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The Knowledge Commons: Research and Innovation in an Unequal World

NINA HALL, NIMI HOFFMANN, AND MARIUS OSTROWSKI

The problem of common-pool management is an ancient and enduring question in public policy and governance. Discussed and elaborated by a variety of theorists, from Thucydides to Aristotle, it was perhaps given its best-known formulation by Garrett Hardin.¹

Each man is locked into a system that compels him to increase his herd without limit—in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.

Yet, as Elinor Ostrom has demonstrated, the problems of free-riding and predation that lie latent at the heart of commons regimes are neither inevitable nor ubiquitous. Drawing on numerous careful empirical studies of commonly-held stores of resources, such as groundwater basins, lakes, woods, pastures and fish-stocks, Ostrom has identified and modelled the social rules which promote successful common management of limited resources.²

Knowledge seems to lend itself remarkably well to the theoretical perspective of the commons. As Paul David has demonstrated in his careful empirical work of the rise of science during the Enlightenment, the transition from private to common management of knowledge was fundamental to the development of scientific endeavour, and indeed, to the rapid growth of innovation in Western Europe.³ More profoundly, Elizabeth Fricker has argued that the common sharing of knowledge through testimony is an important part of how we understand our human agency and therefore has an important ethical dimension.⁴

Nina Hall, Nimi Hoffmann, and Marius Ostrowski, "Editorial Introduction: The Knowledge Commons: Research and Innovation in an Unequal World," *St Antony's International Review* 8, no. 1 (2012): 3-12.

It is this dual function of knowledge as a common human need and an economic good which informs the arguments in *Understanding Knowledge as a Commons: From Theory to Practice*, co-edited by Charlotte Hess and Elinor Ostrom. The book represents the first tentative moves towards a methodical, wide-ranging consideration of knowledge as a commons. Its contributors—including David Bollier, Nancy Kranich, and Charles Schweik—explore the way in which the common flow of knowledge is fundamental to economic, technological, and policy innovation, and defend the view that reconceptualizing knowledge as a commons opens up new theoretical ways of understanding it as a concept, and new practical possibilities for its treatment in public policy. At the same time, they claim that the commons model provides the most parsimonious and cogent account of threats to knowledge creation and sharing—the danger of choking off innovation through complex, over-extended, and expensive private property rights, which Paul David has termed “over-fencing,” and the problem of “lost” and disappearing knowledge—and potential ways to protect against them—notably, the rise of open-access and open-source loci of knowledge dissemination, the development of associational commons, and the shift towards collaborative scholarship within the academic community.

While financial and legal barriers have been a prominent theme, the role of inequality in the knowledge commons is far less explored. Unequal access, use, and management of knowledge pose substantial threats to the common flow of knowledge and thereby seem to undermine the capacity of weaker individuals to innovate solutions to their context-specific problems. Such inequality ranges from the regional dynamics between the global South and the North, to the local dynamics of class, race, and gender. The purpose of this edition of *STAIR* is to showcase work that tests and deepens the insights of the knowledge commons literature in the context of inequality.

The articles in this issue set out to test the limits of current scholarship on the knowledge commons and open up new routes in which academic discussion of the knowledge commons could develop. First, they aim to clarify the theoretical concepts on which analysis of the knowledge commons relies: given the specific processes of contemporary research and innovation, they examine the usefulness of envisaging knowledge as a commonly-managed resource, and the theoretical implications of treating knowledge as a commons, rather than a private club or public good. Second, they offer characterizations of common knowledge management models: their differences from models of physical resource commons and the role of information imperfections and uncertainty in identifying limits to common knowledge management.

Third, they present comparative analyses of the “state of play” in the establishment of supranational and regional knowledge commons: the development of research and innovation in the global South, variations in praxis along the North/South axis, and the effects of imbalances in power and agenda control on the inclusion or exclusion of individuals, institutions, and economies from the knowledge commons.

The first article, by Charlotte Hess, “The Unfolding of the Knowledge Commons,” functions as a postscript to *Understanding Knowledge as a Commons*. She outlines the rich international flowering of literature in the intervening years and uses this to identify major lacunae and possible new directions. The principles of local commons, Hess argues, have not yet been tested against global commons, such as the Scientific Electronic Library Online (ScieLo), African Journals Online (AJOL) or Wikipedia. Moreover, while knowledge flows in both directions between the South and the North, more work needs to be done on how regional inequalities sharpen and transform existing challenges such as predatory capture or “enclosure” of local commons by global actors.

George Caffentzis, in “The Making of the Knowledge Commons: From Lobsters to Universities,” considers the conceptual challenges to creating a global knowledge commons. He outlines the possible characteristics of a global knowledge commons, in light of the principles and insights of a commonly-managed *physical* resource, namely lobster stocks off the coast of Maine. Caffentzis stipulates three considerations which he sees as essential to the creation of a system of common management *of any resource*, and extends them to the sphere of knowledge, emphasising the sheer scale of the task which creating a common management model for knowledge entails. Caffentzis suggests that what is required is “social imagination and collective will” several levels ahead of the *status quo*—a note of caution echoed in the remaining papers in the themed section. While the prospects for the proliferation of common knowledge resources are rich and diverse, it is crucial that those engaged in theorizing their emergence remain judiciously realistic. The “state of play” is in some cases far removed from the kind of ideal towards which Caffentzis gestures, which makes the need for a coherent strategy for the creation of the knowledge commons even more pressing.

Jorge Contreras’ piece, “Open Access Scientific Publishing and the Developing World,” offers initial suggestions for just such strategies to escape current constraints on the treatment of knowledge as a resource. Contreras distinguishes between trends in research consumption and production in the developing world under different Northern models of open access to information, arguing that the *consumption* of scientific literature by Southern researchers will benefit noticeably from open ac-

cess models, but the *production* of high-quality Southern research will require additional legal and institutional promotion. Contreras offers a series of proposal recommendations designed to give researchers access to the highest-quality journals in the developing world, and allow Southern researchers to gain purchase within South-focused publications. Similarly, he advocates a shift away from the heavy reliance of Southern institutions on “information philanthropy,” which crowds out “home-grown” research before it has a chance to develop—a shift, he argues, that would allow the full potential of open access to knowledge from the global South to be realized.

The article by Bettina Schmietow, “Conceptualizing the Commons: Genetic Resource Management, Property Claims, and Global Innovation Ethics,” highlights the tensions in contemporary legal and philosophical treatments of private, common, and public ownership claims over plant genetic information. She suggests that these tensions between private and public aspects of sovereignty and the commons aspect of global access to knowledge reflect new conceptual challenges posed by the global regulation of this specific form of knowledge, whose resolution may contribute to the development of a richer, more nuanced approach to the management of global resources. Schmietow explores the conceptual divide between the physical resources to which commons models have so far been applied, and the more unique, intangible aspects of *knowledge*, and offers a *normative* vision of global resource management from which knowledge commons discourse would greatly benefit.

