, as well as rejection of any reasons why such restrictions should apply or be necessary. All need researching.

The expanding and controversial area of bio-prospecting, bio-patenting and bio-piracy is relevant to this research agenda, representing a global market for the products of ancient and tropical forests or other remote regions as well as the commercial appropriation and re-interpretation of indigenous knowledge previously preserved from generation to generation [43]. In this respect the loss of eco-literacy and of the rights of traditional inhabitants of areas who are forced out by incoming settlers or indeed forcibly removed to be assimilated elsewhere constitute modern ecological and humanitarian rights abuses that are often invisible yet deserve exposure and research. Various campaigning and action-research projects around the world are working with such causes and could provide opportunities for criminology to engage in fruitful inter-disciplinary work. For example:

Disconnection from nature and the local environment is causing harm to indigenous peoples who have already become marginalised by limited wealth, power and status. The consequences of such disconnection include mental and physical health problems, social pathologies and cultural collapse. As they have come to appreciate the repercussions of disconnection, many groups are now taking action to protect and support their communities and cultures through … 'revitalisation projects'.[44]

How can we create a framework to host the future green research agenda?

We now need to bring together the criminological embrace of victimology and human rights issues[45] with the requirements of environmental rights issues, recognising the ways in which these discourses and material problems intertwine. Some legal scholars interested in rights have started to examine and debate the relevant questions. For example, Hulme [46] approaches the question of rights and the environment by asking: 'Do we need a human right to a healthy environment?' and identifies statements and principles already in the global domain of legal discourse on 'rights and the environment' that support such a right. Among these are the 1972 Stockholm Declaration of the United Nations Conference on the

42 R.T. Naylor, "The Underworld of Ivory." Crime, Law and Social Change 42, (2004).

43 Nigel South, "The 'Corporate Colonisation of Nature': Bio–prospecting, Bio–piracy and the Development of Green Criminology." in *Issues in Green Criminology: Confronting Harms against Environments, Humanity and other Animals,* edited by Piers Beirne and Nigel South. (Cullompton: Willan, 2007).

44 Sarah Pilgrim, Colin Samson, and Jules Pretty. "Rebuilding Lost Connections: How Revitalisation Projects Contribute to Cultural Continuity and Improve the Environment", Interdisciplinary Centre for Environment and Society Occasional Paper 2009–01. (Colchester, University of Essex, UK, 2009).

45 Cohen, States.

46 Karen Hulme, "Do We Need a Human Right to a Healthy Environment?" (paper presented at the Human Rights and the Environment Panel, February 21st 2008, as part of University of Essex, Human Rights Centre 25th Anniversary events).

Human Environment which states that:

> *1. Man is both creature and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth… Both aspects of man's environment, the natural and the man–made, are essential to his well–being and to the enjoyment of basic human rights and the right to life itself.*

And the following from the report of Special Rapporteur Ksentini and the Report on Human Rights and the Environment (1994) – Sub-Commission on Prevention of Discrimination and Protection of Minorities.

> *248. Environmental damage has direct effects on the enjoyment of a series of human rights, such as the right to life, to health, to a satisfactory standard of living, to sufficient food, to housing, to education, to work, to culture, to non–discrimination, to dignity and the harmonious development of one's personality, to security of person and family, to development, to peace, etc.*

Hulme concludes that:

> *Human rights provide a strong moral claim. They are also a new legal source for environmental lawyers to utilise in defending the environment – especially where activities of a State are concerned.*

In this respect there is clearly a strong and positive momentum toward embracing green issues within human rights frameworks. However – for some this will be insufficient. Is it too human-centred as a perspective? Does it neglect animal rights, the resources of the planet (air, water, earth, plants)? Or, for others of course, this all goes too far and threatens to sacrifice the well being and prosperity of people today and even into the future on the altar of controversial claims and unnecessary legal and moral intrusions into business operations and personal behaviour.

Conclusion

The Need for a Programme of Green–Crime–Prevention Research As a Contribution to Inter–Generational Justice

This essay started by looking back ten years to comments on the state of criminology in 1998 – and I will conclude in the same manner. In an article published in 1998, I noted that:

> *Criminology needs new ideas and new directions. Criminology, like most social sciences, is breaking down its disciplinary boundaries and being intellectually and practically influenced by developments elsewhere. A green perspective for criminology can potentially connect with and address several current concerns and criticisms.* [47]

47 South, "Green Field".

Earlier I referred to the ambitious idea of a research programme that would aim to help reduce actions damaging to the environment and hence consequences of climate change and related crime, conflict and injury to human health and well-being. I suggested that this could be seen as the equivalent of a prospectus for green-crime-prevention research. In this respect there would be substantial scope for an inter-disciplinary effort that joined such work to efforts to develop a research programme in the field of international public health as a response to the threats posed by climate change. In a recent major report on managing the health effects of climate change, the authors observe that:

> *Management of the health effects of climate change will require inputs from all sectors of government and civil society, collaboration between many academic disciplines, and new ways of international cooperation that have hitherto eluded us.* [48]

Furthermore, and in terms that should certainly find an echo within the field of criminology,

> *Climate change also raises the issue of intergenerational justice. The inequity of climate change – with the rich causing most of the problem and the poor initially suffering most of the consequences – will prove to be a source of historical shame to our generation if nothing is done to address it. (ibid: 1694 col 1)*

In seeking an inspirational agenda appropriate to late-modernity it is important that we should not forget the inspirations of the past. Revisiting the work of C. Wright Mills is suggestive here, reminding us of Mills' passion for making good use of 'the sociological imagination', and his advocacy of paying attention to empirical evidence whilst developing critical theory. Following Mills[49], I believe we should still be committed to engagement with "public issues and private troubles" and as the processes of globalisation and environmental change continue and affect us all, such engagement will be more necessary than ever before.

48 Anthony Costello, Mustafa Abbas, Adriana Allen, Sarah Ball, Sarah Bell, Richard Bellamy, Sharon Friel, Nora Groce, Anne Johnson, Maria Kett, Maria Lee, Caren Levy, Mark Maslin, David McCoy, Bill McGuire, Hugh Montgomery, David Napier, Christina Pagel, Jinesh Patel, Jose Antonio, Puppim de Oliveira, Nanneke Redclift, Hannah Rees, Daniel Rogger, Joanne Scott, Judith Stephenson, John Twigg, Jonathan Wolff, Craig Patterson. "Managing the Health Effects of Climate Change." Lancet 373 (2009): 1693, col 2.

49 Mills, C. W. *The Sociological Imagination.* (Harmondsworth: Penguin, 1970).

Lorraine Elliott

COMBATING TRANSNATIONAL ENVIRONMENTAL CRIME: 'JOINED UP' THINKING ABOUT TRANSNATIONAL NETWORKS[1]

1 The Centre of Excellence in Policing and Security (CEPS) at the Australian National University provided support for this research and for participation in the 2008 Annual Conference of the American Society of Criminology at which an earlier version of this paper was presented.

INTRODUCTION

This chapter takes as its starting point three observations suggestive of a transnational environmental crime (TEC) research agenda that will anchor policy-relevant outcomes in a critical conceptual analysis to improve both our comprehension of TEC and our capacity for response. Mette Eilstrup Sangiovanni (among others) draws attention to the "potential for misuse of the capabilities provided by network forms of organization for illicit and criminal activities".[1] Anne-Marie Slaughter suggests that "networked threats require a networked response".[2] And the United Nations Environment Program (UNEP) proclaims, in a report on combating the illegal trade in ozone depleting substances, that "networking counts".[3] Taking this collective interest as a cue, I sketch out the contours of a research agenda founded on the proposition that network concepts can help us (i) to understand more clearly the practices associated with transnational environmental crime transactions and (ii) to identify and evaluate effective policy responses.

The chapter begins with a brief overview of the extent of transnational environmental crime. The second section looks more closely at the kinds of network concepts that can help in describing and understanding illicit cross-border transactions in the illegal wildlife trade, timber trafficking, the black market in ozone depleting substances and illegal waste dumping. I explore market networks involved in illicit chains of custody, social networks in the form of criminal and other alliances, and political-criminal networks that complicate the state/non-state and public/private distinction. In the final section of the chapter, I offer some thoughts about a research program that would enable us to evaluate not only whether networks really count but what kind of networks count most.

Two caveats are warranted. The first is that this chapter does not articulate a specific research methodology or 'testable' hypotheses.[4] Rather it sketches some research possibilities. The second is that I am not a criminologist. I am an International Relations scholar with a long-standing interest in transnational and global environmental governance, ethics and policy. Since 2005 I have convened a small research project on transnational environmental crime which is driven by inquiry into TEC as a security, regulatory and policy challenge.[5]

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1 Mette Eilstrup Sangiovanni, "Transnational Networks and Security Threats", *Cambridge Review of International Affairs* 18, no. 1 (2005): 7.

2 Anne–Marie Slaughter, "Disaggregated Sovereignty: Towards the Public Accountability of Global Government Networks", *Government and Opposition*, 39, no. 2 (2004): 160.

3 United Nations Environment Programme, *Networking Counts: Montreal Protocol Experiences in Making Multilateral Evironmental Agreements Work* (Paris: UNEP Division of Technology, Industry and Economics, 2002)

4 The methodological dimensions of this kind of research could include secondary data collection, descriptive or mapping research, and semi–structured and open–ended interviews based on snowball sampling (see, for example, Warchol et. al., "Transnational Criminality").

5 See Lorraine Elliott, "Transnational Environmental Crime in the Asia Pacific: an 'Un(der)securitized' Security Problem?", *The Pacific Review* 20, no. 4 (2007): 499–522; Lorraine Elliott, *Illicit Authority and Transnational Environmental Crime: the 'Dark Side' of Private Authority in Earth System Governance*, (paper presented to the 7th European Conference on the Human Dimensions of Global Environmental Change,

I have been struck by the ways in which criminologists and scholars of global governance have both deployed ideas about networks in their investigations, imbuing this with both descriptive and analytical purpose. Hence the focus in this chapter on how we might, or can, develop a multidisciplinary research agenda that draws on network theory/ies and brings together scholars working on global governance, global public policy and regulation, and transnational criminology. To that extent, the "joined up thinking" in the title refers to conversations across and between disciplines, to the real-life but often under-researched links between transboundary environmental degradation and transnational crime, and to the conceptual synergies that might arise from the application of (transnational) network analysis simultaneously to investigating criminal and policy networks.

Amsterdam, 24–26 May 2007); Lorraine Elliott, *Governing Transnational Environmental Crime: Legitimate/ Legitimating Authority Beyond the State*, (paper presented at Pathways to Legitimacy? The Future of Global and Regional Governance, CSGR/GARNET Conference, University of Warwick, 17–19 September 2007).

Transnational Environmental Crime: What Is It and Why Should We Care?

In simple terms, transnational environmental crime involves the trading and smuggling of plants, animals, resources and pollutants in violation of prohibition or regulation regimes established by multilateral environmental agreements and/or in contravention of domestic law. It includes illegal logging and timber smuggling, the illegal trade in endangered and threatened species, the black market in ozone depleting substances (and, potentially, other prohibited or regulated chemicals), the transboundary dumping of toxic and hazardous waste, and what is known in the environmental lexicon as IUU (illegal, unreported and unregulated) fishing. The UN Convention Against Transnational Organised Crime has a rather tortuous definition of what makes criminal activity transnational.[6] Former Interpol Secretary General, has a much simpler one: a border must be crossed (in the case of TEC this could mean the perpetrators, the products, or the orders that direct such transactions) and the activity must be recognized as a criminal offense in at least two countries as a result of international or national law.[7]

As with other forms of criminal endeavour, environmental crime has become increasingly transnationalised as those involved take advantage of economic liberalization and a globalizing of the world economy, 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. Globalisation, Peter Andreas has argued, "creates a new opportunity structure for those involved in criminalized markets."[8]

There are multiple reasons for issues of TEC to feature prominently – indeed much more prominently than at present – on the agenda of the UN key bodies, its functional programs and its specialized agencies. The first speaks to the UN's agenda of environmental concerns. TEC is a major factor in environmental degradation, habitat loss and continued pollution and so undermines the effectiveness of multilateral environmental agreements (most of them negotiated and managed under UN auspices). The second speaks perhaps more directly to the UN's role in combating crime and corruption. TEC is characterized by a growing involvement of organized criminal groups which challenge the authority of the state and its agents even as they seeks to compromise such state-based agency through cor-

6 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; is committed in one state but has substantial effects in another state; United Nations General Assembly, *Convention Against Transnational Organised Crime*, A/RES/55/25 (2000), article 3.

7 Cited in H. Richard Friman and Peter Andreas, "Introduction: International Relations and the Illicit Global Economy' in *The Illicit Economy and State Power*, eds H. Richard Friman and Peter Andreas (Lanham, Md: Rowman & Littlefield, 1999), 5. This is not, by the way, to deny that definitions of criminality or illegality in any particular country are often socially constructed, politically motivated and highly contested.

8 Peter Andreas, "Transnational Crime and Economic Globalization', in *Transnational Organized Crime and International Security*, eds Mats Berdal and Mónica Serrano (Boulder: Lynne Rienner, 2002), 40.

ruption and bribery, generate funds that are used to sustain other forms of criminal activity and, in some cases, provide resources for rebel insurgents and militia groups. A third group of reasons speaks more specifically to the UN's mandate for addressing development for both states and peoples – freedom from want as well as freedom from fear. Transnational environmental crime has often severe economic consequences for developing countries and for their development prospects. It also threatens the security not just of habitat, ecosystems and species but of those people and communities who are most vulnerable to the consequences of illegally-sponsored environmental degradation, to the violence that can accompany the demand for illegal resources and, often, to the prosecution of those whose participation is driven not by greed and profit but by need and survival.

The UN is 'home' to most of the multilateral environmental agreements that set the boundaries for what is illegal or illicit in transboundary environmental trade. The key TEC agreements – the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer, the 1972 Convention on International Trade in Endangered Species (CITES) and the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal – are well known and are canvassed only briefly here. Each agreement establishes schedules of what species, chemicals and wastes may and may not be traded across state borders, the conditions under which trade may occur and the various forms of licensing, control and consent procedures that are required to manage that trade.[9] None of these agreements are law enforcement or international crime agreements. Their purpose is to enhance conservation and environmental protection through establishing guidelines for the harvesting, production, use and trade of particular substances or species. It is something of an irony that the unintended consequences of the regulation or prohibition regimes established by these various agreements has been the creation of a black market and the incentives for criminal activity that goes with it. Of the three agreements identified above – there is as yet no international treaty on deforestation or illegal logging – only the Basel Convention refers specifically to illegal traffic, calling it 'criminal' - article 4(3) - and requiring parties to 'introduce appropriate … legislation to prevent and punish such traffic' (article 9). Article VIII of CITES also requires parties to penalize trade that violates the Convention but does specifically not describe such violations as criminal or illegal. The Montreal Protocol itself says nothing about illegal trade and it is generally accepted that the Parties were unprepared for the possibility that the Protocol would generate such trade.

The Illegal Wildlife Trade

As much as 25 percent of the international trade in wildlife and plants is thought to be

9 The Montreal Protocol commits parties to protecting the ozone layer through the control and, ultimately, the elimination of the production and consumption of chemicals that deplete it. CITES' objective is to protect species that are endangered or threatened species as a consequence of international trade. The Basel Convention was negotiated to control the movement of hazardous wastes between countries and to ensure their environmentally safe disposal. The Basel Parties have agreed to a ban on the trade in hazardous waste for final disposal between OECD and non–OECD countries and a ban on the export of wastes intended or recovery or recycling although this is not yet in force because the required number of ratifications has not yet been achieved.

illegal. The trade, conservatively valued at US$10 billion a year,[10] is driven by demands from private collectors and zoos for rare and unusual species of birds, animals, reptiles and plants, from research facilities for laboratory animals, and from niche consumer markets for traditional Asian and African medicines and exotic foods such as reef fish and bushmeat. It is also driven by a far more mundane demand for unusual pets ranging such as Chinese three-striped turtles or the slow loris, and for fashion items such as ivory, tortoise-shell and pashmina shawls. Wildlife trafficking is a major cause of species endangerment, probably the second biggest threat to biodiversity after habitat loss.[11] Illegal poaching has reduced the rhino population in India to what is now thought to be fewer than 400 and between 2003 and 2005 more than 60 percent of the rhino populations in Kenya and Somalia were killed by commercial poachers.[12] Tigers numbers have been so severely reduced by the demand for skins and traditional asian medicines that fewer than 5000 are estimated to remain in the wild.[13]

The actual size of the market is difficult to grasp. Some reports suggest that poachers take over 38 million birds, animals and reptiles from the wild each year.[14] As many as a thousand orangutan are thought to be trafficked out of Kalimantan (Indonesia) annually and over a tonne of pangolin (scaly anteater) is moved illegally across the Thai-Laos border each month.[15] The profits can be high even for small scale operators. Ounce for ounce, rhinocerous horn is said to be more valuable than gold or class A drugs.[16] Developing countries are not the only ones vulnerable to the illegal wildlife trade. Countries such as Australia and New Zealand, for example, are prime targets for poachers and smugglers seeking wild birds, reptiles, and native insects for sale to collectors in the international market place. Wild birds of prey are smuggled from the United Kingdom to the falconry market in the Middle East.

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10 Coalition Against Wildlife Trafficking, "Countering Multi–billion Dollar Illegal Wildlife Trade Focus of Government Backed Coalition", *Press Release*, 20 February 2007.

11 Mara E. Zimmerman, "The Black Market for Wildlife: Combating Transnational Organized Crime in the Illegal Wildlife Trade", *Vanderbilt Journal of Transnational Law* 36, no. 5 (2003): 1660. Wildlife smuggling also has biosecurity and public health consequences. Smuggled birds, for example, can carry diseases which can be transmitted to domestic and indigenous birds and to humans.

12 Josh Sims, "Illegal Trading: Follow that Badger!," *The Independent*, 2 November 2006, <http://environment.independent.co.uk/wildlife/article1948975.ece> (27 June) and Associated Press, "China Bans Production and Import of Two Ozone–depleting Substances', 2 July 2007 <http://www.enn.com/top_stories/article/6850> (25 June 2009).

13 Debbie Banks and Julian Newman, *The Tiger Skin Trail* (London: Environmental Investigation Agency, (2004), 3. Tiger numbers in Vietnam are calculated at fewer than 150 and the population of Royal Bengal Tigers in India has declined by half in the last decade, much of it as a result of poaching. See Agence France Presse, "Wildlife Smuggling".

14 Alex Kirby, "Brazil's Smuggled Wildlife Toll', BBC News, 29 April 2002, <http://news.bbc.co.uk/2/hi/science/nature/1926231.stm> (24 June 2009).

15 Agence France Press, "Wildlife Smuggling in Asia Still a Roaring Trade', 2 June 2007, <http://news.sawf.org/LifeStyle/38061.aspx> (26 June 2009).

16 Anon., "Organised Criminal Gangs Deal Wildlife and Drugs, *Environment News Service* 19 June 2002. A kilo of rhino horn, for example, can fetch up to $US30,000 on the Asian market; see Greg L. Warchol, "The Transnational Illegal Wildlife Trade," Criminal Justice Studies 17, no. 1: 59.

Timber Trafficking

The trade in illegally logged timber – described by one observer as being of 'industrial scale'[17] – is a significant component of what is an otherwise legal, although often unsustainable global industry. Illegal logging, which takes place in some of the world's most vulnerable forests, is an umbrella term for a range of activities: extraction crimes such as logging without a licence or logging inside protected areas or national parks; transportation crimes involving the smuggling across borders of illegal logged, or stolen timber and timber products, or timber species that are protected from trade under the CITES agreement; and processing crimes such as the fraudulent labeling of timber destined for export (timber laundering). It is a major driver of deforestation, habitat destruction, and species endangerment.[18]

While not all illegally logged timber is destined for transnational trade, there is almost certainly a close relationship between the extent of illegal logging and the extent of timber trafficking. In Indonesia, for example, where something between 51 percent and 80 percent of timber cut is thought to be illegally logged, the equivalent of 33 million cubic metres of illegally harvested round wood is smuggled out of the country annually. In Cambodia, illegal harvesting could be ten times the size of the legal harvest and as much as 95 percent of wood traded from Burma into China could come from illegal sources.[19] The market is also a global one. China is thought to be the world's largest buyer of stolen timber: over 40 percent of its imports might come from illegal sources in both tropical and temperate countries.[20] Japan and the UK come second and third on this list: over 3 million cubic metres of illegal (or at least unverifiable) timber and timber products is reported to enter the UK alone each year despite strict legislative guidelines on government procurement and industry commitment to fully sustainable and verifiable chains of custody.[21] Europe as a whole fares little better with some estimates suggesting that over half the tropical timber imported into the EU each year has been logged illegally.[22] The market might generate profit for timber traffickers but it is costly for governments and for legitimate industry. The World Bank estimates the global value of the market at $US10 billion and the cost to timber-producing countries in lost government revenue at about $US5 billion a year.[23]

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17 Sam Lawson, *The Ramin Racket: the Role of CITES in Curbing Illegal Timber trade* (London: Environmental Investigation Agency, 2004), 1.

18 Along with wildlife smuggling, illegal logging constitutes one of the major threats to the endangered Bornean orangutan and the critically endangered Sumatran orangutan.

19 Duncan Brack, "Controlling Illegal Logging and the Trade in Illegally Harvested Timber: the EU's Forest Law Enforcement, Governance and Trade Initiative", *RECIEL 14* , no. 1 (2005): 29; Global Witness, "China Border Logjam: the Beginning or the End of Action Against Illegal Timber Exports in Northern Burma?," Press Release, 23 January 2006 <http://www.illegal–logging.info/item_single.php?item=news&item_id=1240&approach_id=19> (24 June 2009).

20 Julian Newman and Sam Lawson, *The Last Frontier: Illegal Logging in Papua and China's Massive Timber Theft* (London/Bogor: Telapak/Environmental Investigation Agency, 2005), 22.

21 Rachel Hembery et al., *Illegal Logging: Cut it Out* (Godalming, Surrey: World Wildlife Fund, 2007).

22 International Centre for Trade and Sustainable Development, BRIDGES: *Trade Bio Res*, 20 November 2004, 2.

23 World Bank, "Weak Forest Governance Costs $US 15 billion a Year", Press Release No. 2007/86/SDN.

The Black Market in Ozone Depleting Substances

The ODS black market is a direct consequence of international agreement on targets to reduce and phase-out the production and consumption of such substances as the most effective way to reverse the destructive depletion of the ozone-layer.[24] The trade initially focused on developed countries where demand for cheap ODS, in servicing industries in particular, went 'underground' as production and consumption became, effectively, illegal in those countries.[25] In the mid-1990s, according to UNEP, between 16,000 and 30,000 tonnes of illegal CFCs (chlorofluorocarbons) —equivalent to more than 10 percent of global production — was traded annually, with a black market value estimated at something in the vicinity of $US300 million a year.[26] The market has now shifted to developing countries — the so-called article 5 countries — who have benefited from a longer phaseout period. The Asia Pacific, which accounts for over 80 percent of the world's CFC production and consumption, is a major hub for smuggled ODS, particularly CFCs and halons. India and China are the most prominent producers, consumers and transit points.[27] Even today, despite improved surveillance and tighter restrictions, the illegal trade is still thought to constitute between 7000 to 14000 tonnes of ODS a year, about 10 to 20 percent of the legitimate trade.[28] As with other illegal environmental commodities, the profits can be

16 September 2006. This may understate the loss. The Indonesian government has estimated its own annual revenue losses from illegal logging at approximately $US4.3 billion (cited in Jago Wadley, Pallari Shah and Sam Lawson, *Behind the Veneer: How Indonesia's Last Rainforests are being Felled for Flooring* (London/Bogor: EIA/Telapak, 2006), 1). A Senate Committee in the Philippines has calculated that in the 1980s, the country lost as much as $US1.8 billion a year from illegal logging (Brack, "Controlling Illegal Logging", 29). The trade in illegally logged timber depresses world timber prices by something between 7 and 16 percent because the companies and agents involved pay no taxes or fees and are able to use cheap labour, see Anon., "Down in the Woods," *The Economist* (25 March 2006), 74.

24 The illegal production and consumption of CFCs and other ODS sustains 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.

25 Illegally traded ODS come from both legal and illegal production in developed and developing countries. While alternatives to ODS are often cheaper, depending on tax and other costs, demand for counterfeit or illegal chemicals comes in part because of the high costs of adapting equipment that use ODS in such industries as air conditioning and refrigeration servicing.

26 Duncan Brack, "The Scope of the Problem: and Overview of the Illegal ODS Trade," *OzonAction Newsletter*, Special Supplement no. 6 (2001): 5. The amount smuggled into the US alone was equivalent to between one–quarter and one–third of US production; see Jennifer Clapp, "The Illicit Trade in Hazardous Wastes and CFCs: International Responses to Environmental "Bads"' in *The illicit global economy and state power*, eds H. Richard Friman and Peter Andreas (Lanham Md: Rowman & Littlefield, 1999), 113. The trade was described by US officials as 'rivalling cocaine as among the most profitable illegal imports crossing US borders' (Charles W. Schmidt, "Environmental Crimes: Profiting at the Earth's Expense," *Environmental Health Perspectives*, 112, no. 2 (2004): A97).

27 Duncan Brack et. al., *ODS Tracking: Feasibility Study on Developing a System for Monitoring the Transboundary Movement of Controlled Ozone–depleting Substances Between the Parties* (London: Chatham House/ Environmental Investigation Agency, 2006), 4. China has banned the production and import of CFCs and the six factories that officially still manufacture CFCs have agreed to stop production (see Associated Press, "China Bans Production").

28 Ezra Clark, "Ozone Depleting Substances—the Global Illegal Trade: History and Current Trends" (paper

substantial. In 2001, for example, CFC-12 purchased in China for $US1 a kilogram could fetch 16 times that on the UK black market.[29]

Transboundary Dumping of Hazardous Waste

The illegal trade in hazardous waste is driven by the 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. Hazardous waste, banned from international trade under the Basel Convention, can take a number of forms: material waste of various kinds, componentry that contains or releases toxic chemicals, electronic waste, and decommissioned ships that contain hazardous products such as asbestos or polychlorinated biphenyls (PCBs).[30] Toxic dumping – often in the world's poorest countries – results in the non-remediable pollution of water tables, river systems and local ecosystems which, in turn, affects animal, plant and human health to the extent of extreme disability and even death.

Given the vast range of substances and products that might qualify as 'hazardous' in some form under the Convention, the extent of the illegal trade is unclear. The results of a joint enforcement operation carried out in seventeen European seaports in 2005 give some idea of what the level might be. Three thousand shipping documents were examined and 258 cargo holds were physically inspected. Of these, 140 were waste shipments, of which 68 — or some 48 percent — turned out to be illegal.[31] Some of the illegality is a result of individual companies and, sometimes, government authorities, attempting to circumvent the Basel rules for any particular transboundary movement of product that would otherwise be prohibited. There does also seem to be a more specifically systematic and criminal intent to some of this trade. The Interpol Pollution Crimes Working Group has identified a profitable trade between developed countries — organized 'waste laundering' between the US and Canada, for example, is estimated to generate criminal profits of $CAN2.48 million a year.[32]

presented at the Meeting of the Regional Ozone Network for Europe and Central Asia, Ashgabat, Turkmenistan, 26 February to 2 March 2007), 1.

29 Julian Newman, "The Tricks of the Trade: How Criminals Smuggle ODS," *OzonAction Newsletter* Special Supplement no. 6 (2001): 14.

30 The United States, which has not yet ratified the Convention, continues to object to attempts under Basel to prohibit or restrict the trade in e–waste on the grounds that these are design issues and that the Convention is not the appropriate place to deal with such matters.

31 Reported in UNEP, "Liability for Côte D'Ivoire Hazardous Waste Clean–up" *News Release* 2006/58 (24 November 2006), <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=485&ArticleID=5430&l=en> (25 June 2009).

32 Interpol Pollution Crimes Working Group, *Assessing the Links between Organised Crime and Pollution Crimes* (Lyon: Interpol Secretariat, (2006), 2.

Criminal Practices and Criminal Networks

These are not occasional movements of goods. Transnational environmental crime is one of the fastest growing areas of criminal activity, globally worth billions of dollars.[33] Some forms of TEC are opportunistic and informal. But TEC is increasingly systematic, well-financed and highly organized. Large quantities of environmental contraband are daily moved across borders, sometimes by individual smugglers and rather ordinary forms of concealment (in cars, luggage, express post-bags and, as with drugs, hidden on the person) but also in bulk consignments by ship, barge, truck and plane. Environmental commodities also move in and out of the illicit economy. Trans-shipment through free trade zones or through third (or more) countries provide opportunities for 'laundering' through the redocumentation and re-import, or trading-on of illicitly sourced goods. Fraudulent documentation can certify logs as CITES compliant (if they are specimens of CITES controlled species) or as having come from legitimate sources, or can mislabel them as a related or even different species. Protected or endangered animal, bird and reptile species can be documented as captive-bred. Contraband ODS are frequently mislabeled as non-ODS or as having come from recycled sources.

Organized crime groups involved in other kinds of illicit activity have become actively involved in the most lucrative areas of transnational environmental crime. The trade in endangered species, for example, is reported to constitute part of what Williams refers to as the "diverse portfolio of criminal activities"[34] in which Russian and Chinese crime groups, African-based smuggling rings, and even South American drug cartels are now involved.[35] Asian crime groups are central to the trade in rhinoceros horn and tiger parts, the Cali drug cartel is thought to be trafficking drugs and wildlife together into the US, and the Neapolitan Carmorra is reported to be "deeply involved in the trafficking of animals."[36] The Russian mafia controls the very lucrative illegal trade in caviar. Libyan criminal groups are involved in the illegal bird trade in Southern Africa.[37]

33 Conservative estimates suggest that TEC is worth as much as US$31 billion a year or more to criminal syndicates around the world (Andrew Lauterback, Statement by the Chair, Interpol Environmental Crimes Committee to the 5th International Conference on Environmental Crime, Lyon, 2 and 3 June 2005. Others suggest that US$40 billion is closer to the mark (Hayman cited in Jeremy Lovell, "Eco–crooks Outwitting Law Agencies', Reuters News Service (28 May 2002) <http://www.ecoearth.info.shared.reader.welcome.aspx?linkid=11490> (24 June 2009).

34 Phil Williams, "Transnational Criminal Networks' in *Networks and Netwars: the Future of Terror, Crime and Militancy*, eds John Arquilla and David Ronfeldt (Santa Monica: RAND, 2001), 70.

35 For more, see Dee Cook, Martin Roberts and Jason Lowther, *The International Wildlife Trade and Organized Crime: a Review of the Evidence and the Role of the UK* (Godalming, Surrey: WWF–UK, 2002); Zimmerman, "The Black Market", Warchol, "The Transnational Illegal Wildlife Trade".

36 Phil Williams, "Organizing Transnational Crime: Networks, Markets and Hierarchies," in *Combating Transnational Crime: Concepts, Activities and Responses*, eds Phil Williams and Dimitri Vlassis (London: Frank Cass, 2001), 78–9. United Nations Commission on Crime Prevention and Criminal Justice, *Progress Made in the Implementation of Economic and Social Council Resolution 2001/12 on Illicit Trafficking in Protected Species of Wild Flora and Fauna: Report of the Secretary General*, E/CN.15/2002/7 (2002), 6.

37 Greg L. Warchol, Linda L. Zupan and Willie Clack, "Transnational Criminality: an Analysis of the Illegal Wildlife Market in South Africa," *International Criminal Justice Review*, 13, no. 1 (2003): 1–27.