Philippa Crane, in “Overcoming issues of Exploitation in Integrating Indigenous Knowledge with Western Science through Implementation of a Participatory Model,” moves the discussion of the knowledge commons onto the dangers of exploitation through imbalances of power and agenda control. Crane uses the case of drug innovation in India to illustrate a model of rapprochement between parallel knowledge systems, as advocated by NGOs involved in community-based projects for the production and dissemination of products grounded in indigenous knowledge. Crane suggests that such a bottom-up framework helps address a *tacit* dimension of knowledge by transferring ‘ownership’ of knowledge directly to the communities that produce it. Crane explores the advantages of her model to creating of relationships of trust between agents, and its mitigating impact on systems of exploitation, through its development of social capital—both within medical research and more generally in areas of informational innovation.

In “Statistics of Identity: Representation of Minority Groups in the Population Census,” the final article in the themed section, Nitzan Perle Rotem tackles head-on the concerns of engagement and domination, and

their impact on the production of knowledge. Using the evolution of the treatment of ethnicity and religion in the UK population census as a case-study, she identifies a growing recent trend in minority groups' claims to statistical representation, aimed at achieving societal recognition and effecting changes in public policy. The peculiar appeal of population censuses to governance structures, societal associations, and individuals, derives from their unique combination of raw political power and the most basic epistemic underpinnings of knowledge and understanding. Peri-Rotem characterizes agenda control over the substance and methodology of census-taking as the locus of political influence *par excellence*, suggesting that a move towards a more engaged, "open source" framework for the creation of population censuses may help mitigate instances of segregation between societal sub-groups, or exclusion of minorities from political recognition.

The themed section closes with an interview *STAIR* conducted with Nicoli Natrass concerning her experiences as an academic and practitioner with regards to the regional politics of HIV/Aids research.

Two common features reappear emphatically throughout the authors' conclusions: (1) the *conceptual idiosyncrasy* of knowledge as a resource; and (2) the pervasiveness of inclusion and exclusion *between and within* the global North and South. First, the commons model clearly does not *wholly* suit direct application to knowledge as a resource—and where it applies, the *knowledge commons* model remains under-defined. Unlike resource commons, the knowledge commons is not unitary, uni-dimensional or universal. Resources are globally fungible and interchangeable, their perception and treatment does not significantly vary across regions and agents, and they are accessible to all agents regardless of location or identity—imperfections in the resource commons are *practical*, rather than *conceptual*. By contrast, knowledge is intrinsically contingent and subjective, dependent on agents' interpretation and evaluation, and thus characterised by strong internal "bordering." It is not a single "pool" of passive information, to which innovative ideas are added and to which agents recourse, nor a simple "blueprint" that applies ubiquitously, irrespective of contingent facts; and it cannot be truly "common," since its reliance on perspective makes the role of individual agency paramount. Agents' interaction with the "sum total of human knowledge" is framed by their context and experience—and agents themselves, as "owners" of unique personal "sets" of knowledge, become conduits through which these sets interact and influence each other.

Second, the case studies in this issue indicate subtle yet extensive asymmetric penetration and selectivity in the inclusion of knowledge-sources in common knowledge-pools. At its simplest, the evidence for

systemic *status quo* bias reflects the pervasive impact of Northern socio-cultural and political-economic hegemony, and the elusive, ambiguous role of globalization. Agents in the global South are swamped by the Northern knowledge to which globalization gives them greater access at the expense of local traditions of knowledge and understanding, while agents in the North gain the *option* of (slightly) greater access to Southern knowledge *of which they make little to no use*. But the argument that emerges from these articles is more ambitious: hegemon-subaltern relationships⁵ exist not only between South and North, but *within* both regional divides as well. The presence of untapped sources of knowledge at more levels than a crude geospatial split is hardly surprising—it merely reflects the epistemic importance of political and economic stratifications and hierarchies beyond the Westphalian nation-state model, while the coincidence of self-perpetuating elite-remainder divisions in both politics and knowledge-creation reinforces the Foucauldian power/knowledge linkage.⁶ In a sense, the main targets of the analyses here—and the problems to which the construction of a knowledge commons might offer a plausible remedy—are the “familiarity bias” and epistemic “pillarisation” prevalent in current knowledge-creation. Agents tend to rely on sources of knowledge which are literally and figuratively *proximate*—sources they have used before, which are seen to be used by others around them, or in which they have confidence—and favour those able to carve out a presence within and beyond their immediate context. “Minority” knowledge sources find it hard to gain wider purchase and transcend their disciplinary silos, and sources in the subaltern, or global South, find it even harder to gain a reputation of trustworthiness sufficient to overcome the familiarity bias towards their elite, Northern equivalents.

On the whole, the journal contributions deepen and challenge our understanding of the way in which such imbalances and inequalities sharpen and transform existing challenges to the knowledge commons. Yet significant aspects of inequality in the knowledge commons remain unaddressed. First, the curation and development of local common knowledge on environmental goods and disasters is an important omission. Crowdsourcing platforms such as Ushahidi have demonstrated that common pools of knowledge are crucial to preventing and coping with natural and human-made disasters, as well as managing local resources like water and forests in the face of over-exploitation by private and public actors.⁷ We therefore note with concern that there seems to be an erosion of historical, local knowledge commons in the South, which is often characterized by rapidly changing, homogenizing societies. The mechanisms by which such knowledge is lost are poorly understood

and documented. Some of these mechanisms plausibly concern the disappearance of whole peoples, like the many different Khoe-San peoples in southern Africa.⁸ Others concern the disappearance of species and their methods of cultivation, such as indigenous sorghum, cotton and millet;⁹ yet others concern demographic shift to rapidly “youthing” populations, and with it, the potential loss of knowledge curated by older members of society.

Second, the development of common knowledge on government services and industry players are key to holding both the private and public sector accountable to the polity.¹⁰ In this regard, the recent proliferation of laws and policies which criminalise whistle-blowing and erode the anonymity and rights of whistle-blowers are of significant concern.¹¹ Countries as diverse as the United States and South Africa have recently enacted laws that erode the possibilities of such common knowledge, even as new organisations, like Corruption Watch¹² in South Africa, and new technological platforms, like GlobaLeaks,¹³ arise to preserve and protect common knowledge from threats by powerful elites.

Moreover, insofar as knowledge is commonly managed, it relies on intricate and poorly-understood networks of individuals. Knowledge commons are therefore characterized by problems arising from asymmetrical information: uncertainty, mistrust, and discrimination. Our understanding of such problems would benefit considerably from careful historical work on the establishment of these networks, as well as experimental work that identifies and helps model the latent mechanisms underlying their problems. Analysts of the resource commons, for instance, are increasingly using experimental studies as complements to careful case studies and historical work.¹⁴ Studies of the knowledge commons would benefit from adopting such an approach.