TEC also goes hand in hand with other kinds of illegal commodities such as drugs and arms. This kind of parallel trafficking involves moving environmental contraband along the same smuggling routes used for other illegal commodities, combining illegal shipments, or using ostensibly legal shipments to conceal other forms of illegally sourced or traded goods and resources. Protected turtles, for example, have been found in the same shipments as marijuana.[38] Live snakes – sometimes legally exported – have been found stuffed with condoms full of cocaine.[39] Parrots and drugs have been smuggled together from Cote d'Ivoire to Israel.[40] Illegal ODS imports into Italy were discovered during an investigation into arms trafficking and at least some of those found to be smuggling ODS across the US Mexico border had a history of working as drug mules.[41] Illegal environmental goods are also sometimes used in barter trade. Protected birds have been smuggled from Australia and exchanged for heroin in Thailand.[42] Chinese crime groups are reported to be exporting the raw ingredients for methamphetamine to South African drug dealers in exchange for illegally harvested abalone which can fetch up to $US200 a pound in Asian retail markets.[43] The most recent manifestation of this kind of 'venture capital' model of TEC has brought militia groups into illegal environmental activity. The Sudan-based Janjaweed militia is reported to be involved in elephant poaching in Chad. Rebel groups in the Democratic Republic of Congo are reported to have become actively involved in the illegal ivory trade and the Kenyan Wildlife Service has identified armed groups from Somalia as the cause of an increase in elephant poaching within Kenya. Illegal logging and gun smuggling are reported to go hand-in-hand in places such as Liberia.[44]

The attractions for criminal groups are obvious. Compared with other forms of smuggling and illegal trade, the risks are low and the profits are high. Fewer resources are given to the suppression, interdiction and prosecution of such crimes. Law enforcement and customs officials are not only less aware of and less interested in environmental crime but they are often poorly trained to look for or recognize illegal environmental goods.

Understanding both the demand-side and supply-side of transnational environmental crime – the "dispositions and motivations of criminal offenders"[45] – is clearly important for policy-making on regulatory structures and decisions on where resources can best be

38 Cook et. al., *The International Wildlife Trade*.

39 Anon., "Organised Criminal Gangs".

40 UN Commission on Crime Prevention and Criminal Justice, *Progress*, 6.

41 Newman, "The Tricks of the Trade," 4.

42 Cook et. al., *The International Wildlife Trade*, 15.

43 Mark Schoofs, "Traffic Jam: as Meth Trade Goes Global," *The Wall Street Journal*, 21 May 2007 <http://www.aegis.com/news/wsj/2007/WJ070506.html> (24 June 2009).

44 FERN "Conflict Timber Found in Italian Port', EU *Forest Watch*, no 74 (May 2003), 2 <http://www.fern.org/pubs/fw/fw740503.pdf> (25 June 2009).

45 Adam Edwards and Peter Gill, "Crime as Enterprise; the Case of 'Transnational Organised Crime'," *Crime, Law and Social Change*, 37, no. 3 (2002): 209.

directed. But it is equally important to understand how environmental commodities that are either sourced illegally or destined for illegal markets are *actually* traded. As Mackenzie has argued, "investigators need to be fully aware of the nature of illicit transport networks and the particular qualities of the various goods they carry".[46] This is not just a matter of mapping trade routes and chains of custody. We need conceptual tools that can aid in identifying the asset structures that sustain these chains and which can supplement and complement research on the criminological profiles of those engaged in the source crime (such as poachers and illegal loggers).[47] In fact, Edwards and Gill suggest that 'switching the focus of research from a … preoccupation with the attributes of organised criminality to the relationships of exchange between traders [and] markets' makes it possible to 'identify a continuum of licit-illicit markets and corresponding interventions directed at their regulation'.[48] Network concepts and analysis provide one way to do this.

Networks and Network Analysis

In simple terms, networks are "actors … linked to each other through stable formal or informal relationships of communication and exchange."[49] Duffield defines them as "linkages that bring together different organizations, interest groups and forms of authority in relation to specific regulatory tasks."[50] Networks are characterized as horizontal, voluntary, decentralized, fluid and sometimes transitory arrangements which are assumed to be more resilient and flexible than hierarchical and centralized institutions in responding to changing circumstances.[51] Much of the work on the relevance of network concepts in global governance has focused on the licit sphere of activity, to which I return below. But, as Phil Williams observes, 'organised crime is increasingly operating through fluid network structures rather than formal hierarchies'.[52] We might expect that network structures will offer operational advantages for those engaged in clandestine activities. The in–built redundancy that comes with having few critical nodes (that is, those nodes without which the network would cease to function) and with multiple actors filling, or able to fill, any one role means that lines of communication and exchange can easily be repaired if any one node is removed through interdiction or prosecution. Williams argues that networks are 'less vulnerable to

46 Simon Mackenzie, *Organised Crime and Common Transit Networks*, Trends and Issues in Crime and Criminal Justice working paper no. 233 (Canberra: Australian Institute of Criminology, 2002), 6.

47 See, for example, Warchol et. al. *"Transnational Criminality".*

48 Edwards and Gill, *"Crime as Enterprise"*, 204.

49 Sangiovanni, *"Transnational Networks",* 7.

50 Mark Duffield, *Global Governance and the New Wars: the Merging of Development and Security* (London: Zed Books, 2001) 44.

51 See, for example, Charlotte Streck, "Global Public Policy Networks as Coalitions for Change," in *Global Environmental Governance: Options and Opportunities*, eds Daniel C. Esty and Maria H. Ivanova (New Haven, CT: Yale School of Forestry & Environmental Studies, 2002).

52 Williams, "Transnational Criminal Networks", 4.

decapitation and other forms of dismantling.[53] If this is the case, then it follows that network analysis could prove useful for mapping the TEC transactions that link source to market and helping us to understand how those networks function.[54]

Network typologies usually focus on either organizational or functional attributes. Arquilla and Ronfeldt have developed an organizational model to explain "emerging mode[s] of conflict and crime."[55] In this typology, transactions of communication and exchange are described as either chain (or line) networks represented in smuggling rings, hub (or star) networks such as a franchise or cartel, and all channel networks where "everybody is connected to everybody else."[56] This organizational model can be supplemented with a typology that focuses on what might be called the asset structures of criminal arrangements and endeavours. Research thus far is suggestive of three kinds of 'asset structures' that operate simultaneously to sustain illicit chains of custody and illegal markets: market networks, social-criminal networks and political-criminal networks. This typology, which is explained below, is both heuristic and ideal-type.

Market Criminal Networks

Transnational crime (including, for our purposes, transnational environmental crime) is often characterized as enterprise crime or what Phil Williams calls the 'neo-Clausewitzian' approach – as "simply the continuation of business by other means."[57] Illegal trade persists and flourishes through market networks. These describe the chains of custody through which illegally-sourced or produced environmental commodities such as CFCs, timber, wildlife and hazardous waste are physically sourced and then moved to their destination. Organisationally, market networks are likely to function as a combination of chain and hub networks that Arquilla and Ronsfeldt describe, where goods are moved along a line of contacts (chain) but where key aspects of the movement may be overseen by one or two central players (hub).

As with licit markets, critical nodes exist at the point of production, harvest or capture; at the point of export and import; and the point of retail or final use. Some TEC market networks are simple, even amateur or opportunistic attempts that involve a small number of people, uncomplicated smuggling routes, and unsophisticated forms of concealment. The market-networks that sustain larger-scale TEC are, by contrast, likely to be profes-

53 Williams, "Organizing Transnational Crime", 72.

54 This kind of research can also help researchers to evaluate the usefulness (as well as possible limitations) of the network concept for describing and explaining transactions of exchange in the illicit chain of custody (a 'proof of concept' study).

55 John Arquilla and David Ronfeldt, "The Advent of Netwar (Revisited)" in *Networks and Netwars: the Future of Terror, Crime and Militancy,* eds John Arquilla and David Ronfeldt (Santa Monica: RAND, 2001), 6.

56 Arquilla and Ronfeldt, "The Advent of Netwar", 8.

57 Phil Williams, "Transnational Organized Crime and the State" in *The emergence of private authority in global governance*, eds Rodney Bruce Hall and Thomas J Biersteker (Cambridge: Cambridge University Press, 2002), 164.

sional, well-organised and complex. TEC markets benefit from the network advantage of having multiple, diverse and often loosely connected nodes that "makes it difficult for law enforcers to pinpoint and unravel them."[58] They are likely to involve multiple sources of goods, multiple participants in the chain of custody, and the use of sophisticated methods to conceal either the goods or their true nature or origin. To make detection more difficult, illicit environmental goods are often moved along complex routes through more than one trans-shipment point where enforcement is lax and where goods can easily be repackaged, relabeled and acquire fraudulent documentation before being moved on. Smuggling illegal products across borders and through a variety of transshipment countries is, as Williams observes, "greatly facilitated by cooperation among criminal enterprises based in different countries",[59] to which we might add cooperation with companies, brokers, government agents and officials, and those offering professional services from within the licit economy.[60]

A few examples will give the flavour of what we know about market-networks in practice. Intelligence on merbau smuggling syndicates in Southeast Asia, for example, shows that they involve timber brokers in Jakarta, companies and individuals in Malaysia who oversee the actual logging, companies in Singapore who charter cargo vessels and who arrange false documentation, brokers in Singapore and Hong Kong who connect sellers in places such as Papua with buyers in India and China.[61] The illegal trade in elephant tusks into Asia is reported to involve interlocking webs of shell companies, Southeast Asian and African nationals, and a complex smuggling route that trades from Africa across multiple borders and through several Asian ports before reaching its final destination.[62] Jernelov reports a complicated distribution line in CFCs from Spain (for example) via Singapore or Dubai, through India to Nepal or Bangladesh and then back again to the market in India often re-

58 Sangiovanni, "Transnational Networks", 9. Evidence from Southeast Asia points to the resilience of networks structures. NGO investigations suggest that, despite the apparent success of law enforcement efforts of the kind coordinated under Operation Hutan Lestari in Papua, Kalimantan and Sumatra, timber smuggling syndicates are functioning again using new routes and new methods of smuggling and laundering timber, (see EIA/Telapak, *The Thousand–headed Snake: Forest Crimes, Corruption and Injustice in Indonesia* (London/Bogor: EIA/Telapak, 2007). EIA also reports how a Singaporean ramin smuggling operation exposed in 2003 has since 'expanded dramatically and moved across the Johor straits to Malaysia'; see Lawson, *The Ramin Racket*, 11.

59 Phil Williams, "Cooperation among criminal organizations" in *Transnational Organized Crime and International Security*, eds Mats Berdal and and Mónica Serrano (Boulder: Lynne Rienner, 2002), 72.

60 Mackenzie describes four types of market transactions that 'represent the legal status of the commodity at each of three stages of the market' – source, transport and destination. These are (i) illicit source, illicit transport and illicit destination; (ii) illicit source, illicit transport and licit destination market; (iii) licit source, illicit transport and illicit destination; and (iv) licit source, illicit transportation to licit destination market; see *Mackenzie, Organised Crime and Common Transit Networks,* 3.

61 Newman and Lawson, *The Last Frontier*, 9.

62 Agence France Presse, "Wildlife Smuggling" and Debbie Banks et. al., *Upholding the Law: the Challenge of Effective Enforcement* (London: Environmental Investigation Agency, 2007). For example, Ivory that ends up in China or Japan may have come from the Democratic Republic of Congo, Cameroon and Nigeria, through ports including Hong Kong, Macau and Taiwan.

labeled or with fraudulent documentation.[63] Banks and Newman reveal that the tiger trade from India is controlled by a sophisticated smuggling ring that has functioned over many years based on a 'tight group of individuals deeply involved in procuring and trafficking skins' and using courier chains to avoid detection.[64]

The robustness and resilience of criminal networks in the illicit market relies not just on efficient communication and exchange. It is function also of social capital and social control within the network and the insinuation of criminal interests into the licit space occupied by politicians, bureaucrats, enforcement officials and the military.

Social Criminal Networks

Participants in illicit markets cooperate in "complex and [often] unpredictable ways".[65] To minimize the impact of this unpredictability and to sustain concealment, criminal networks require mechanisms of social control through complex webs of social affiliation that are sometimes based on fluid and loosely organized relationships and sometimes on more structured arrangements.[66] The more effective these webs of affiliation and mechanisms of social control are, the less likely is the risk of exposure and the more resilient the network will be. The social aspect of criminal networks structures the ways in which intermediaries establish and maintain contacts, the ways in which bonds of trust are sustained in the absence of formal hierarchy and, as Edwards and Gill point out, the ways in which "criminal expertise is transferred".[67] Nevertheless, it is difficult to be conclusive rather than suggestive of the role of social assets and mechanisms of social control in sustaining network authority. As Klerks point out, sociometric studies of illicit networks are rather difficult.[68]

Evidence from investigative research and reports of successful interdictions and prosecutions does suggest that in transnational environmental crime networks, as in other forms of criminal activity that function across (as well as within) borders, social relationships and informal social ties within illicit networks can take a variety of forms or 'bonding mecha-

63 Arne Jernelov, "The Ozone Mafia," *Project Syndicate Print Commentary* (2005) <http://www.project–syndicate.org/print_commentary/jernelov6/English> (26 June 2009).

64 Banks and Newman, *The Tiger Skin Trail*, 6.

65 Phil Williams and Roy Godson, "Anticipating Organized and Transnational Crime", *Crime, Law and Social Change* 37, no.4 (2002): 323.

66 See, for example, Jeffrey Scott McIllwain, "Organized Crime: a Social Network Approach," *Crime, Law and Social Change* 32, no. 4 (1999): 301–23.

67 Adam Edwards and Peter Gill, "Measurements and Interpretations" in *Transnational organised crime: perspectives on global security,* eds Adam Edwards and Peter Gill (London: Routledge, 2003), 62.

68 Peter Klerks, "The Network Paradigm Applied to Criminal Organisations: Theoretical Nitpicking or a Relevant Doctrine for Investigators? Recent developments in the Netherlands", in *Transnational Organised Crime: Perspectives on Global Security*, eds Adam Edwards and Peter Gill (London: Routledge, 2003).

nisms'.[69] Some rely on identify-affiliations, based on ethnicity, nationality or family/kinship ties. Others take the form of a client-patron relationship and still others rely on what Paoli describes as a "relationship of generalized reciprocity".[70] TEC networks based on ethnic or nationality forms of affiliation sometimes involve well-known criminal groups with established mechanisms of internal (and external) social control diversifying into environmental crime sectors. Japanese yakuza, for example, have capitalized on the illegal trade in hazardous waste and Chinese triad groups are key to the wildlife trafficking which feeds the market for traditional Asian medicines. Ethnic Chinese groups, rather than organized Chinese crime, have also controlled some sectors of the illegal timber trade in Indonesia. Warchol et al report that in Africa "ethnic links across borders … [have] allowed smugglers to create an informal market for trading in wildlife parts".[71]

Networks based on family, kinship or community ties have also proved resilient in sustaining TEC market-networks. Tiger poaching and the illegal trade in tiger skins in Northern India, for example, is known to rely on family groups from a small number of villages.[72] Family connections that reach to the highest levels of politics are reported to control (and profit from) illegal logging and timber smuggling in Cambodia.[73] TEC is equally likely, however, to be characterized by fluid forms of social network based on patron-client relationships, a form of mutual but unequal exchange or patronage. Local communities who provide labour for illegal logging, timber processing or wildlife poaching are integrated into criminal networks through semi-feudal connections to local timber barons or local officials who control aspects of criminal activity, or through social coercion that takes advantage of economic vulnerability in situations where alternative sustainable livelihoods are not available.[74]

Political–Criminal Networks

Those involved in TEC have moved to take advantage of the 'upperworld' of corrupt officials and politicians enabling those engaged in illicit market activity to evade control mechanisms and protect the chain of custody. Indeed, some commentators suggest that corrup-

69 Klerks, "The Network Paradigm Applied", 102.

70 Letizia Paoli, "Criminal Fraternities or Criminal Enterprise?" in *Combating Transnational Crime: Concepts, Activities and Responses* (London: Frank Cass, 2001), 95.