The General Section continues *STAIR*’s commitment to engaging scholarship on recent international events. This section spans from Libya to the Solomon Islands to the Democratic Republic of Congo. The first two articles share an interest in humanitarian intervention and provide a lens on decisions and strategies to offer protection to civilians. The third article is a rejoinder to our previous issue and offers a response to the article: “The Informal Economy and Resource Exploitation in the Democratic Republic of Congo.”¹⁵

Ruben Reike’s article is a timely analysis of the international community’s response to the Libyan crisis in 2011. Reike is interested in the role and evolving nature of the “Responsibility to Protect” (R2P) norm, and draws out three critical lessons from the Libya intervention for the implementation of R2P. Firstly, Libya demonstrates that it is difficult to predict where and when mass atrocities will occur. Secondly, R2P

debates should focus more on immediate responses rather than prevention of the harder to identify root causes. Thirdly, and most importantly, Libya suggests we may need to “abandon impartiality.” The article makes an important contribution to our understanding of the R2P norm development and implementation as well as the strategies and politics of humanitarian protection. It will engage scholars of global norms, international law, and humanitarianism, as well as those interested in the international reaction to the Arab Spring, particularly given the failure of the Security Council to respond with equal measure to mass atrocities in Syria thus far in 2012.

Isaac Hollis shifts our focus to the Pacific and to Australia’s decision to intervene in the civil conflict in the Solomon Islands. Hollis’s case study stands in stark contrast to Reike’s: while in Libya intervention was coercive and without state consent, the Solomons explicitly requested Australian military assistance on three occasions. Yet Australia was reluctant to offer assistance until July 2003 when the Howard administration established the *Regional Assistance Mission to the Solomon Islands* (RAMSI), and sent over 2,000 military personnel to its Melanesian neighbour. Hollis proposes that three emotions—humiliation, confidence, and pride—were pivotal in this policy turnaround. He makes a novel contribution to IR, by building on recent developments in psychology, and arguing that emotions are an important constituent of rationality and play a critical role in decision-making. He also offers a compelling insight into one of the unforeseen consequences of Bush’s global “War on Terror.” Hollis claims it was Australia’s participation in the war in Iraq which fuelled its sense of pride and confidence and ultimately led it to intervene in the Solomons. The article will be of interest to scholars of security studies and foreign-policy.

Finally, Laura Seay has written a compelling response article on the nature of the informal economy and resource exploitation in the Democratic Republic of Congo. She endorses Gallo’s view that it is problematic to distinguish between “official” and “illicit” economic activities in a failed-state context. As she highlights: what does “legal” resource extraction mean in the DRC context where the state does not have the capacity to endorse laws or even pay officials? Seay also agrees that boycotts of “conflict minerals” have unintended consequences. Furthermore, there is little evidence to suggest that preventing international trade in one revenue source of armed groups will reduce violence. She urges Gallo to take her analysis one step further and make policy recommendations to US advocacy groups who assume that implementation of the Dodd-Frank Act is a means to stop conflict in DRC. Her analysis will be insightful for students, policy-makers, and activists working on

human rights advocacy, conflict prevention, and the DRC. All together these articles in the general section and the knowledge commons section offer theoretically challenging and empirically rich analyses of contemporary international issues. ■

Postscript

STAIR uses a hybrid model that provides free access for up to 25 per cent of the content. Yet this still excludes those who cannot afford to pay from the majority of the content. As the guest editors, we hope *STAIR* will move further in the direction of open access. As a first step, we intend to make the panel discussions from the journal launch freely available on the *STAIR* website as podcasts.

Notes

¹ Garrett Hardin, "The Tragedy of the Commons," *Science* 162 (1968): 1243-1248.

² See, for instance, Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge: Cambridge University Press, 1990).

³ Paul David, "Tragedy of the Public Knowledge 'Commons,'" *Research Memoranda 003* (Maastricht: Maastricht Economic Research Institute on Innovation and Technology, 2006).

⁴ Miranda Fricker, *Epistemic Injustice* (Oxford: Oxford University Press, 2006).

⁵ Gayatri Chakravorty Spivak, "Can the Subaltern Speak?" in *Marxism and the Interpretation of Culture*, eds. C. Nelson and L. Grossberg (Basingstoke: Macmillan, 1988), 271-313.

⁶ Michel Foucault, "Two Lectures," in *Power/Knowledge: Selected Interviews and Other Writings 1972-1977*, ed. Colin Gordon (New York: Pantheon, 1980), 78-108.

⁷ Ory Okolloh, "Ushahidi, or 'testimony': Web 2.0 tools for crowdsourcing crisis information," *Participatory Learning and Action* 59, no. 1 (2009): 65-70.

⁸ Mohamed Adhikiri, *Anatomy of a South African Genocide: The Extermination of the Cape San Peoples* (Cape Town: University of Cape Town Press) 2011.

⁹ Dionys Forster, Monika Messmer, Rajeev Baruah, and Shreekanth S Patil, "Disappearing non-GM cotton - ways forward to maintain diversity, increase availability and ensure quality of non-GM cotton seed," (Proceedings of the National Workshop, Dharwad, Karnataka, June 21, 2011).

¹⁰ Raed M Sharif, "The Socioeconomic Effects of Public Sector Information on Digital Networks: Toward a Better Understanding of Different Access and Reuse Policies," (The OECD-U.S. National Academy of Sciences workshop, Paris, France, February 2008).

¹¹ David Banisar, "Freedom of Information Around the World 2006: A Global Survey of Access to Government Information Laws," *Privacy International*, 2006.

¹² Corruption Watch, <http://www.corruptionwatch.org.za/> (accessed April 12, 2012).

¹³ Global Leaks, <http://globaleaks.org/> (accessed April 12, 2012).

¹⁴ Achim Shlüter and Björn Vollan, "Experiments as thriving and diverse methods for analyzing the commons," *The Commons Digest* 12 (Winter 2012): 5-7.

¹⁵ Carole Jean Gallo, "The Informal Economy and Resource Exploitation in the Democratic Republic of Congo," *St. Antony's International Review* 7, no. 2: 8-31.

The Unfolding of the Knowledge Commons

CHARLOTTE HESS

ABSTRACT

This piece reports on some of the significant research and activities within the knowledge commons arena since the publication of Charlotte Hess and Elinor Ostrom's co-edited book *Understanding Knowledge as a Commons* in 2007. Hess uses this overview to identify major lacunae in the study of the knowledge commons. First, the relationship between local, indigenous knowledge and more globalised forms of knowledge is poorly understood. Second, the principles of local commons have not yet been tested against global commons, which may be characterised by regional inequalities. In both regards, careful case studies are needed to enrich our understanding of the knowledge commons.

After an impassioned plea from James Boyle, Elinor Ostrom agreed to present a paper at the inaugural Conference on the Public Domain held at Duke University in November 2001. She invited me to collaborate with her on a work that would combine her expertise on natural resource commons, collective action, and institutional analysis with my research on information and knowledge commons (KC). Our conference paper summarized some of the lessons learned from the large body of international and interdisciplinary research on common-pool resources (CPRs) that had grown up since the 1980s, and considered its usefulness in the analysis of knowledge and information as a shared resource.¹ Diving into the legal commons literature, we began to see ways in which study of the governance and management of common-pool resources might be helpful in analyzing the intellectual public domain. Our analysis demonstrated that collective action and new institutional design play as large a part in the shaping of scholarly information as do legal restrictions and market

forces. The revised paper was published in 2003 in an issue of the journal *Law and Contemporary Problems* devoted to the public domain.²

That same year, Ostrom and I received funding from the Andrew W. Mellon Foundation to host the “Workshop on Scholarly Communication as a Commons.” The two-day event, occurring in March 2004, brought together leading interdisciplinary scholars in the United States who were publishing interesting studies in the new terrain of the information and knowledge commons. Our volume, *Understanding Knowledge as a Commons: From Theory to Practice* (UCK) was an outgrowth of that workshop. The book provided a new way of looking at knowledge as a shared resource, a complex ecosystem that is a *commons*—a resource shared by a group of people that is subject to social dilemmas. While we argued the logic of making the whole book available in open access (OA), we were grateful to our publisher for agreeing to provide in OA the preface, introduction, glossary, and index.³

The introduction is a useful starting place to learn about the brief evolution of the study of the knowledge commons and its relation to the study of traditional, natural-resource commons. It gives a brief history of the study of natural resource commons and the development of knowledge commons as an outgrowth. It illustrates the importance of applying an interdisciplinary approach to the study of any type of commons. Key concepts discussed are Ostrom’s design principles for robust, long-enduring commons,⁴ and Hardin’s “Tragedy of the Commons.”⁵ It underscores the essential role of collective action and self-governance in making commons work.

Especially important in the overview are the discussions of the difference between a “common-pool resource,” one type of economic good defined by the extent of subtractability and exclusion, and “common property,” a type of formal or informal property. But unlike any of our earlier works, we found it essential to provide a definition of the more general term “commons.” This was because we had noticed that many of the works on knowledge and other new types of commons were less concerned with property rights or the nature of the good. Rather, they were frequently exploring new types of enclosures of information and cultural resources made possible in the digital environment, or they addressed the new opportunities for online collective action and knowledge-sharing afforded the by the Internet.⁶ After much discussion we agreed on the following definition: a commons is a resource shared by a group of people that is subject to social dilemmas.

In the book we defined “knowledge” as all useful ideas, information, and data in whatever form in which it is expressed or obtained. Our focus was specifically on “useful knowledge,” whether indigenous,

scientific, scholarly, or non-academic. It included creative works—music and the visual and theatrical arts. We drew from Reichman and Franklin regarding the polemical nature of knowledge with its dual functions as a commodity and as a constitutive force of society.⁷ This dual function as a human need and an economic good immediately suggest the complex nature of this resource.

Knowledge is cumulative. With ideas, the cumulative effect is a public good, so long as people have access to the vast storehouse. Maintaining knowledge as a public good by maintaining access and preservation were challenges long before the advent of digital technologies. An infinite amount of knowledge is waiting to be unearthed. The discovery of new knowledge is a common good and a treasure we owe to future generations. The challenge of today's generation is to keep the pathways to discovery opened and unclogged.

Knowledge as a public good in digital format is fragile and increasingly vulnerable for a number of reasons:

- Knowledge is rapidly changing and evolving;
- Digital code, protocols, and infrastructure are rarely understood by policymakers;
- Intellectual property rights for digital formats have greatly expanded since the advent of the Internet;
- Books, journals, and databases have been moved from the “first sale” world of property law to the much more restrictive domain of contract law where publishers’ licenses often restrict fair use for educational purposes, prohibit lending, and limit the number of users;
- An unknown amount of valuable digital information is being lost to the world every day through inadequate preservation and simple neglect; and
- Prices for digital publications continue to rise at unsustainable rates.

As a counterweight, the strength and resilience of shared knowledge are evident on a global basis through unprecedented forms of collaboration and collective action made possible by distributed networked information. The Arab Spring and Occupy Movements leave no doubt of the critical role of digital connectedness through the Internet, short messaging service (SMS), and mobile phones for collective action plays throughout the world.⁸ Demonstrations of the resilience of the scholarly knowledge commons and online civic action are all initiatives that are part of the open access movement. A few representative examples are:

- MIT Open Courseware <http://ocw.mit.edu/index.htm>;
- Open Courseware Consortium <http://www.ocwconsortium.org>;
- Flatworld Knowledge, <http://www.flatworldknowledge.com>, an open textbook initiative that has been in development since 2007;
- OpenWetWare <http://openwetware.org/wiki/Main—Page>, an effort to promote sharing information, know-how, and wisdom among researchers who are working in biology and biological engineering;
- Open Educational Resources (OER) Commons <http://www.oer-commons.org/oer>. OER Commons has forged alliances with over 120 major content partners to provide a single point of access through which educators and learners can search across collections to access over 30,000 items, find and provide descriptive information about each resource, and retrieve the ones they need.

Ostrom and I were fortunate to have our book reviewed in seventeen scholarly journals. While the reviews were generally quite positive, there were two criticisms that were mentioned by some reviewers. First, a book on the knowledge commons should be available in open access to the global community, and second, that it was too American-centric without sufficient attention to marginalized, information-poor users throughout the world. Crispin pointed out that “marginalized users are the focus only in Peter Levine’s chapter on involving adolescents in creating public knowledge.”⁹ While our focus in the book was applying traditional natural-resource commons analysis to the theory and practice of knowledge commons, and featuring various approaches to knowledge commons study of which we were aware at the time, it is certainly true that the questions of information equity, protection of indigenous, and traditional knowledge commons from predatory capture or “enclosure” are important. Shiva’s seminal work on biopiracy is as relevant today as it was fifteen years ago.¹⁰

Issues of information equity, universal access, and universal provision of knowledge and information remain crucially important. Fortunately the knowledge commons movement continues to grow as more people throughout the world become aware of not only information-poor regions’ needs for qualitative and scientific information, but at the same time, the critical need for access by “information-rich regions” to the wealth of scientific knowledge from marginalized regions that is not available online.