71 Warchol et. al, "Transnational Criminality", 5.

72 Banks et. al., *Upholding the Law*, 20.

73 See Global Witness, *Cambodia's Family Trees: Illegal Logging and the Stripping of Public Assets by Cambodia's Elite* (Washington DC: Global Witness Publishing 2007; Kirk Talbott and Melissa Brown, "Forest Plunder in Southeast Asia: an Environmental Security Nexus in Burma and Cambodia," *Environmental Change and Security Project Report* Issue 4 (1998): 53–60.

74 Local communities are sometimes also 'bought off' to minimize protests in areas where resource extraction is known to be illegal (see, for example, the case studies of Cameroon in Danielle Van Oijen, and Sylvain Angerand, *Illegally Logged Wood from Cameroon on the Dutch Market* (Amsterdam/Paris: Milieudefensie/Les Amis de la Terre, 2007).

tion should best be understood not as a pathology of the state but simply as an instrument of risk management for criminal groups.[75] In their most extensive form, political-criminal networks integrate criminal actors fully into the economic and political institutions of the state, often delivering them significant power and even, Serrano suggests, consolidating "exclusive governing authority".[76] The insinuation of criminal enterprise into the agencies of the state in transnational environmental crime can take a number of forms. Local officials, customs officers, police and the judiciary are bribed to overlook illegal shipments, to assist with false paper trails and forged documentation, to help evidence disappear during prosecutions, to delay or drop prosecutions, and even to return no convictions in the case of those who are brought to trial.[77] Syndicates running timber smuggling enterprises in Indonesia, for example, have "bought off local Indonesian customs officials and harbour masters" and used their influence to "have any attempted shipments by competitors stopped".[78] Companies in Ukraine have 'negotiated' with customs officers to facilitate the importation of 'uncontrolled' ODS.[79] Companies involved in timber theft in Papua are reported to be "aided every step of the way by officials from the military, police and forestry departments, as long as the requisite bribe is paid".[80]

Bribery and corruption also work the other way around: rather than being the recipients of bribes, government officials, protection and enforcement officers, and politicians can take key roles as the organizers, facilitators and beneficiaries of illicit market networks.[81] Sometimes this is confined to local-scale corruption. The Environmental Investigation Agency reports cases of park wardens contracting poachers in Zambia's South Luangwa National Park and government vehicles being used in Tanzania to transport poached ivory, coordinated by a former game ranger who acts on behalf of senior members of the government.[82] Police and military officers are known to be heavily involved in organizing and coordinat-

75 Williams, "Transnational Organized Crime," 174–5.

76 Monicá Serrano, "Transnational Organised Crime and International Security: Business as Usual?" in *Transnational Organised Crime and International Security*, eds Mats Berdal and Monicá Serrano (Boulder: Lynne Rienner, 2002), 18. See Felix Berenskoetter, *Under Construction: ESDP and the Fight Against Organised Crime*, Working Paper, Department of International Relations, London School of Economics (2006) for more on what he characterizes, drawing on Lupsha, as the symbiotic stage of organized crime.

77 See, for example, reports on the case of lucrative ivory seizures in Singapore in Banks et. al., *Upholding the Law.*

78 Sam Lawson, *Profiting from Plunder: how Malaysia Smuggles Endangered Wood* (London/Bogor: Environmental Investigation Agency/Telapak, 2004, 13.

79 Volodymyr Demkine, "Facing the Challenge in Countries with Economies in Transition', *OzonAction Newsletter* Special Supplement no. 6: (2001): 10.

80 Newman and Lawson, *The Last Frontier*, 7.

81 For more on the concept of a political–criminal network, see Roy Godson, "The Political–criminal Nexus and Global Security" in *Menace to Society: Political–criminal Collaboration Around the World*, ed. Roy Godson (New Brunswick: Transaction Publishers, 2003).

82 Banks et. al., *Upholding the Law*, 6. At the same time, many park rangers are risking their lives to implement anti–poaching legislation, often in conditions in which they are under–funded and under–resourced.

ing illegal logging in a number of countries in Southeast Asia or providing security for logging operations.[83] As with other forms of systematic criminal activity, the bribery and corruption associated with TEC undermine attempts to instill good governance. They corrode the institutions of the state and compromise core values such as 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 as a 'protection racket' or kleptocracy that sustains private appropriation and rent-seeking.

Regulation, Implementation and the Practical Benefits of Networks?

The issue-area of transnational environmental crime is increasingly congested with policy activity. Some of this has been happening under the auspices of the key TEC conventions and other UN bodies. CITES has adopted a series of resolutions on illegal wildlife trade and has, in some cases, declared all trade in a particular species (sturgeon) or product (bear gall) to be effectively illegal. Parties are exhorted to strengthen controls on illegal trade and 'not to encourage illegal trade'.[84] The Convention now hosts MIKE (Monitoring the Illegal Killing of Elephants) and the Tiger Enforcement Task Force and has worked in conjunction with the Great Apes Survival Project (GRASP) to undertake technical missions on the illegal trade in orangutan.[85] The Meeting of Parties under the Montreal Protocol has similarly adopted a series of decisions on illegal trade, called for more effective tracking systems, and appointed a panel of experts to develop a 'conceptual framework of cooperation' to deal with the problems of illegal trade.[86] UNEP, which hosts the Montreal Protocol Secretariat, has worked extensively through its regional offices and its Division of Technology, Industry and Economics, to develop Regional Networks of Ozone Officers and the OzonAction programme on capacity building and training for implementing the Protocol and dealing with problems of illegal ODS trade. The Basel Convention secretariat has established procedures for reporting illegal traffic of hazardous wastes and the Conference of Parties has adopted 'guidance elements' and a training manual for the detection, prevention and control of illegal trade. In Southeast Asia, the UN Office on Drugs and Crime proposes to expand the

83 See Siem Bok "The Fight against Illegal Loggers," *The Economist* (April 1999), 24; International Crisis Group, *Indonesia: Natural Resources and Law Enforcement*, Asia Report No. 29 (Jakarta/Brussels: ICG, 2001); Rivani Noor and Rully Syumanda, *Social Conflict and Environmental Disaster: a Report on Asia Pulp and Paper's Operations in Sumatra, Indonesia* (Moreton–in–Marsh, UK: World Rainforest Movement, 2006); Newman and Lawson, *The Last Frontier.*

84 Conf. 6.4 (REV), Controls on illegal trade, adopted at the Sixth meeting of the Conference of the Parties Ottawa (Canada), 12–24 July 1987 and amended at the Ninth Meeting of the Conference of the Parties, Fort Lauderdale (United States of America), 7–18 November 1994.

85 Other specific areas of concern have included the trade in tigers and tiger parts and derivatives, and the trade in rhinocerous and rhinocerous parts.

86 UNEP, *Report of Workshop of Experts from Parties to the Montreal Protocol to Develop Specific Areas and a Conceptual Framework of Cooperation to Address Illegal Trade in Ozone–depleting Substances*, UNEP/OzL. Pro/Workshop/3 (3 April 2005), 1.

work of the Border Liaison Office network to include wildlife and timber trafficking. The illegal trade in forest products now features on the agenda of the UN Commission on Crime Prevention and Criminal Justice.[87]

But much is happening beyond this, involving government agencies, nongovernment and civil society organizations (NGOs and CSOs), and the private sector. Examples, from a potentially large 'data pool', would include the European Union's Forest Law Enforcement, Governance and Trade (FLEGT) initiative and the Voluntary Partnership Agreements (VPAs) negotiated under its auspices; the Coalition Against Wildlife Trafficking (CAWT) which brings together governments, international NGOs and scientific bodies; ASEAN's Wildlife Enforcement Network; the Forest Stewardship Council, the Tropical Forest Trust, and the Global Forest & Trade Network; Operation Sky-hole Patching coordinated by the UNEP and the World Customs Organisation's Regional Intelligence Liaison Office Asia Pacific (RILO A/P); the WCO's Green Customs Initiative; the TRACE Network that promotes the use of forensice science in the investigation of wildlife crime.[88] This policy activity increasingly takes the form of or is managed through horizontal networks of various kinds, of government officials, law enforcement officers, criminal investigation and border control agencies, environmental NGOs, scientific bodies, and the private sector. NGOs are themselves networked, with each other and in partnerships of various degrees of formality with government agencies and intergovernmental organizations.

But to be clear on the extent to which networks are what Slaughter calls the 'organisational form of choice'[89] and to be able to categorise those networks, we need a more comprehensive mapping exercise. That is, if there are lessons to be learned from network forms of transnational governance, then we need to know what is happening 'out there' in the policy, regulatory and operational world of transnational environmental crime prevention and enforcement.

Networks are not, of course, just networks. The ways in which policy and operational networks are described in the public policy and global governance literature rely on various assemblages of actors, functional purposes and normative/epistemic intents. Focusing on actor–constellations defines transgovernmental networks of national officials that reflect the "basic need of government officials in one country to interact with their counterparts in another to regulate increasingly mobile and global private actors" including criminal actors.[90] It also defines global public policy networks that bring together government, non-

87 Under the formal heading 'Preventing and combating of illicit international trafficking in forest products preventing and combating illicit international trafficking in forest products, including timber, wildlife and other forest biological resources'.

88 The TRACE Network 'brings together forensic scientists and enforcement agencies in order to exchange information on the latest challenges facing wildlife law enforcement and modern techniques for tackling them' (see http://www.tracenetwork.org/).

89 Anne–Marie Slaughter, "Governing the Global Economy through Government Networks," in *Role of Law in International Politics*, ed. Michael Byers (Oxford: Oxford University Press, 2000), 179.

90 Anne–Marie Slaughter and David Zaring, "Networking goes International: an Update," *Annual Review of Law and Social Science*, 2 (2006): 214. See also Slaughter 2004a.

state and private sectors actors to deliver public goods when inter-governmental arrangements are unable (or possibly unwilling) to do so.[91] The functional approach characterizes global (environmental) public policy networks as negotiation networks and coordination networks that construct non-coercive mechanisms of influence (rule–making) and implementation networks for the "enforcement of contracts".[92] The normative and epistemic focus, on networks as "communicative structures", gives us both transnational advocacy networks whose goal, through 'norm entrepreneurship' is to "change the behaviour of states and of international organizations"[93] and knowledge networks which function as "mechanisms for the international diffusion of ideas and the promotion of policy transfer".[94]

One of the challenges for dealing with TEC is finding the right regulatory mix across prevention, detection and apprehension, and enforcement and prosecution. Disrupting criminal networks, even informal and opportunistic ones, is difficult. The most sophisticated smuggling networks in TEC are often better resourced than law enforcement and border control agencies. Penalties are often minimal. Intelligence on TEC activities is often limited in comparison with what is known about other illicit markets such as drugs or arms, and inter-agency arrangements for exchange of information, joint operations or mutual assistance within countries let alone between them are often uneven. Agencies are challenged by what Sheptycki calls 'linkage blindness' – a lack of information networking and exchange that can result in "overlap and duplication of functions and expertise".[95] Bureaucracies, Naím implies, are not much good at fighting networks.[96] The question is, can networks do better? And how would we know?

The literature on networks generates three, overlapping, categories of propositions on why networks are assumed to be more efficient and effective in dealing with complex coordination and deliberation problems. These propositions address institutional issues, operational issues, and what might be called epistemic issues of social learning. The expectation is, first, that regulatory networks involving both public and private actors can complement international organizations through facilitating and improving the quality and depth of cooperation between countries, enhancing compliance with international treaties and facili-

91 Streck, "Global Public Policy Networks".

92 Thomas J. Biersteker and Rodney Bruce Hall, "Private Authority as Global Governance' in *The Emergence of Private Authority in Global Governance*, eds Rodney Bruce Hall and Thomas J. Bierseker (Cambridge: Cambridge University Press, 2002), 203). For more on the coordination, negotiation, implementation typology, see Thorsten Benner, Wolfgang H. Reinicke and Jan Martin Witte, "Global Public Policy Networks: Lessons Learned and Challenges Ahead," *The Brookings Review* 21, no. 2 (2003): 18–21; and Wolfgang H. Reinicke and Francis Deng, *Critical Choices: the United Nations, Networks and the Future of Global Governance* (Ottawa: IDRC, 2000).

93 Margaret E. Keck and Kathryn Sikkink, Activists Beyond Borders: *Advocacy Networks in International Politics* (Ithaca: Cornell University Press, 1998).

94 Diane Stone, "Introduction: Global Knowledge and Advocacy Networks," *Global Networks* 2, no. 1 (2002): 5.

95 J. W. E. Sheptycki, *"Transnational Policing and the Makings of a Post–modern State",* British Journal of Criminology 35, no. 4 (1995): 618.

96 Moisés Naím, "The Five Wars of Globalization," *Foreign Policy* (Jan/Feb 2003): 29–36.

tating "more effective and timely adoption of national legislation."[97] They not only "expand regulatory reach" but also "build trust and establish relationships among their participants … [and] establish the conditions essential for long-term cooperation".[98]

Second, networks are expected to enhance problem-solving capacities and reduce transaction costs. Powell argues that network forms of organization should be "more effective than either markets or hierarchies in situations requiring know-how [and] demanding speed".[99] They can improve data collection, facilitate the flow of information, and support coordination among multiple agencies. They can provide useful vehicles for "offer[ing] technical assistance … to [network] members from less developed countries".[100]

Third, networks can help to enhance institutional 'learning' through what Sheptycki calls the "transnational trade in criminological knowledge".[101] UNEP calls this "collective learning by sharing while doing"[102] and "peer-to-peer problem solving".[103] Networks, in theory at least, enable actors and agencies to share policy tools more effectively and quickly than hierarchical arrangements and institutions, to "exchange regular information about their own practices and develop databases of best practice",[104] and to "brainstorm innovative … solutions".[105] Raustiala argues that the "existence of a network strengthens incentives to seek convergence [of policies, regulations and operational practice] because convergence allows for deeper and broader cooperation".[106]

A Few Concluding Thoughts

Slaughter argues that networks are "under-appreciated, under-supported and under-used to address the central problems of global governance".[107] Edwards and Gill argue that "the application of opportunity reducing techniques implies an investment in identifying the stratagems and mechanisms employed by [criminal] networks … to … communicate with each

97 Klaus Töpfer, "Foreword" in *Networking Counts: Montreal Protocol Experiences in Making Multilateral Evironmental Agreements Work* (Paris: UNEP Division of Technology, Industry and Economics, 2002), 3. See also Slaughter and Zaring, "Networking goes International", 211; 225.

98 Slaughter, "Disaggregated Sovereignty", 162.

99 See Slaughter and Zaring, "Networking goes International", 218.

100 Slaughter, "Disaggregated Sovereignty", 162.

101 Sheptycki, "Trnansnational Policing", 617.

102 UNEP, *Networking counts*, 4.

103 UNEP, *Networking counts*, 10.

104 Slaughter, "Disaggregated Sovereignty", 162.

105 UNEP, *Networking counts*, 5.

106 Cited in Slaughter and Zaring, "Networking goes International", 215.

107 Slaughter, "Disaggregated Sovereignty", 159.

other and with nominally licit entrepreneurs, traffic illicit goods and services, and launder the proceeds of crime".[108] And Mackenzie suggests that "understanding … [criminal] networks is inherently more difficult and resource intensive than seizing commodities but is likely in the end to reap wider results".[109]

The discussion here has sketched out a series of research possibilities for a research agenda on the transnational dimensions of 'nature resource crime' and 'environmental crime'. Research informed by network analysis holds out some promise for such an agenda that will contribute to "research, policy change and learning".[110] First, through providing a more coherent and comprehensive understanding of the extent and nature of criminal networks involved in transnational environmental crime, it can help to *inform* policy on effective response and enforcement strategies. Second, it can help to *evaluate* whether, as claimed by much of the literature, network responses are likely to provide the policy community with more effective ways of responding to transnational environmental crime. This research agenda also entertains a number of supplementary but equally critical questions: whether asset structures are incidental to organizational arrangements or whether particular organizational arrangements are more or less likely to rely on particular asset structures; whether particular combinations of organizational and asset structures are more or less resilient in the face of attack; and whether different kinds of transnational environmental crimes are characterized by different kinds of networks either by sector or by geography.[111]

In elaborating what such the empirical and analytical components of such research might look like, this chapter has nevertheless side-stepped some of the more normative and political challenges associated with networks in theory and in practice. That is not to suggest that this is unimportant. Indeed, the political and normative is central to my work as an IR scholar. Networks come not only with normative promise but also, potentially, with ethical baggage. One of the central claims made of networks is that they are (or at least can be) more "accountable and inclusive than existing international institutions".[112] The counter-argument is that, depending on their form and actor constellation, transnational networks run the risk of privileging technocrats and experts, that they can replicate or mask power relationships of various kinds (including those between developed and developing countries or those that blunt the voices of the vulnerable and marginalized who are nevertheless also 'criminalised'), and that they can distort policy objectives. Any research into networks and TEC cannot overlook this entirely. Indeed, recognizing the ethical claims and challenges can actually strengthen the policy-relevance of the research if the consequence is that 'lessons learned' analysis takes account of the political as well as the regulatory and operational.

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108 Edwards and Gill, "Crime as Enterprise", 209.

109 Mackenzie, *Organised Crime and Common Transit Networks*, 6.

110 Edwards and Gill, "Crime as Enterprise", 211.

111 Warchol et. al., "Transnational Criminality" report that the trade in illegal birds from Southern Africa is much more organized than, say, poaching and smuggling in large cats in the same part of the world. Other research suggests that this pattern might not be repeated in, say, Southeast Asia or South Asia.

112 Slaughter, "Governing the Global Economy", 179.

Daniel Faber

CAPITALISING ON ENVIRONMENTAL CRIME: A CASE STUDY OF THE U.S.A. POLLUTER–INDUSTRIAL COMPLEX IN THE AGE OF GLOBALIZATION

INTRODUCTION

This chapter constitutes a case study of sorts to illustrate the political-economic forces that undermine efforts by legal and other regulatory agencies to curb the impact of environmental harm and which – knowingly or unknowingly – exacerbate the global ecological crisis. This paper mostly focuses on the manner in which neo-liberal policies are exacerbating environmental crime in the United States. However, the analysis presented here extends far beyond U.S. boundaries into a larger critique of global capitalism. The following discussion of the 'polluter-industrial complex' in the USA serves as an example of how academic scholarship can contribute to a well-grounded, multi-disciplinary understanding of the social, political, and market-driven forces that – if left unchecked – may propel the world into an ecological crisis of unfathomable proportions.

The Polluter–Industrial Complex and Environmental Injustice

The American environment is under assault. Driven by the thirst for higher profits and the threat of increased international competition in the era of globalization, business elites have initiated a political movement calling for reduced taxes and less government regulation of industry. At the heart of this demand for 'regulatory reform' is the rollback of traditional environmental policies, occupational health and safety rules, consumer protection laws, and other regulations seen as impinging upon corporate earnings. Termed *neo-liberalism*, this political assault on the regulatory responsibilities and capacities of the state is being spearheaded by the largest and most powerful corporate polluters in the United States. These sectors include chemical companies and agribusiness firms seeking to relax rules governing the use of pesticides; logging, oil, and mining companies wanting to open up protected wilderness areas to resource exploitation; and auto manufacturers and big utilities seeking exemptions for clean air regulations. These corporate polluters have created a sophisticated network of think tanks, policy institutes, research centers, foundations, nonprofit organizations, public relations firms, political action committees, legal centers, and business-friendly environmental (or 'astroturf') organizations. This organizational infrastructure – what I call the *polluter-industrial complex* – is committed to discrediting the environmental movement, and to weakening government programs and policies that promote environmental justice, protect public health and safeguard the earth.

The polluter-industrial complex wields power over the state apparatus in a number of ways, including processes by which: (1) business-friendly political candidates are selected and financially supported; (2) officials aligned with industry are politically appointed to administer key government agencies, including those relating to environmental protection; (3) a vast policy-making infrastructure favorable to environmentally-destructive companies is systematically utilized by both major political parties to rollback ecological protection; (4) corporate lobbyists beholden to the polluter-industrial complex are granted extraordinary influence in the halls of government; and (5) the corruption of independent scientific investigation of environmental problems by corporate polluters. Together, these processes constitute a network of mechanisms that establish and maintain domination of the state by the power elite, particularly those associated with ecologically destructive corporations. It is the growing political power of the polluter-industrial complex which is responsible for the erosion of environmental quality in the United States.

W. Bush illustrates the effectiveness of the candidate selection process as a tool employed by the polluter-industrial complex to colonize the state. More than any other president in recent history, Bush's political career was owed to the vast campaign resources supplied by the polluter-industrial complex. Of the tens of millions of dollars contributed by the polluter-industrial complex to all federal candidates and party committees between 1999 and 2002, one out of every three dollars were invested in the Bush-Cheney ticket and the Republican National Committee – more than was contributed to all Democratic candidates and party committees combined.

Under the Bush administration, thirty years worth of progress by the environmental movement was systematically dismantled. These actions included reneging on a promise to curb US emissions of greenhouse gases, opening up national forests to logging, significantly reducing the budget for the Environmental Protection Agency (EPA) and other government agencies, repealing tough scientific-based standards for removing poisons in drinking water, gutting the federal Superfund program responsible for cleaning up the country's most dangerous hazardous waste sites, and implementing weaker regulations around air and water pollution from power plants and big industry.

Under President Barack Obama, many of these policy assaults have been halted or reversed (especially with respect to energy, climate change, and wilderness protection). Nevertheless, the economic crisis and political pressure brought to bear by the polluter-industrial complex has led the Obama administration to scrap or scale-back many new environmental initiatives. As a result, the ecological crisis continues to deepen. American corporations are now spending less on pollution prevention, reducing expenditures designed to protect worker health and safety, and more ruthlessly exploiting valuable raw materials and energy resources on federal lands. Hundreds of thousands of American citizens die each and every year from polluted air and water, diseases related to long-term occupational exposure to industrial poisons, and cancers linked to the presence of industrial toxins in our food, homes, and local environments. While this ecological crisis is impacting everyone, some are more deeply affected than others. Rather, it is the working class, and especially poorer people of color and the most politically oppressed segments of America's underclass, whom are being selectively victimized to the greatest extent by corporate environmental abuses.

Neo–Liberalism, Selective Victimization, and the Restructuring of American Capitalism

In the new global economy, foreign capital and multinational corporations operating overseas can avoid paying for environmental safeguards, neglect worker health and safety standards, and exploit cheaper sources of labor. In order to compete in the world market, American capital must become more efficient. The flood of cheap imports into the country means that US businesses are less able to boost profits by raising the prices of their commodities. To raise prices would drive consumers to purchase low-cost imports manufactured by foreign capital. As a result, the first imperative of US-based capital in the new global economy is to lower production costs. Because domestic and world export markets are becoming both more generalized and cutthroat, *cost minimization* strategies now lay at the heart of American business strategies for *profit maximization*. Along with labor costs (which include health insurance and other benefits), environmental protection measures are considered by many industries to be some of the most expensive and burdensome. Companies are therefore seeking to protect earnings not only by 'downsizing' the labor force but also by cutting investments in pollution control, environmental conservation, and worker health and safety.

Simply put, the key to cost containment lies in processes of capital restructuring that have enabled American business to *extract more value from labor power and nature in less time and at less cost*. Business is also cutting production costs by spending less on pollution prevention and control, as well as on sound waste disposal methods and environmental restoration. Many sectors of industry are adopting new production processes and technologies (such as biotechnology in agriculture) that increase productivity but are also more polluting or destructive of the environment. This corporate offensive is also causing more damaging forms of natural resource extraction from this country's most unique and treasured landscapes, especially lands belonging to Native Americans; a deterioration in consumer product safety and attempts to limit corporate liability for defective or damaging products; the disappearance of ever more natural species and habitats; suburban sprawl; and a general assault on those programs and policies designed to protect the environment.

In the age of globalization, the costs of complying with various environmental laws are therefore seen by corporate polluters as increasingly problematic. Since the 1970s, spending for environmental protection has grown three times faster than the gross domestic product (GDP), and constitutes almost 3 percent of GDP.[1] In contrast to 'green chemistry' and 'clean' production techniques, the American industrial ecology model favors the adoption of pollution abatement technologies. Unlike new machinery that increases labor productivity and indirectly lowers the costs of wage goods, traditional pollution abatement devices and cleanup technologies usually increase costs. Hence, 'end of the pipe' pollution containment and environmental conservation measures are considered to be a luxury that American business is increasingly unwilling to absorb, especially when one considers the advantage enjoyed by foreign competitors with lower labor costs and less stringent regulations.

Without prohibitions and the threat of punitive actions by state regulatory agencies or the courts, it is simply more profitable for corporations to pollute. Rather than spending money for pollution abatement technology, businesses avoid this expense by directly releasing pollution into the environment. So, instead of 'internalizing' $10 million in costs for the installation of a 'scrubber' to clean the air of chemical pollutants, corporations will 'externalize' this expense onto society in the form of air pollution and other environmental health problems. In addition to the over 60,000 Americans killed each year by air pollution, these social losses (or 'negative externalities') also take the form of long-term damage to human health; the destruction or deterioration of property values and the premature depletion of natural wealth (such as with acid rain); and the impairment of less 'tangible' values associated with environment quality and the loss of community.[2] Thus, pollution-control devices and other corporate expenditures to protect environmental quality yield what economists term *non-excludable benefits*, such as the right of citizens to a toxic free environment.[3]

1 Roger H. Bezdek, "The Net Impact of Environmental Protection on Jobs and the Economy," in Bunyan Bryant, ed., *Environmental Justice: Issues, Policies, and Solutions* (Washington, DC: Island Press, 1995), 86–106. Bezdek, however, argues that environmental regulations have an overall positive economic impact.

2 K. William Kapp, *The Social Cost of Private Enterprise* (New York: Schocken Books, 1950), 13.

3 Richard Cornes and Todd Sandler, *The Theory of Externalities, Public Goods, and Club Goods* (New York: Cambridge University Press, 1986), 6.

But not all Americans are equally impacted by the social and ecological costs of capitalist production equally. In order to bolster profits and competitiveness, US corporations embrace various strategies for displacing negative environmental externalities that are not only *economically efficient but also politically expedient*. The less political power a community of people possesses; the fewer resources (time, money, education, etc) that people within have to defend themselves from potential threats; the lower the level of community awareness and mobilization against potential ecological threats; the more likely they are to experience arduous environmental and human health problems at the hands of capital and the state. In contrast, communities with a strong economic base and high degree of control capacity over the decision-making processes of local government officials and business leaders are better able to block the introduction of environmental hazards.[4]

Communities that lack control capacity in the U.S. are typically made up of marginalized racial and ethnic minorities, as well as the underemployed and poorer segments of the white working class. For those members of the socially and spatially segregated 'underclass', powerlessness is even more pervasive. America's undocumented immigrants, Chicano farmers, migrant farm workers, Indians, and other dispossessed peoples of color are the ones being *selectively victimized* to the greatest extent by corporate environmental health abuses.[5] As part of the country's subaltern experiencing multiple forms of political domination, economic exploitation, and cultural oppression, they are effectively denied a voice in American society.[6]

That the 'disempowered' of America are to serve as the dumping ground for capital is often blatantly advertised. A 1984 report by Cerrell Associates for the California Waste Management Board, for instance, openly recommended that industry and the state locate waste incinerators (or 'waste-to-energy facilities') in neighborhoods of 'lower socio-economic' status because those communities present a much lower chance of offering political opposition. In fact, the report states,

> *Members of middle or higher–socioeconomic strata (a composite index of level of education, occupational prestige, and income) are more likely to organize into effective groups to express their political interests and views. All socioeconomic groupings tend to resent the nearby siting of major [polluting] facilities, but the middle and upper–socioeconomic strata possess better resources to affectuate their opposition. Middle and higher–socioeconomic strata neighborhoods should not fall at least within the one–mile and five–mile radii of the proposed site.*[7]

The Cerrell Associates report also makes note of research indicating that communities

4 Kenneth A. Gould, "The Sweet Smell of Money: Economic Dependency and Local Environmental Political Motivation," *Society and Natural Resources* 4, no.2 (April/June 1991): 133.

5 Barbara Rose Johnston, *Who Pays the Price?: The Sociocultural Context of Environmental Crisis* (Washington, DC: Island Press, 1994).

6 Laura Pulido, *Environmentalism and Economic Justice: Two Chicano Struggles in the Southwest* (Tuscon: The University of Arizona Press, 1996), 4–5, 12–13, 127–128.

7 California Waste Management Board, *Political Difficulties Facing Waste–to–Energy Conversion Plant Siting*, Ch.3A (Los Angeles: Cerrell Associates, 1984), 42–43.

made up of residents that are low-income, minority, Catholic, Republican and/or conservative in political affiliation, of a low educational level (High School degree or less), mostly senior citizens, and/or located the South and Midwest of the United States tend to exercise less control capacity over the siting of major polluting facilities.

The state of California has informally followed the recommendations of the Cerrell report for years, particularly in terms of targeting poorer communities of color. California now has the nation's highest concentration of racial/ethnic minorities living near incinerators and other commercial hazardous waste treatment, storage and disposal facilities (TSDFs). In Greater Los Angeles, for instance, some 1.2 million people live in close proximity (less than two miles) to seventeen such facilities, and 91 percent of them (1.1 million) are people of color.[8]

California is not alone when it comes to concentrating environmental problems in racially segregated communities. All across the United States, communities of 'lower socio-economic status' are routinely targeted by corporate executives and state officials for the siting of incinerators and other ecologically hazardous facilities. Neighborhoods undergoing rapid ethnic, racial, and class-based transitions (or 'churning') are often the most vulnerable.[9] Towns experiencing 'white flight' to the suburbs and a corresponding demographic shift toward newly arrived Latino or Asian immigrants, for instance, often lack the tight community networks, political connections, and social capital necessary to mobilize residents to oppose ecologically hazardous facilities.[10] Communities highly fragmented by peoples of different racial, ethnic, religious, national-origin identities, class backgrounds, and languages can also be more vulnerable to the 'divide and conquer' strategies of capital. In contrast, poor but homogenous communities of color often have strong cultural institutions (such as the Church) that build social solidarity and support long histories of struggle on behalf of civil rights. As such, they can pose formidable opposition to corporate polluters.[11]

It is clear then that the weight of the ecological burden upon a community is dependent upon the balance of power and level of struggle between capital, the state, and social movements responding to the needs and demands of the populace. And in the United States, working class neighborhoods and poor communities of color often experience the worst environmental problems. This is not to say that the white middle class is not also being significantly harmed by industrial pollution an other abusive corporate practices, because it too is impacted. But in contrast to the working poor, wealthier citizens exercise greater control over community planning processes, including the 'exclusionary zoning' of dirty

8 Robert D. Bullard, Paul Mohai, Robin Saha, and Beverly Wright, Toxic Wastes and Race at Twenty: 1987–2007 – *Grassroots Struggles to Dismantle Environmental Racism in the United States*, a report prepared for the United Church of Christ Justice and Witness Ministries (March 2007), 58–60.

9 Manuel Pastor and John Hipp at the Center for Justice, Tolerance, and Community at the University of California at Santa Cruz are leading researchers around 'ethnic' churning in California. See Jennifer McNulty, "Unfair Exposure: Seeking Justice for Neighborhoods Bearing the Brunt of Toxic Hazards," *US Santa Cruz Review* 41, no.4 (March 2004): 18–22; and Pastor, Sadd, and Hipp, "Which Came First?,"1–21.