India has long been one of the countries at the forefront of the knowledge commons movement.¹¹ A great step forward for knowledge commons in India was the recent global Conference of the International Association for the Study of the Commons (IASC) held in Hyderabad, India in January 2011 that brought hundreds of practitioners, researchers, policymakers, journalists, and funders to share their thoughts and lessons learned about the commons. Besides the papers, publications, networks, community and government initiatives, and movements have grown out of this international event.¹² A tireless advocate for open access and provision in India is scientist Subbiah Arunachalam. In an interview with Richard Poynder, Arunachalam described the problem from the Indian point of view:

...research performed in India, and funded by Indian taxpayers, is reported in a few thousand journals, both Indian and foreign. Since some of these journals are very expensive, many Indian libraries—including sometimes the author's own institutional library—are not able to subscribe to them. As consequence, other Indian scientists working in the same, or related, areas are unable to read these papers. This is a problem common to all developing countries.¹³

But Arunachalam is critically aware that open access can solve both the problems of access and provision. In his review of *UKC*, he writes: “Indian librarians will do well to note that it is important to move from being mere keepers of archives and stewards of information goods, to active participants in the research process and in the production of scholarly information.”¹⁴

In 2011, the Initiative on Commons (IC) was co-founded by the Foundation for Ecological Security (FES) in India and the IASC in order to

bring together practitioners, policy makers and academia, working on various domains of commons—physical commons such as forests, grazing resources, protected areas, water, fisheries, coasts, lagoons, irrigation systems as well as new commons such as knowledge, digital and cultural commons, genetic resources, patents, climate, etc. It is an evolving platform to advance understanding, research and advocacy on the commons. The initiative ultimately aims to influence public perception, policy environment and programmatic action in favour of the commons.¹⁵

Recently, IC published an important, perhaps groundbreaking volume, *Vocabulary of the Commons*, “a collaborative effort in the knowledge commons” with the purpose of teaching local communities about the commons so that they can “retake the commons, and then refashion them into egalitarian ends. Retaking the commons needs a vocabulary of commons—in thought (attitude), speech (intent), law (norms) and programmes (practice).”¹⁶

Without the space to discuss the hundreds of local and global networks on knowledge commons, websites, collaborations, initiatives, and movements, that are thriving today, I would like to mention some serious studies of or events around the knowledge commons that deserve mention. In 2012, we can certainly say that the study of knowledge commons has blossomed. The launch of the (open access) *International Journal of the Commons (IJC)* in 2007, primarily through the tireless efforts of European scholars Erling Berge and Tine de Moor with the support of the International Association for the Study of the Commons, contains quite a few articles on the knowledge commons.¹⁷

The *Cornell Law Review* devoted an issue to the knowledge commons in 2010.¹⁸ Spearheaded by legal scholars Michael J. Madison, Brett M. Frischmann, and Katherine J. Strandburg, the volume explores the concept of “constructed” knowledge and cultural commons.¹⁹ In the lead article, the three editors present an adaptation of the Institutional Analysis and Development Framework adjusted for “humanly-constructed” rather than natural resource commons. They apply the framework to several types of commons: intellectual property pools, open source software, Wikipedia, the Associated Press, and jamband fan communities. Six commons scholars provide further analysis in separate articles. This issue was followed by a conference at New York University in 2011 and a forthcoming book in 2012 with contributions from Elinor Ostrom, Yochai Benkler, Carol Rose, Jorge Contreras, Charles Schweik, and other major commons scholars.

The international effort to create a Microbial Scientific Commons, led by Belgian scholar Tom Dedeurwaerdere, with US scholars Jerome Reichman and Paul Uhler, has made astounding inroads in the past five years with a section of an issue of the *IJC* devoted to the Microbial Commons.²⁰ A previous publication was the “Exploring the Microbiological Commons” issue of the *International Social Science Journal*.²¹ In fall 2010 the National Academy of Sciences hosted the international symposium “Designing the Microbial Research Commons.” The proceedings were published open-access in 2011 by the National Academies Press.²² Tom Dedeurwaerdere is chairing the IASC First Thematic Conference on the Knowledge Commons in Louvain, Belgium in September 2012.²³ Conference themes include:

- scientific research and innovation commons;
- digital information commons;
- historical experience of the knowledge commons;
- genetic resource commons; and
- cultural commons.

German scholar and advocate Silke Hilfrich teamed up with US activists and commons thinkers David Bollier and Michel Bauwens to host the International Commons Conference in Berlin in November 2012 attended by 200 people from thirty-five countries.²⁴ A forthcoming compendium preliminary titled *The Life of the Commons* about the state of the commons and the global movement that is building a new economic order is forthcoming in 2012.

The First International Workshop on the Cultural Commons was held in Turin, Italy, in January 2010, resulting in a forthcoming volume, *Cultural Commons: A New Perspective on the Production and Evolution of Cultures*.²⁵ A French anthology of international works on knowledge commons was published in 2011.²⁶

Leslie Chan, who founded *Bioline International* and co-founded the Open Access Scholarly Information Sourcebook (OASIS) and the global Open Access Map, has made important inroads in improving information equity by building access worldwide to scientific journals.²⁷ He makes the interesting point that while knowledge seekers in developing countries have greater access to published scholarly information, there remains the enormous challenge of making accessible the kinds of information really needed. Citing a Nigerian writer he asks: “is it useful for doctors in Nigeria to read about the latest high-tech treatments for infertility published in a western journal when it is not economically feasible to implement these procedures in cash-strapped public hospital in Nigeria...?”²⁸ Chan, Kirsop, and Arunachalam’s very thought-provoking piece “Towards Open and Equitable Access to Research and Knowledge for Development” discusses initiatives that try to address the North-South knowledge inequity that has led to “the misguided notion that little, if any, research of substance is generated in the global South, and that the needs of researchers in poor countries are therefore met solely by information donation from the North. The one-way North to South flow of knowledge is not all that is necessary for development, and the Research4Life program only addresses part of the problem.”²⁹

Much more research needs to be done in the area of indigenous knowledge and commons. Jorason gives a good overview of some of the issues, particularly the problems of language inequity, endangered languages, and indigenous knowledge disseminating practices.³⁰ University of Massachusetts scholar Jane Anderson’s work on the growing conflicts over access and control of indigenous knowledge in libraries, archives, and museums is extremely timely, and her somewhat groundbreaking approach will appear as a chapter in the forthcoming Madison, Frischmann, and Strandberg book mentioned above. The Abrell et al. piece “Imagining a Traditional Knowledge Commons: A Community Approach to Sharing Traditional

Knowledge for Non-commercial Research” proposes a traditional knowledge commons that would require a community of traditional knowledge holders to develop in accordance with their bio-spiritual virtues the terms and conditions for non-commercial access to their traditional knowledge.