10 Rachel Morello–Frosch, Manuel Pastor, and James Sadd, "Environmental Justice and Southern California's Riskscape: The Distribution of Air Toxics Exposures and Health Risks Among Diverse Communities," *Urban Affairs Review* 36 (2001): 551.

11 Evan J. Ringquist, "Equity and the Distribution of Environmental Risk: The Case of TRI Facilities," *Social Science Quarterly* 78 (1997): 811–818.

industries and other locally unwanted land uses (LULUs). The white middle-class can also better afford to move and purchase access to nicer neighborhoods, better schools and housing, ecological amenities and a cleaner environment.[12] In contrast, people of color are denied the same opportunities to escape environmental hazards, and are instead 'tracked' into highly segregated economically and ecologically distressed areas through discriminatory mortgage lending and other practices.[13] Ecological sacrifice zones also serve as convenient locations where polluting corporations can substantially avoid or lower the costs of compliance with environmental regulations.

Processes of selective victimization and the establishment of ecological sacrifice zones are obvious with respect to air pollution. In December of 2005, the Associated Press released an analysis of a little-known EPA research project revealing that black Americans are 79 percent more likely than whites to live in neighborhoods where industrial pollution is suspected of posing the greatest health danger. The residents of neighborhoods with the highest pollution scores are also poorer, less educated and suffer unemployment rates 20 percent higher than the national average. In many states, blacks, Hispanics, and Asians are more than twice as likely as whites to reside in neighborhoods where air pollution poses the greatest health dangers.[14]

The Quadruple Exposure Effect, Liberal Environmental Policy, and Environmental Injustice

As in the case of industrial pollution in the United States today, the working class in general, and poorer people of color in particular, face a greater 'quadruple exposure effect' to environmental health hazards. This first takes the form of higher rates of 'on the job' exposure to toxics used in the production process; and secondly as greater neighborhood exposure to toxic pollutants emitted from nearby factories, toxic waste dumps, agricultural fields, transportation systems, and hazardous waste facilities.[15] Third, unequal exposure to ecological hazards takes the form of faulty cleanup efforts implemented by the government or the waste treatment industry, such as through the increased use of permanent or mobile incinerators that burn these waste in the community. For instance, government penalties for violations of Superfund hazardous waste laws average only one-sixth ($55,318) of what

12 Scott J. South and Kyle D. Crowder, "Escaping Distressed Neighborhoods: Individual, Community, and Metropolitan Influences," *The American Journal of Sociology* 102, no.4 (January 1997): 1040–1084.

13 Laura Pulido, "Rethinking Environmental Racism: White Privilege and Urban Development in Southern California," *Annals of the Association of American Geographers* 90, no.1 (2000): 12–40.

14 David Pace, "AP: More blacks live with pollution," *Aberdeen News.com* (Tuesday, December 13, 2005), 1–4.

15 Rachel Morello–Frosch, "Environmental Justice and California's 'Riskcape': The Distribution of Air Toxics and Associated Cancer and Non–Cancer Health Risks Among Diverse Community," Ph.D. dissertation (School of Public health, Environmental Health Sciences Division, University of California at Berkeley, 1997).

they do in predominantly white communities ($335,566).[16] Cleanup injustices with respect to Superfund have worsened over the last ten years. A 2005 study finds that Superfund sites in low income and high minority areas now take significantly longer to be cleaned up than in the early 1990s.[17] The final piece to the quadruple exposure effect comes in the form of greater exposure to toxic chemicals in the household (such as lead paint), commercial foods and a variety of consumer products. For example, lead poisoning continues to be a leading health threat to children, particularly poor children and children of color living in older, dilapidated housing. Black children are now five times more likely than white children to have lead poisoning.[18] Taken together, it is clear that people of color experience a disparate exposure to environmental hazards where they 'work, live, and play.'[19]

As is evident from the growing toxic waste problems, pollution, and other social and environmental costs of capitalist production, the liberal regime of environmental regulation is insufficient when it comes to halting capital's displacement of environmental harm onto people of color and the working poor. In fact, many liberal policy initiatives are actually intensifying the problems they were designed to cure. Most environmental laws require capital to *contain* pollution sources for more proper treatment and disposal. Once the pollution is 'trapped,' the manufacturing industry pays for its treatment and disposal. The waste, now commodified, becomes mobile, crossing local, state, and even national borders in search of low-cost areas for treatment, incineration, and/or disposal.[20] More often than not, the waste sites and facilities themselves are hazardous and located in communities with less control capacity. As stated by one government report, billions of dollars are spent "To remove pollutants from the air and water only to dispose of such pollutants on the land, and in an environmentally unsound manner.[21] The result has been the explosion of environmental hazardous waste facilities in poor working-class neighborhoods and communities of color.

The failure of traditional environmental policy to significantly reduce the creation of pollution and hazardous waste is magnifying problems of environmental racism. In 2001, US-based industry generated more than 41 million tons of hazardous wastes in the US, according to the EPA. Under the Resource Conservation and Recovery Act of 1976 (RCRA), hazardous waste is contracted out to companies like Browning-Ferris Industries and transported to various treatment, storage and disposal facilities (TSDFs), which include incinerators and landfills. More than 9.2 million people now live less than two miles away from

16 Marianne Lavelle and Marcia Coyle, "Unequal Protection: The Racial Divide in Environmental Law," *National Law Journa*l (September 21, 1992), 2–12.

17 Sandra George O'Neil, "Environmental Justice in the Superfund Clean–Up Process," Ph.D. Dissertation (Boston College, Department of Sociology, April 2005).

18 Peter Montague, "Pediatricians Urge a Precautionary Approach to Toxic Lead," *Rachel's Democracy and Health News* 827 (September 29, 2005), 1–2; cited in Toxic Waste and Race Revisited.

19 Dana Alston, *We Speak for Ourselves: Social Justice, Race, and Environment* (Washington, D.C.: The Panos Institute, 1990).

20 Rodger C. Field, "Risk and Justice: Capitalist Production and the Environment," in *The Struggle for Ecological Democracy*, ed. Daniel Faber (New York: Guilford, 1998), 81–103.

21 Lewis Regenstein, *How to Survive in America the Poisoned* (Washington, DC: Acropolis Books, 1986), 160.

the nation's 413 commercial hazardous waste facilities. Again, in order for capital to cut costs and lessen the potential for political opposition, these facilities are disproportionately sited in poorer communities of color. More than 5.1 million racial and/or ethnic minorities live in neighborhoods with one or more TSDFs.

As CEO of Browning-Ferris Industries from 1988-95, former two-time EPA director William Ruckelshaus (under Presidents Richard Nixon and Ronald Reagan) earned a salary of more than $1 million a year. One of the largest waste management companies in the United States at the time of his hiring, BFI was earning enormous profits (more than $1.6 billion alone in 1986) through an industry-wide modus operandi described by environmentalists to be "Based on bribery, pricefixing, political payoffs, back door campaign contributions, the intimidation and suppression of business competition, the distortion and manipulation of technical data, and the systematic violation of environmental laws and regulations."[22] In 1987, for instance, government investigators reported more than 2,800 violations of the Resource Conservation and Recovery Act (RCRA) at a BFI hazardous waste facility in Livingston, Louisiana.[23]

Under the leadership of Ruckelshaus, BFI kept costs down and profits high by locating the more dangerous facilities in neighborhoods of color within such cities as Birmingham,[24] San Antonio, and Houston, and other poor communities.[25] Practices of 'environmental racism' by BFI, Chemical Waste Management, and other 'titans of waste' became rampant in the 1980-90s.[26] The environmental injustices perpetuated by these members of the polluter-industrial complex was made easy by the placement of company officials at key positions throughout the entire EPA bureaucracy. Ruckelshaus also served as director for a number of other highly-polluting companies between and after his two terms at EPA, including Monsanto, Cummins Engine Company, Pacific Gas Transmission, and the American Paper Institute. In fact, he formed a consulting firm after leaving the Reagan Administration called William D. Ruckelshaus Associates. This firm was soon hired by the industry-funded Coalition on Superfund to "weaken the Superfund law by absolving polluters of strict legal liability for their actions. The coalition included such Superfund polluters and their insurers as Monsanto, Occidental Petroleum, Alcoa, Flow Chemical, AT&T, DuPont, Union Carbide, Aetna Insurance, and Travelers Insurance."[27]

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22 Peter Montague, "What We Must Do: The Moral Issue of the '80s," *Rachel's Environment & Health News* (July 31, 1988), 1–2.

23 Peter Montague, "Feds Seeking $2.2 Billion Fine from Browning–Ferris Industries," *Rachel's Hazardous Waste News* 27 (June 1, 1987), 1–2.

24 Laura Westra, "The Faces of Environmental Racism: Titusville, Alabama, and BFI," in *Faces of Environmental Racism: Confronting Issues of Global Justice*, 2nd edition, eds.,Laura Westra and Bill E. Lawson (New York: Rowman & Littlefield, 2001), 113–140.

25 Robert D. Bullard, *Dumping in Dixie*: Race, Class, and *Environmental Quality* (Boulder, CO: Westview Press, 1994).

26 Political Ecology Group, *Toxic Empire, the WMX Corporation, Hazardous Waste and Global Strategies for Environmental Justice* (San Francisco: Political Ecology Group, 1995).

27 William Sanjour, "In Name Only," *Sierra Magazine* (September/October 1992), 1–8; and Wiliam Sanjour,

Despite the declaration of President Clinton's Executive Order on Environmental Justice in 1994, which mandated federal agencies to incorporate environmental justice into their work and programs, the displacement of ecological problems onto minority neighborhoods is intensifying.[28] In fact, for the first time in history, people of color now comprise the majority of the population living near the nation's commercial hazardous waste facilities.[29] These host neighborhoods are 56 percent people of color (compared to 30 percent in non-host areas), and are often economically distressed.

Environmental Crime in the United States and the Failure to Enforce Environmental Laws

Environmental crime is a normative feature of American capitalism. A recent survey by the National Law Journal and Arthur Anderson Environmental Services reveals that two-thirds of the corporate lawyers representing manufacturers, mining companies, insurance and real estate firms, and other industries acknowledged that their companies had violated environmental laws during the preceding year.[30] For instance, in 1988 when an estimated 730,000 gallons of diesel oil leaked from an Ashland Oil Inc. tank into the Monongahela River near Pittsburgh, and then into the Ohio River, other industries took advantage of the spill to dump cancer-causing industrial solvents (chloroform and methylene chloride) into the Ohio River, in the hope that the spill would disguise their own illegal dumping.[31] Furthermore, an internal EPA study uncovered by the Washington Post found that about a quarter of the nation's largest industrial plants and water treatment facilities are illegally failing to comply with the Clean Water Act. Some 50 percent of those companies in non-compliance were at least 100 percent over the limit for toxics pollution, and 13 percent are at least 1,000 percent over the legal limit. However, when formal disciplinary actions were taken by the EPA, fewer than half resulted in any fines – which averaged a paltry $6,000 – a figure unlikely to deter future violations.[32]

"What's Wrong with the EPA?" Synthesis/Regeneration 7–8 (Summer 1995), 1–7.

28 United Church of Christ Commission for Racial Justice, *Toxic Wastes and Race in the United States: A National Report on the Racial and Socioeconomic Characteristics of Communities Surrounding Hazardous Waste Sites* (New York: United Church of Christ, 1987); and the US General Accounting Office, *Siting of Hazardous Waste Landfills and Their Correlation with Racial and Economic Status of Surrounding Communities* (Washington, DC: US Government Printing Office, 1983).

29 Robert D. Bullard, Paul Mohai, Robin Saha, and Beverly Wright, *Toxic Wastes and Race at Twenty: 1987–2007 – Grassroots Struggles to Dismantle Environmental Racism in the United States*, a report prepared for the United Church of Christ Justice and Witness Ministries (March 1987).

30 The results were based on the responses by 233 corporate lawyers to the survey published in the *National Law Journal*. See Rick Henderson, "Crimes Against Nature," *Reasononline* at <http://www.reason.com/news/printer/29400.html> (April 30, 2007).

31 Associated Press, "Firms dumped chemicals during Pittsburgh oil spill," *San Francisco Chronicle* (February 22, 1998), A5.

32 Guy Gugliotta and Eric Planin, "Few fined for polluting water," *Washington Post* (June 6, 2003), A1.

The pervasive nature of environmental crime in the United States is largely attributable to the weakening of EPA's enforcement capacities by past political appointees such as William Ruckelshaus, and is tied to the larger assault on the liberal regime of regulation. The goal of this assault by American capital is 'regulatory reform'– the rollback of worker health and safety, consumer and environmental protection, and other state regulatory 'burdens' that impinge upon the profits of capital. Severe cuts in the budgets and staffs of federal agencies that enforce and prosecute environmental laws are part of the plan by neo-liberals in both the Democratic and Republican parties. Under the Clinton and more recent Bush administrations, lax enforcement was an especially critical tactic that the White House employed to undercut popular environmental policies without having to openly attack them.[33]

According to an investigation by the Sacramento Bee newspaper, EPA inspections of polluting businesses dipped 15 percent during the first two years of the Bush administration, in comparison to the last two years of the Clinton/Gore administration. Criminal cases referred for federal prosecution also dropped 40 percent, and the amount of pollution reduced or prevented as a result of the agency's legal actions – the bottom line in environmental enforcement – plummeted from 7.5 billion pounds to only 921 million pounds. Meanwhile, total inspections of businesses dropped 15 percent (from 41,533 to 35,480), while EPA's criminal referrals fell 40 percent (from 564 in 1999 to 341 in 2002). Declines in the enforcement of the Toxic Substance Control Act (down 80 percent), Clean Air Act (down 54 percent), and the Clean Water Act (down 53 percent) were even more profound. The Sacramento Bee also found that in reports to Congress and the press that the EPA had puffed up the number of criminal investigations it initiated and over-reported the number of cases it referred to federal prosecutors. The EPA also padded the length of prison terms served for environmental crimes, all in an effort to mask "a significant drop-off in the federal government's pursuit of criminal polluters."[34]

A 2004 report by the EPA's Office of the Inspector General (OIG) similarly accused EPA officials of misleading Americans about improvements in the quality of America's tap water.[35] The report documents a pattern of false statements released by EPA to the media. Between 1999 and 2002, EPA publicly boasted that it met its goal of supplying safe tap water to 94 percent of US residents – up from 79 percent in 1993. However, the OIG report asserts that EPA's conclusion was based on 'flawed and incomplete' information, especially since 35 percent of known health standard violations nationwide were not entered into the EPA's compliance database. In fact, overall toxic releases to US waterways increased 10 percent between 2003 and 2004.[36] During this time, more than 3,700 facilities across the US violated

33 Robert S. Devine, *Bush Versus the Environment* (New York: Anchor Books, 2004), 112–113.

34 Chris Bowman, "EPA pumps up its record: Bee finds drug and terror cases mask drop–off in pollution probes," *Sacramento Bee* (July 6, 2003).

35 US Environmental Protection Agency, *EPA Claims to Meet Drinking Water Goals Despite Persistent Data Quality Shortcoming*, a report by EPA's Office of the Inspector General (March 5, 2004).

36 Safe From Toxics, "2004 TRI Data Shows Increase in Water Pollution : EPA Proposal Would Keep Public in the Dark," a project of the State PIRGs & State Environment Groups, April 12, 2006, <http://www.safefromtoxics.org/tx.asp?id2=23505> (April 15, 2006).

the Clean Water Act. On average, these facilities exceeded their permits limits by an average of 275 percent, or about four times the allowed amount.[37]

In February of 2005, twenty-seven environmental organizations publicly faulted the EPA for failing to track hundreds of US cities and other local governments that are not complying with Clean Water Act rules governing combined sewer overflows (CSOs) that can pose a major threat to public health and seriously degrade lakes, streams, rivers, and other bodies of water. The groups consider noncompliance with the CSOs law to be widespread. In some instances, EPA officials would even notify potential polluters of impending inspections, giving corporations the opportunity to temporarily mask potential violations from visiting officials. In September of 2003, for instance, the Refinery Reform Campaign found that EPA had violated its own protocols by apparently warning polluters that the environmental testing was about to be done at facilities in the poor minority community of Port Arthur, Texas.