One interesting new area of research within the global commons arena revolves around cyber security, which is increasingly viewed as a very complex knowledge commons.³¹ Even the 2009 Obama administration “Cyberspace Policy Review” concurs: “One area needing further study is whether and in what ways elements of the information and communications infrastructure ought to be treated as a global commons.”³² Both the president and the report emphasize that the US cannot work in isolation, that within the US there need to be public-private partnerships to collaborate on cyber security; and that internationally we will need to bring like-minded nations together.

As many observers have pointed out, the knowledge commons is a *global commons*. Unfortunately, as McCay and Delaney recently pointed out, we still do not understand any types of global commons very well, and there does not seem to be a mass of research on it.³³ We understand the global knowledge commons even less than global traditional or natural resource commons. Most of the research on commons and common-pool resources to date has concentrated on micro-level analysis of local resources.³⁴

The most pressing need if we want to better understanding any type of knowledge commons is for more in-depth case studies—a need also emphasized throughout the *Cornell Law Review* issue mentioned above. As commons scholars, we realize how much we learned from Ostrom’s analysis of case studies in her award-winning book *Governing the Commons: The Evolution of Institutions for Collective Action*.³⁵ She rigorously applied the Institutional Analysis and Development (IAD) Framework to eighty-six case studies of long-enduring and robust natural resource commons from around the world. Her analysis led to an understanding of eight design principles that were shared by these commons:

- clearly defined boundaries;
- rules-in-use are well matched to local needs and conditions;
- individuals affected by these rules can usually participate in modifying the rules;
- the right of community members to devise their own rules is respected by external authorities;
- a system for self-monitoring members’ behavior;
- a graduated system of sanctions;

- community members have access to low-cost conflict resolution mechanisms;
- nested enterprises—i.e. appropriation, provision, monitoring and sanctioning, conflict resolution, and other governance activities are organized in a nested structure with multiple layers of activities.

While some scholars of new or knowledge commons tend to use these design principles as a place to start their own analysis, we do not really know how much they pertain to large, complex, constructed commons such as scientific collaborations, Wikipedia, or genetic resources. We need new case studies that focus specifically on knowledge as a shared resource, investigate the community of users and the rules in use of individual knowledge commons, and then apply the rest of the IAD framework, the action arena, and how those variables lead to outcomes. Such case studies would elucidate our understanding of why some of these commons are successful while others are vulnerable and subject to failure. Madison, Frischmann, and Strandberg underscore the importance of concerted studies in their 2010 article:

Structured inquiry into a series of case studies will provide a basis from developing theories to explain the emergence, form, and stability of the observed variety of cultural commons and, eventually, to design models to explicate and inform institutional design.³⁶

There are already some good case studies that should be mentioned.³⁷ Ostrom and Hess applied the IAD framework to libraries not as a case study but rather as an example of how to apply the framework in the case of knowledge commons.³⁸

This is a brief, and perhaps unsatisfying, overview of some of the developments in the knowledge commons research arena since *UKC*. Countless important references are unjustly missing from this piece. The idea, at least, is to sow some seeds and provide suggestions for further investigation. I applaud *STAIR* for this timely issue that so rightly focuses on inequity and the urgency of universal access. For those with access, these articles will contribute to a deeper understanding of the knowledge commons. ■

Notes

¹ Charlotte Hess and Elinor Ostrom, “Artifacts, Facilities, and Content: Information as a Common-Pool Resource,” (Paper presented at the Conference on the Public Domain, Duke Law School, Durham, North Carolina, November 9-11, 2001). We

decided to change the title of the published version to “Ideas, Artifacts, and Facilities...” after an extended conversation with John Perry Barlow about the meaningfulness of the word “content” in that context.

² *Law and Contemporary Problems* 66, nos. 1 and 2 (2003).

³ Charlotte Hess and Elinor Ostrom, eds., *Understanding Knowledge as a Commons* (Cambridge, MA: MIT Press, 2007). As mentioned, portions of the book are available OA at <http://mitpress.mit.edu/catalog/item/default.asp?ttype=2&tid=11012>.

⁴ Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (New York: Cambridge University Press, 1990).

⁵ Garrett Hardin, “The Tragedy of the Commons,” *Science* 162 (1968): 1243-1248.

⁶ See James Boyle, “The Second Enclosure Movement and the Construction of the Public Domain,” *Law and Contemporary Problems* 66 (Winter 2003): 33-74.

⁷ Jerome H. Reichman and Jonathan A. Franklin, “Privately Legislated Intellectual Property Rights: Reconciling Freedom of Contract with Public Good Uses of Information,” *University of Pennsylvania Law Review* 147, no. 4 (1999): 875-970.

⁸ See Lee Rainie, Kristen Purcell, and Aaron Smith, “The Social Side of the Internet,” PEW Report, January 18, 2011.

⁹ See Jennifer J. Crispin, review of *Understanding Knowledge as a Commons: From Theory to Practice*, ed. Charlotte Hess and Elinor Ostrom, *InterActions: UCLA Journal of Education and Information Studies* 4, no. 2 (2008); A. Whitworth, review of *Understanding Knowledge as a Commons: From Theory to Practice*, ed. Charlotte Hess and Elinor Ostrom, *New Media & Society* 10, no. 1 (2008): 169-172; Charles Oppenheim, review of *Understanding Knowledge as Commons: From Theory to Practice*, ed. Charlotte Hess and Elinor Ostrom, *Library Review* 57, no. 6 (2008): 478-480.

¹⁰ Vandana Shiva, *Biopiracy: the Plunder of Nature and Knowledge* (Cambridge, MA: South End Press, 1997).

¹¹ Frederick Noronha, “India at the Forefront of Knowledge Commons Debate,” Intellectual Property Watch, 2006, <http://www.ip-watch.org/2006/09/03/india-at-the-forefront-of-the-knowledge-commons-debate/> (Accessed March 28, 2012).

¹² 273 papers from the conference are available on the Digital Library of the Commons at <http://dlc.dlib.indiana.edu> (accessed March 28, 2012). Of particular interest are Padini Nirmal, “Understanding Global Knowledge-dynamics: A Case-study of NFSCs Project Digital Community Archiving—Does it Protect or Plunder the Indigenous Knowledge of the Nari Kuravar Community?” <http://hdl.handle.net/10535/7135>; V. Joseph Satish, “Indigenous Arts and the Commons,” (Paper presented at the Thirteenth Biennial Conference of the International Association for the Study of the Commons, Hyderabad, India, January, 2011), <http://hdl.handle.net/10535/7166>; Kabir Sanjay Bavikatte et al., “Imaging a Traditional Knowledge Commons: A Community Approach to Ensuring the Local Integrity of Environmental Law and Policy,” (Paper presented at the Thirteenth Biennial Conference of the International Association for the Study of the Commons, Hyderabad, India, January, 2011), <http://hdl.handle.net/10535/7368>; Soutrik Basu, Guido Ruivenkamp, and Joost Jongerden, “Open Source, Commons and Development: A Research

Agenda on Common Pool of Services of Generation Challenge Programm (GCP)," (Paper presented at the Thirteenth Biennial Conference of the International Association for the Study of the Commons, Hyderabad, India, January, 2011), <http://hdl.handle.net/10535/7308>.