Bush appointees at EPA also lied to Congress in order to cover up the devastating health impacts of weaker rules and oversight of corporate polluters. Following the secret meetings of the Cheney's National Energy Policy Development Group energy task force, the Bush administration adopted the New Source Review (NSR) rule, creating loopholes allowing companies to avoid installing pollution control equipment. The new NSR rule impaired the ability of the government to obtain favorable settlements or judgements against companies that had violated the rule in the past. Documents and discussions with former EPA officials reveal that Bush appointees made untrue statements to two Senate committees when asked if a weakened NSR rule would jeopardize lawsuits against electric utilities accused of modifying coal-fired plants without making the necessary improvements [in pollution abatement technology]. Contrary to what senators were told in the public hearings, EPA staffers had concluded that the new rule would undercut enforcement cases that had the potential to reduce air pollution from US electric utilities by 50 percent (nearly 7 million tons) annually.[38]

Even when the EPA enforced the law and assessed fines against corporate polluters, the Bush administration failed to collect the penalties. A 2006 Associated Press examination of federal financial penalty enforcement across the nation found that the government was owed more than $35 billion in fines and other payments from criminal and civil cases – almost five times higher than the amount uncollected ten years ago (and enough to cover the annual budget of the Department of Homeland Security).[39] Knowing the Bush administration would not pursue the payment of these fines, American business violated the law more freely. It is little wonder that 77 percent of all American citizens want tougher environmental laws and stricter enforcement.

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37 Christy Leavitt, *Troubled Waters: An Analysis of Clean Water Act Compliance, July 2003* – December 2004, a report by the US PIRG Education Fund (March 2006), 1–38.

38 Conor Kenny, Taylor Lincoln, and Craig Aaron, with Neal Pattison and Craig Holman, *EPA's Smoke Screen: How Congress Was Given False Information While Campaign Contributions and Political Connections Gutted a Key Clean Air Rule*, a report by Public Citizen Congress Watch (October 2003): 1–30.

39 Martha Mendoza and Christopher Sullivan, "Billions uncollected in penalties for wrongdoing," Associated Press Wire Service (March 18, 2006).

Racism and Environmental Crime

Although it is too early to know the impact the President Barack Obama and new EPA Director Lisa Jackson will have on current regulations, it is clear that the lack of enforcement of existing laws in the past has spurred widespread practices of illegal hazardous waste dumping (which is cheaper than legal forms of pollution abatement but has more adverse health and environmental consequences).[40] The higher costs arising from the EPA's regulations of toxic wastes (based on the agency's authority under the Resource Conservation and Recovery Act) is leading some companies to 'hide' externalities by employing organized crime and other 'shady' businesses to handle their wastes. The Mafia, active in garbage hauling and the landfill industry, is historically one of the largest toxic waste disposers in the country.[41] As in the case with 'legitimate' businesses, organized crime also targets communities with less control capacity. Aided by the outright bribery of local government officials to look the other way, thousands of tons of debris were illegally dumped in Chicago's West Side Latino and African American communities during the 1990s. Pervasive poverty and lack of political influence made these neighborhoods easy targets. An investigation by the Chicago Department of Streets and Sanitation found that all ten city neighborhoods with the most illegal dumping of garbage were at least 60 percent African American and/or Latino. In fact, 79 percent of all illegal dumping in Chicago occurred in wards where people of color are the majority of the population.[42] Only after years of political mobilization were these neighborhoods able to initiate government action, including a Federal Bureau of Investigation (FBI) sting named Operation Silver Shovel against corrupt aldermen, to halt the dumping and initiate a cleanup.[43]

Perhaps the most famous case of the fight for environmental justice and against illegal dumping occurred in North Carolina in 1978, with the 'midnight dumping' of PCB-laced oil along the state's roadways. As one of the most dangerous carcinogens on earth, PCBs are known to damage the liver, and nerve, immune, and reproductive systems of humans. In 1982, the state removed the contaminated soil, and selected the town of Afton in Warren County to be the site of a special state-operated PCB landfill that would receive the waste. Afton was a poor, rural, mostly African-American community where one-quarter of the children lived in poverty.[44] At the time, the town possessed a per capita income of around

40 Mary Clifford (ed.), *Environmental Crime: Enforcement, Policy, and Social Responsibility* (Gaithersburg, MD: Aspen Publishers, 1998).

41 Donald Rebovich, *Dangerous Ground: The World of Hazardous Waste Crime* (New Brunswick, MJ: Transaction Publishers, 1992); Russel Mokhiber, *Corporate Crime and Violence: Big Business Power and the Abuse of the Public Trust* (San Francisco, CA: Sierra Club Books, 1989); and Alan A. Block and Frank R. Scarpitti, *Poisoning for Profit: The Mafia and Toxic Waste in America* (New York: William Morrow, 1982).

42 David N. Pellow, "The Politics of Illegal Dumping: An Environmental Justice Framework," *Qualitative Sociology* 27, no.4 (Winter 2004): 511–525.

43 David Naguib Pellow and Robert J. Brulle, "Poisoning the Planet: The Struggle for Environmental Justice," *Contexts* 6, no.1 (Winter 2007): 37–41.

44 Robert D. Bullard, "Environmental Justice in the Twenty–first Century," in Robert D. Bullard, ed., *The Quest for Environmental Justice: Human Rights and the Politics of Pollution* (San Francisco: Sierra Club Books,

$5000, with a population that was 65 percent black. In Afton, the water table is only 5-10 feet below the surface, and residents derive all of their drinking water from local wells. Fearful for their health, the community mobilized to combat the landfill. These protests attracted national attention and the presence of national civil rights leaders from all over the country, and culminated in the arrests of more than 500 people. The arrests also helped to spur the formation of the environmental justice (EJ) movement,[45] and brought increased attention to the dumping of environmental hazards in poor communities of color throughout the South and the Sun Belt. After years of struggle, state and federal agencies spent $18 million to detoxify PCB-contaminated soil stored in the landfill.[46]

In thousands of communities across the United States, ranging from Love Canal, New York, to Houston, Texas, to Times Beach, Missouri, billions of pounds of highly toxic chemicals, including mercury, dioxin, PCBs, arsenic, lead, and heavy metals such as chromium, have been dumped or left behind in unsuspecting neighborhoods. These sites poison the land, contaminate drinking water, and potentially cause cancer, birth defects, nerve and liver damage, and other illnesses. The US Government Accountability Office (formerly the US General Accounting Office) estimates that there are between 130,000 and 450,000 abandoned waste sites (or brownfields). A disparate proportion of these sites are located in or near poorer working class neighborhoods and communities of color.[47] In Massachusetts, for instance, communities of color average over 48 hazardous waste sites per square mile (psm), a rate that is *more than twenty–three times greater* than the average of two sites (psm) in predominantly white communities.[48] America's communities of color are the new low-cost dumping grounds for capital and the state.

Capital Mobility and the Displacement of Environmental Injustices to the Sunbelt

Under policies of 'new federalism' and the rhetoric of 'states' rights,' environmental responsibilities are being shifted from the federal government to the states, many of which are financially strapped by the current economic crisis and capital disinvestment. The neo-liberal hope is that many states will engage in bidding wars with other states to attract capital to their home regions by offering more favorable investment conditions, including less worker and environmental regulation and enforcement. One reason that economic problems in the northern 'rust belt' are deeper than in most of the rest of the country has been the dispro-

2005), 38–42.

45 Ken Geiser and Gerry Waneck, "PCBs and Warren County," 43–52; and Regina Austin and Michael Schill, "Black, Brown, Red, and Poisoned," in *Unequal Protection: Environmental Justice and Communities of Color*, ed. Robert Bullard (San Francisco: Sierra Club Books, 1994), 53–76.

46 Robert D. Bullard, "Environmental Justice in the Twenty–first Century," 38–42.

47 Renee Twombly, "Urban Uprising," *Environmental Health Perspectives* 105, no.7 (July 1997): 696–701.

48 Faber and Kreig, *Unequal Exposure to Ecological Hazards* 2005, 12–19.

portionate relocation of capital to the 'sunbelt' in search of cheaper labor, lower taxes and real estate costs, and less stringent environmental regulations and enforcement.

Polluting industries are attracted to southern states such as Texas, Arkansas, and Louisiana for cheaper labor, as well as by lower taxes, generous government subsidies, efficient infrastructure, close proximity to natural resources and transportation routes, and the dominance of neo-liberal politicians committed to promoting capital investment and economic growth. Weaker environmental regulations also allows capital to reduce costs by raising pollution levels. An 'emissions-to-jobs ratio' report by environmental science professor Paul Templet of Louisiana State University in Baton Rouge reveals that Louisiana's chemical plants, especially those located in the small and poor African America communities in the corridor between New Orleans and Baton Rouge known as 'Cancer Alley,' release nearly ten times as much pollution per worker as such plants in New Jersey and California, where law enforcement and industry spending for pollution control and abatement are greater. In fact, the twenty-five states currently handing out the largest subsidies to polluting industries are the very same states that have the weakest environmental protection policies and the most polluted environments. All but five of these states are in the sunbelt, with Louisiana being the nation's worst offender.[49]

By exercising a stranglehold over state and local governments in the sunbelt, the polluter-industrial complex is able to promote weaker environmental regulations and enforcement. Under legislation such as the Texas Environmental, Health, and Safety Audit Privilege Act (Audit Act), polluters are encouraged to perform their own assessment and compliance of environmental laws, regulations, and permits for their own facilities. This 'honor' system invites widespread abuses by industry. In fact, the Texas Commission on Environmental Quality (TCEQ) only has 'guidelines' for 2500 pollutants, a legal ambient air quality standard that is not enforceable. In this manner, Texas and other southern states function as domestic 'pollution havens' for US industry. Areas occupied by poor people of color and working class whites serve as the ecological sacrifice zones within these pollution havens. These zones are not hard to identify. In 2004, roughly a quarter of all air and water releases of carcinogens occurred within just twenty US counties. Thanks to the Audit Act and other weak regulations, four Texas counties – Harris, Galveston, Brazoria, and Jefferson – have the most carcinogenic emissions in the United States. The pollution from these industrial facilities is taking a terrible toll.

In summary, the relocation of dirty industry is ongoing. The southeastern and Gulf regions of the country experience the most dangerous forms of pollution, with Texas, South Carolina, Louisiana, Alabama, and Florida ranking highest for total carcinogenic releases to air and water and 2004. Home to more than 300 chemical facilities, 40 pulp, paper and paperboard mills, and 90 petroleum refining facilities, these states continue to attract industries

49 Paul H. Templet, *Defending the Public Domain: Pollution, Subsidies, and Poverty*, a Political Economy Research Institute Working Paper no. DPE–01–03 (Amherst: University of Massachusetts, 2001); Paul H. Templet, "Energy Price Disparity and Public Welfare," *Ecological Economics* 36 (2000): 443–460; and Beverly Wright, "Living and Dying in Louisiana's 'Cancer Alley'," in *The Quest for Environmental Justice*, ed. Robert D. Bullard, 87–105.

in search of weaker environmental regulations.[50] In May of 2007, for instance, the Belcher Corp., one of the oldest foundries in the countries, announced it was moving from Massachusetts to Alabama. As stated by Joseph Dynof, the company's chief financial officer, "The environmental regulations aren't as stringent in Alabama as they are in Massachusetts." Specializing in the out-source manufacturing of gas fittings, hand tools, and valves for companies such as Ford and General Motors, the foundry has for years drawn criticism from neighbors and environmental groups for what they say are undue dust, odors, and noise. In 2004, the company's excessive pollution problems resulted in a "Dirty Dozen Award" from the Toxics Action Center, a regional environmental watchdog group. In 2006, the state Department of Environmental Protection fined the company $210,000, of which $30,000 was paid. The rest was suspended with the condition that the firm meet deadlines for installing air pollution control equipment. As a result of the decision to close the facility, however, the company will not pay the remainder of the fine.[51]

Dumping on the Third World: The Export of Environmental Crime

The creation of pollution havens and ecological sacrifice zones is not restricted to the southern United States. Aided by recent 'free trade' initiatives, such as the North American Free Trade Agreement (NAFTA), the movement of dirty industry is moving beyond the American south to Mexico and other parts of the world where environmental standards are lax, unions are weak, and worker health and safety issues are ignored.[52]

Similar to the 'internal' strategy of reducing production costs by displacing ecological and public health hazards onto poor people of color and the working class inside the United States, corporations are also reducing costs by adopting the 'external' strategy of exporting ecological hazards *outside* America's national boundaries. The worsening ecological crisis in the global South is directly related to an international system of economic and environmental stratification in which the United States and other advanced capitalist nations are able to shift or impose the environmental burden on weaker states.[53] In fact, one of the primary aims of US economic planners is to cut costs by displacing environmental problems [externalities] onto poorer Southern nations – countries with little power in global environmental policy decision-making institutions. Lawrence Summers, a key economic policy-maker in the Obama administration, is infamous for writing a 1991 memo as a chief economist at the World Bank that argued,

50 Cassady and Fidis, *Toxic Pollution and Health*, 9–17.

51 Erin Conroy, "Foundry will move south, with 78 jobs," *The Boston Globe* (Mary 3, 2007), GS1, GS4.

52 Barry Castleman and Vicente Navarro, "International Mobility of Hazardous Products, Industries, and Wastes," *Annual Review of Public Health* 8 (1987): 1–19.

53 Francis O. Adeola, "Cross–National Environmental Injustice and Human Rights Issues: A review of Evidence in the Developing World," *American Behavioral Scientis*t 43, no.4 (2000): 686–706, esp.691.

> *Just between you and me, shouldn't the World Bank be encouraging more migration of the dirty industries to the LDCs [less developed countries]? ... I think the economic logic behind dumping a load of toxic waste in the lowest wage country is impeccable and we should face up to that ... I've always thought that under–populated countries in Africa are vastly under–polluted.*

The Summers memo reflects the 'thinking' of many US policy makers aligned with the interests of US multinational corporations: that human life in the Third World is worth much less than in the United States. If the poor and underemployed masses of Africa become sick or die from exposure to pollution exported from the US, it will have a much smaller impact on the profits of international capital. Aside from the higher costs of pollution-abatement in the United States, if highly-skilled and well-compensated American workers fall prey to environmentally-related health problems, then the expense to capital and the state can be significant. Although morally reprehensible, under the capitalist system it pays business to shift pollution onto the poor in the less developed countries.[54]

Given the willingness of undemocratic governments in the global South to trade-off the environmental protection for economic growth, the growing mobility of capital (in all forms) is facilitating the export of ecological problems from the advanced capitalist countries to the third world and sub-peripheral states.[55] This *export of ecological hazard* from the United States and other Northern countries to the less developed countries takes place: (1) i*n the money circuit of global capital*, in the form of foreign direct investment (FDI) in domestically-owned hazardous industries, as well as destructive investment schemes to gain access to new oil fields, forests, agricultural lands, mining deposits, and other natural resources; (2) *in the productive circuit of global capital*, with the relocation of polluting and environmentally hazardous production processes and polluting facilities owned by transnational capital to the South; (3) *in the commodity circuit of global capital*, as witnessed in the marketing of more profitable but also more dangerous foods, drugs, pesticides, technologies, and other consumer/capital goods; and (4) *in the waste circuit of global capital*, with the dumping of toxic wastes, pollution, discarded consumer products, trash, and other forms of 'anti-wealth' produced by Northern industry.[56]

Hence, corporate-led globalization is facilitating the displacement of ecological hazards from richer to poorer countries. Although a few international agreements (such as the Basel Convention) have been put into place, they are for the most part ineffective at stemming the transfer of hazards. Since few peripheral countries have the ability to adequately evaluate and man-

54 John Bellamy Foster, "Let Them Eat Pollution: Capitalism in the World Environment," in *Ecology Against Capitalism*, John Bellamy Foster (New York: Monthly Review Press, 2002), 60–68.