¹³ Richard Poynder, "Why India Needs Open Access," *Open and Shut* (blog), May 5, 2006, <http://poynder.blogspot.com/2006/05/why-india-needs-open-access.html?m=1> (accessed March 28, 2012).

¹⁴ Subbiah Arunachalam, review of *Understanding Knowledge as a Commons: From Theory to Practice*, ed. Charlotte Hess and Elinor Ostrom, *Current Science* 93, no. 6 (2007): 860-861.

¹⁵ Foundation for Ecological Security, Vocabulary of Commons, January, 2011, 24, <http://www.slideshare.net/OpenSpace/vocabulary-of-commons> (accessed March 26, 2012).

¹⁶ Ibid.

¹⁷ *International Journal of the Commons* 6, no. 1 (2012).

¹⁸ *Cornell Law Review* 95, no. 4 (2010).

¹⁹ Although the authors call the resource at hand a "cultural commons", they are referring to constructed knowledge resources.

²⁰ *International Journal of the Commons* 4, no. 1 (2010).

²¹ *International Social Science Journal* 188 (June 2006).

²² Paul F. Uhler, ed., *Designing the Microbial Research: Proceedings of an International Workshop* (Washington: National Academies Press, 2011).

²³ International Association for the Study of the Commons, *1st Thematic Conference on the "Knowledge Commons"*, Louvain, September 12-14, 2012.

²⁴ "Interpretive Summary of the International Commons Conference," p2p foundation, <http://p2pfoundation.net/Interpretative-Summary-of-the-International-Commons-Conference#An-Overview-of-the-Conference> (accessed March 11, 2012).

²⁵ Walter Santagata and Enrico Bertacchini, eds., *Cultural Commons: A New Perspective on the Production and Evolution of Cultures* (Northampton, MA: Edward Elgar, forthcoming).

²⁶ Hervé Le Crosnier, ed., *Libres Savoirs: Les biens communs de la connaissance* (Caen : C&F Editions, 2011).

²⁷ Leslie Chan and Sely Costa, "Participation in the global Knowledge Commons: Challenges and opportunities for research dissemination in developing countries," *New Library World* 106, no. 3/4 (2005): 141-163.

²⁸ Ibid.

²⁹ Leslie Chan, Barbara Kirsop, Subbiah Arunachalam, "Towards Open and Equitable Access to Research and Knowledge for Development," *PLoS Med* 8, no. 3 (2011).

- ³⁰ Kate Jorason, "Indigenous Knowledge and the Knowledge Commons" *International Information and Library Review* 40, no. 1 (2008): 64-72.
- ³¹ See, for instance, Abraham M. Denmark, "Managing the Global Commons," Center for a New American Security Commentary, 2010, <http://www.cnas.org/node/4695>; Abraham M. Denmark, and James Mulvenon, eds., *Contested Commons: The Future of American Power in a Multipolar World* (Washington: Center for a New American Security, 2010); ITU Global Cybersecurity Agenda (GCA), "Framework for International Cooperation in Cybersecurity," 2011, www.itu.int/cybersecurity/gca (accessed March 23, 2012); Kenneth N. Clark, "Institutions and Self-Governing social systems: Linking Reflexivity and Institutional Theories for Cybersecurity and Other Commons Governance Policies" (PhD thesis, George Washington University, 2012); Jorason, "Indigenous Knowledge and the Knowledge Commons."
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- ³³ Bonnie McCay, "Expanding the boundaries of commons scholarship: The 2008 Conference of the International Association for the Study of the Commons," *International Review of the Commons* 4, no. 1 (2010): 213-225.
- ³⁴ M. McGinnis and Elinor Ostrom, "Design Principles for Local and Global Commons," in *International Political Economy and International Institutions*, Vol. 2, ed. O. R. Young (Brookfield, VT: Edward Elgar, 1996).
- ³⁵ Elinor Ostrom, *Governing the Commons*.
- ³⁶ Michael J. Madison, Brett M. Frischmann and Katherine J. Strandburg, "Constructing Commons in the Cultural Environment," *Cornell Law Review* 95 (2010): 658.
- ³⁷ J.L. Contreras, "Bermuda's Legacy: Policy, Patents and the Design of the Genome Commons," *Minnesota Journal of Law, Science & Technology* 12 (Winter 2011): 61; Armano Srblijinovic, Ljubica Bakic-Tomic and Jasmina Bozic, "Virtual Communities as Commons: Case Study of 'Connect'," *Interdisciplinary Description of Complex Systems* 6, no. 1 (2008): 37-52; Charles M. Schweik, "Free/Open-Source Software as a Framework for Establishing Commons in Science," in *Understanding Knowledge as a Commons*, ed. Hess and Ostrom; Charles M. Schweik, "An Institutional Analysis Approach to Studying Libre Software 'Commons,'" *Upgrade* 6, no. 3 (2006): 17-27; Peter Kollock, "Design Principles for Online Communities," (Paper presented at the First International Harvard Conference on the Internet and Society, 1996), <http://www.loa-cnr.it/Files/CollabKWork/Design%20Principles%20for%20Online%20Communities-%20Kollock.html#Footnote%201>; Ruben van Wendel de Joode, "Understanding Open Source Communities: An Organization Perspective," (PhD dissertation, Delft University of Technology, 2005), <http://repository.tudelft.nl/view/ir/uuid%3A297bc2ff-956b-436b-addb-98eb1d4a3b4f/>; J. Hofmøkl, "The Internet Commons: Towards an Eclectic Theoretical Framework," *International Journal of the Commons* 4, no. 1 (2010): 226-250.
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From Lobsters to Universities: The Making of the Knowledge Commons

C. GEORGE CAFFENTZIS

ABSTRACT

Philosophers and social scientists from Hobbes to Hayek have debated the necessary and sufficient conditions for the making of states and markets, but there has been a remarkable lack of interest in the making of commons. This *terra nullius* of discourse is especially problematic when considering the making of the all important knowledge commons. In this paper I explore the making of a functioning commons off the coast of Maine ("the lobster commons") and draw lessons from this process in exploring what would be the conditions for the making of the knowledge commons and the role universities can play in this making.