55 Adeola, "Cross–National Environmental Injustice and Human Rights Issues," 691.

56 Jennifer Clapp, *Toxic Exports: the Transfer of Hazardous Wastes from Rich to Poor Countries* (Ithaca, NY: Cornell University Press, 2001); Kate O'Neill, *Waste Trading Among Rich Nations: Building a New Theory of Environmental Regulation* (Cambridge, MA: MIT Press, 2000); Barry Castleman and Vicente Navarro, "International Mobility of Hazardous Products, Industries, and Wastes," *Annual Review of Public Health* 8 (May 1987): 1–19; and Charles Levenstein and Stanley W. Eller, "Export Hazardous Industries: "For Example" is Not Proof," in *The Export of Hazard*, ed. Jane H. Ives (Boston: Routledge & Kegan Paul, 1985), 51–59.

age the risks associated with such hazards, TNC export practices are increasing the health, safety, and environmental problems facing many peripheral countries. In effect, US capital is appropriating carrying capacity for the core by transferring ('distancing') externalities to the global South. As in the United States, it is the poorest and most politically repressed people in the South which are bearing the greatest brunt of the global ecological crisis.

Mexico: Environmental Troubles South of the Border

Since the passage of the North American Free Trade Agreement (NAFTA) in 1994, Mexico's environmental problems have worsened throughout the country. NAFTA is a free trade agreement that reduces tariffs and other barriers to trade among Mexico, Canada, and the United States. Aided by the agreement, dirty industries are moving out of the United States to Mexico, where environmental standards are lax, unions are weak, and worker health and safety concerns are ignored. Along the 2,100 miles US-Mexico border running from the Pacific Ocean to the Gulf of Mexico, there are more than 2,000 factories, or *maquiladoras*, including US multinationals corporations. As stated by sociologist R. Scott Frey, "In an effort to expand markets and curb production costs, many core-based TNC have moved hazardous production facilities to sites located in Northern Mexico and elsewhere in the periphery."[57] These companies include Alcoa, Chrysler, General Motors, DuPont, Eastman Kodak, General Electric, and Ford, among others that make up the polluter-industrial complex. These US-owned industrial factories companies are involved in textiles and clothing, chemicals, and electronics. Smaller US companies are also there. A 1991 US Government Accounting Office study even found that several Los Angeles furniture manufacturers relocated to Mexico after the establishment of stringent air pollution restrictions in California (80 percent of these businesses cited environmental costs in their decision to move).[58]

The explosive growth of the *maquiladoras* is creating an ecological nightmare along both sides of the border. Factories big and small generate huge volumes of toxic waste and pollution (some 87 percent of maquiladoras use toxic materials in their production processes). Reports show that industrial wastes is seldom treated before it is discharged into rivers, arroyos, the Rio Grande, or the ocean. Maquiladoras also generate a substantial amount of hazardous waste, including dangerous solvents such as trichloroethylene, acids, heavy metals like lead and nickel, paints, oils, resins, and plastics. Over 65 percent of such waste is unaccounted for in either the US or Mexico.[59] The situation is growing worse because NAFTA no longer requires TNCs to return waste to the US for proper disposal.

57 R. Scott Frey, "The Transfer of Core–Based Hazardous Production Processes to the Export Processing Zones of the Periphery: The Maquiladora Centers of Northern Mexico," *Journal of World–Systems Research* 9, no.2 (Summer 2003): 317–354.

58 US General Accounting Office, U.S.–*Mexico Trade: Some U.S. Wood Furniture Firms Relocated from the Los Angeles Area to Mexico* (Washington, DC: US GAO, 1991).

59 D.M. Perry, Roberto Sanchez, and William H. Glaze, "Binational Management of Hazardous Waste: *The Maquiladora* Industry in the US–Mexico Border," *Environmental Management* 14 (1998): 441.

Mexico's *maquiladoras* have also proven to be an important front for smuggling in hazardous wastes from the United States. Wastes are often sent hidden in as cargo on trucks and trains that cross the border into Mexico. It is estimated that 285,000 tons of hazardous waste flows from the US to Mexico each year.[60] Once inside the country, the chemicals are released into the country's Mexican waterways, sewers, municipal landfills, unregulated landfills, and numerous private property sites. Similarly a US company shipped mercury waste to a British reprocessing plant located at Cato Ridge, South Africa, just outside the homeland of Kwa Zulu. Villages located downstream from the facility on the Mngeweni River have used the river for drinking, bathing, and washing. Mercury levels in the river have been reported to be 1,000 to 1,900 times higher than th World Health Organization (WHO) recommended level.[61]

When waste is not labeled as hazardous waste, it is very difficult to track and regulate. For instance, four US companies once mixed 1,000 tons of hazardous waste (including lead and cadmium) into a shipment of fertilizer bound for Bangladesh. The fertilizer was applied to fields before the contamination was discovered. In another case, some 15,000 tons of toxic incinerator ash of US origin was shipped to Guinea in the late 1980s under the label of brick building materials. This toxic waste was dumped on the Guinean Island of Kassa, just off the coast of the country's capital city, Conakry, by a Norwegian waste management firm. In a surreal land reclamation project, several US companies even attempted to convince the Marshall Islands that imported wastes could be used to build up land mass to ensure the islands would survive possible sea-level rises caused by global warming (the US and China are the world's largest producers of greenhouse gases).[62]

Toxic Terror in the Ivory Coast

The devastating impacts of hazardous waste trade in Africa and the global South is illustrated by case of the *Proba Koala* in the Ivory Coast. Exemplary of the growing integration of capital on a global scale, the *Proba Koala* was a Korean-built, Greek-managed, Panamanian-flagged tanker chartered by the London branch of a Swiss trading corporation whose fiscal headquarters are in the Netherlands – the multibillion dollar Dutch a global oil and metals trading company called Trafigura Beheer BV. The ship had been acting as a storage vessel for unrefined gasoline. In the summer of 2006, the Trafigura had explored disposing of the ship's 'washings' after a routine cleaning of the storage hull with caustic soda in Amsterdam. However, due to the $300,000 or more cost estimate for disposing of the waste in that city, the company instead elected to take the ship to the Ivory Coast, even though there are no facilities capable of handling high-level toxic wastes. Upon arrival, the captain of the

60 The Instituto Nacional de Ecologia estimated in April of 1999 that waste flows had increased over the decade of the 1990s, from 230,000 tons in 1996 to 285,000 tons in 1998. See Cyrus Reed, Marisa Jacott, and Alejandro Villamar, *Hazardous Waste Management in the United States – Mexico Border States: More Questions than Answers*, a report by the Red Mexicana de Accion Frente al Lebre Comercio and the Texas Center for Policy Studies (March 2000), 34.

61 Hilz, *The International Toxic Waste Trade*, 44–46.

62 Greenpeace USA, *Pacific Waste Invasion* (Washington, DC: Greenpeace, 1992).

Proba Koala contacted a local company called Compaigne Tommy to dispose of the waste for a mere $15,000, representing a huge savings for Trafigura.

In August 19th of 2006, the *Proba Koala* offloaded 528 tons of the washings onto more than a dozen tanker trucks. The washings were a toxic alkaline mix of water, gasoline, and caustic soda, which gave off many poisonous chemicals, including hydrogen sulfide. After loading up, Compaigne Tommy simply waited until after midnight. Under the cover of darkness, the tanker trucks fanned out to dump the waste in 18 public open-air sites around the country's main city of Abidjan. These sites included the city's main garbage dump, a roadside field beside a prison, a sewage canal, and several neighborhoods. In a scene eerily reminiscent of the Union Carbide disaster in Bhopal, India, citizens throughout the city awoke at night to an overpowering stench that burned the eyes and made it hard to breathe. By morning, nausea, vomiting, diarrhea, nose bleeds, stomachs aches, chests pains, and breathing difficulties were affecting thousands of people. Tests later showed the sludge contained excessive levels of mercaptans and hydrogen sulfide, a potent poison that can quickly paralyze the nervous system, and cause blackouts, respiratory failure and death. More than 100,000 Abidjan residents sought medical treatment, and 69 were hospitalized as a result of the dumping. Fifteen people died. The spreading illnesses sparked violent demonstrations from a population convinced that government corruption was to blame for the dumping. The political furor ultimately forced the prime minister and his government to resign in September of 2006 (though many were later reinstated). Nevertheless, this mass resignation is unprecedented in the history of the Ivory Coast, and symbolizes the anger among the African people that their home would be used as a dumping ground by the advanced capitalist nations.[63]

Making A New World Free of Enviromental Crime

The displacement of the ecological crisis onto the disenfranchised has fueled the rise of the environmental justice (EJ) movement. In Latino and Asian-Pacific neighborhoods in the inner cities, small African American townships, depressed Native American reservations, Chicano farming communities, and white working-class districts all across the country, peoples traditionally relegated to the periphery of the ecology movement are now also challenging the wholesale degradation of their land, water, air, and community health by corporate polluters and indifferent governmental agencies and non-governmental organizations. At the forefront of this new wave of grassroots activism are hundreds of community-based organizations working to reverse the disproportionate social and ecological hardships borne by people of color and poor working class families. These community-based organizations, as well as regional EJ networks and national constituency-based EJ networks, are all united against environmental racism, poverty and social inequality, and political disempowerment.[64]

63 Lydia Polgreen and Marlise Simons, "Global Sludge Ends in Tragedy for Ivory Coast," *New York Times*, October 2, 2006, at <http://www.nytimes.com/2006/10/10/02/world/africa/02ivory.html> (September 12, 2007).

64 Daniel Faber and Deborah McCarthy, eds., *The Struggle for Ecological Democracy: Environmental Justice*

Acting in coalition with the rise of new forms of community-based, working class environmentalism, anti-toxics activism, and the clean production movement, the EJ movement is slowly but surely developing networks and long-term strategies for arresting the ecological crisis. As stated in *Toxic Wastes and Race at Twenty*, a report by a group of leading EJ scholars.

The movement set out clear goals of eliminating unequal enforcement of environmental, civil rights and public health laws. It also targeted differential exposure of vulnerable populations to harmful chemicals, pesticides and other toxins in the home, school, neighborhood and workplace – and challenged faulty assumptions in calculating, assessing and managing risks, discriminatory zoning and land-use practices, and exclusionary policies and practices that limit low-income persons and people of color from participation in decision making. Many of these problems could be eliminated if current environmental, health, housing, land use and civil rights laws were vigorously enforced in a nondiscriminatory way.[65]

To end environmental crime and injustice, the report offers a series of recommendations that call for better enforcement of existing environmental and civil rights laws, as well as institutional reforms at the Environmental Protection Agency. Such reforms include the development of a clear vision and comprehensive plan for integrating EJ considerations into the day-to-day operations of the EPA. The report calls upon industry to adopt clean production principles and methods, which would include the phase out of toxic chemicals in favor of nontoxic materials, renewable energy sources. By adopting the Louisville Charter, industry could also invest in the development of sustainable chemicals, products, materials, and production processes. Corporations especially need to eliminate the use of persistent, bioaccumulative, or highly toxic chemicals that cause the most damage to public health.[66]

Finally, it must be said that in an era of neo-liberalism and corporate-led globalization, EJ movements in the both the United States and the global South must develop coordinated strategies. The growing ability of multinational corporations and transnational financial institutions to evade environmental safeguards, worker/community health and safety regulations, and dismantle unions and the social safety net in the US is being achieved by crossing national boundaries into politically repressive and economically oppressive countries. And in this context, abetted by 'free trade' agreements and economic liberalization enforced by the WTO, various nationalities and governments are increasingly being pitted against one another to attract capital investment by dismantling labor and environmental laws seen as damaging to profits. In this respect, corporate–led globalization is weakening the power of the EJ movement to win concessions from the state and American industry.

At the same time, any potential victory by a community of color in the US against the illegal disposal of toxic incinerator ash in their own locality is quite limited if the result is the transport and disposal of the same waste in a poor West African community. If multina-

Movements in the United States (New York: Guilford Press, 1998).

65 Bullard, Mohai, Saha, and Wright, *Toxic Wastes and Race at Twenty*, 152.

66 Bullard, Mohai, Saha, and Wright, *Toxic Wastes and Race at Twenty*, 152–160.

tional corporations flee to the Third World to avoid environmental regulations and liability in the North, then the actions of US environmentalists may be indirectly exacerbating environmental injustices elsewhere in the world.[67] Stringent environmental standards must be applied to all nations in order to foster global environmental justice. A reworking of established 'free trade' agreements in favor of more positive 'fair trade' agreements are an important first step in the struggle to defeat neo-liberal economic policy. Such a 'fair trade' agreement would establish minimum standards or 'floors' for regulations rather than 'ceilings.' In other words, rather than a 'race to the bottom,' whereby the nation with the weakest environmental regulations sets the standard 'ceiling' which all trading partners must accept, a transnational EJ movement must work for a series of mandatory strong standards that apply to all nations. Such a regulatory harmonization process would privilege nations with the strictest environmental laws as establishing a standard 'floor' to which all other countries must comply if trade is to be conducted between them.[68]

A word of caution, however, to the adoption of narrow liberal policy prescriptions. The implementation of new international agreements and treaties to address the environmental injustices fostered by corporate-led globalization cannot be piecemeal in approach. Strong baseline standards around particular issues is not enough. Agreements must be comprehensive in nature, taking into account *all* of the interconnected processes by which ecological hazards are displaced and transferred between countries, and especially between the North and South. For instance, in response to the Basel Convention (and Basel Ban), there is evidence that as dirty industries are deterred from exporting hazardous wastes abroad, many factories are relocating from their home bases in the United States and other advanced capitalist states to more permissive investment locations in the poorer countries. Once relocated, industry is able to take advantage of the less stringent environmental regulations to more cheaply dispose of hazardous waste directly inside the new country. As a result, the intent of the Basel Ban will be defeated. Unless comprehensive international rules are also put into place to govern foreign direct investment in 'toxic' industries, hazardous wastes may still wind up in other countries via this alternative route. The migration of dirty industries to maquiladora zones in Mexico are a strong example of the migration process.[69] Regulating the export of hazards must be comprehensive in scope.

There are signals that a new transnational EJ movement devoted to tackling the export of ecological hazards to poor communities of color inside and outside of the United States is beginning to take shape. The Southwest Network for Economic and Environmental Justice (SNEEJ), and the Environmental Health Coalition (EHC), for instance, are placing pressure on multinational corporations and government agencies to clean-up pollution along the US-Mexico border. In addition, a coalition of Canadian, US, and Mexican organizations have successfully expanded right-to-know legislation in Mexico, including the establish-

67 Adeola,"Cross–National Environmental Justice and Human Rights Issues," 703.

68 Mark Ritchie, "Trading Away the Environment: Free–Trade Agreements and Environmental Degradation," in *Toxic Struggles: The Theory and Practice of Environmental Justice*, ed. Richard Hofrichter (Philadelphia: New Society Publishers, 1993), 209–218.

69 Clapp, "Seeping Through the Regulatory Cracks,"141–155.

ment of a Pollutant Release and Transfer Register that is similar to those in Canada and the United States.[70] Although still in its infancy, the rise of an environmentalism of the poor in the global South and new transnational networks of EJ organizations in the North are among the most promising vehicles for curbing the ecological horror stories brought about by corporate-led globalization.

The goal is clear: only by achieving greater social governance over trade and lending institutions and regulatory bodies can the process that leads different countries to sacrifice human and environmental health in order to compete in the world economy be overcome.

70 Talli Nauman, "Mexico's Right–to–Know Movement," *Citizen Action in the Americas* (February 2003), cited in Frey, "The Transfer of Core–Based Hazardous Production Processes," 338–341.

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