Introduction

In this paper I address the practical task of actually making the knowledge commons. I examine this project in two parts. The first part is a discussion of the typical difficulties encountered in the making of commons in general. In order to concretize this theme, I analyse the making of the "lobster commons" on the coast of Maine over the last hundred and fifty years. The methods of lobster fishing developed by Maine lobstermen and women have become a textbook example of how a group of people who are not altruistic angels can come together to self-manage the exploitation of a common resource without exhausting it or destroying each other.

Once we become sensitized to the difficulties in the making of commons in general, I shall turn to the question of the knowledge commons in particular. This, however, is not a simple, logical transition from general to particular. Knowledge is a peculiar common good since it is neither located in any geographical site nor is it a "natural resource" as are most examples of common-pool resources in history (lands, forests, aquifers, fishing grounds, etc.). Knowledge is everywhere and nowhere.

Indeed, knowledge is a peculiar example of a distinctive common resource called a “global commons.”

I then analyse a number of typical problems that the constituent community of the knowledge commons, especially universities, their faculties and students, must face in preventing a “tragedy of the knowledge commons.”

Communal Lessons Taught by Maine’s Lobster Gangs

What is required to make a knowledge commons, or indeed, any commons at all? Commons require at least three elements for their constitution: (i) a common-pool resource, i.e., a resource that combines “difficult excludability” and “high subtractibility,” (ii) a set of people who desire continuous, long-term access to the resource (“commoners”), and (iii) procedures to arrive at a set of rules that commoners use to manage the resource.¹ Any attempt to go from this abstract framework to actual commons with specific resources, people, and rules, often leads us to examples of either historical interest—e.g., evoking the cosy village commons in medieval England (redolent of Tolkien’s Shire)—or “exotic” locales, e.g., small communities in the forests of contemporary India.²

An example of a commons that is neither cosy/historical nor exotic is the world-famous commons on the Maine coast from Kittery to Eastport that constitutes in area one of the largest commons on the planet. The common-pool resource is composed of the millions of lobsters living there; the commoners who desire access to these lobsters are the thousands of lobstermen (and a few lobsterwomen) whose livelihood is based on selling the results of their lobster fishing; and the set of rules and procedures they use to manage the lobster fishery is a complex combination of informal deals among the lobstermen, the state of Maine and US government laws and their agents. It is a rather remarkable feat of co-management between the commoners and the government that is responsible for the survival and success of the lobster industry at a time when other types of fishing in the Gulf of Maine, organized largely through open access rules, are facing extinction.

The present management of the lobster commons is based on the Zone Management Law of 1995 that gave legal authority to a pre-existing informal territory-based system of access to local gangs.³ The law divides the Maine coast into seven segments in which each segment has its zone council made up of elected lobstermen who deliberate on issues such as trap limits, the permissible size of lobsters taken to market and licensing procedures in their area. The councils also arbitrate the inevitable dis-

putes that come with lobster fishing. The most prominent ones being, of course, boundary disputes both among individual lobstermen in a zone and inter-zone conflicts between gangs.

No lawgiver from Maine devised the present settlement of lobster fishing that is based on the participants' self-management of the fishery. It arose out of more than a century of struggle among lobstermen themselves and between them and Maine and US government officials. The making of this common was not irenic, but nor was it a bloody tragedy. Consequently, it is worthwhile sketching its history to illustrate how an actual commons is made.

This process had at least three stages. The first was a purely territorial one. For example, someone who owned an island or a home on the coast presumed to have the surrounding waters as his own fishing turf. Consequently, "the first fishing territories were small, close to shore, fished mainly in the warm months of year, and vigorously defended by their owner or owners, who were usually close kin."⁴ The battles to preserve these small areas mostly involved trap molestation, often by cutting traps' buoys and warp lines or destroying all or part of them, and had the quality of a Hobbesian war of all against all.

In the second stage, harbour or island gangs organized the territory on the basis of the geographical features of the area they lived in. The average tourist looking over a Maine bay would not see what the lobstermen saw: the dividing lines separating the territory allotted to the members of a harbour gang and between different harbour gangs. These gangs also carefully controlled the entry of new lobstermen, and often rejected claimants by destroying their traps or in one way or another harassing them until they left the fishery.⁵

In both these stages a set of territorial, access, and entry rules were informally created (and enforced) by individual lobstermen or by harbour or island gangs. This was the period when the commons was formed. The third stage has been one where a confrontation between commons and the state initiated a gradual shift leading to the introduction of formal rules negotiated by lobstermen and the Maine state and federal governments. This process has been aided and abetted by the increase in law enforcement (e.g., stiffer penalties for trap molestation) and an expansion of lobster fishing into the open sea where traditional and legal territorial claims largely disappear.⁶

What has been the most important factor in the formation of the lobster commons has been the change in lobstermen's attitudes before and after the cataclysmic developments in the 1930s when lobster catches went to historic lows. Colin Woodward describes the lobster industry as heading straight to a "tragedy of the commons" in the 1930s:

Between 1905 and 1929, Maine lobstermen increased the number of traps they used by 62 percent and fished over ever-longer seasons, but their catch fell by 28 percent. Only the ever-increasing prices kept an economic disaster at bay. The stock market collapse of 1929 dealt the final blow to the industry ... Lobsters were by then an expensive luxury item, and both demand and prices crashed during the Great Depression of the 1930s.⁷

The lobstermen in the 1930s discovered a resistance to their livelihood that required a collective response. They realized that their individual violations of conservation laws were leading to a collective catastrophe. As Acheson notes: “[I]ncreasingly, people became convinced that those violating the conservation laws were doing far more damage than they had thought previously.”⁸

The period since the 1930s has seen a remarkable reversal. “By the 1990s,” writes Acheson, “the lobster conservation laws became almost self-enforcing.”⁹ In many cases this trend was further intensified. For example, between 1997 and 1998 all the seven lobster management zones voted on trap limits, i.e., the maximum number of traps an individual lobsterman can operate. This was meant as a conservation measure and was heavily supported even though it led to a sharp division in the various harbour gangs between the big fishermen and the others.

The success of this conservation ethic and the co-management of the lobster fishery has become evident in the industry’s survival and even flourishing, or, at least, its holding its own in the recent energy price jump and financial crash. Thus we have an example of a more than century-long making of a commons. What does it teach us about the constitution of a knowledge commons?

Certainly the experience of the Maine lobstermen encourages a healthy scepticism towards both top-down governmental and short-term market approaches to management of common resources. As the doyen of the academic study of common property resources, Elinor Ostrom, concludes: “[A] frequent finding [of studies of the commons] is that when the users of a common-pool resource organize themselves to devise and enforce some of their own basic rules, they tend to manage local resources more sustainably than when rules are externally imposed on them.”¹⁰

Indeed, the commons operates in the conceptual *terra nullius* between market and government; hence the process of its making has to be different from the makings of the market and the government.

Let us consider three central features required in the making of the lobster common: (i) increasing the shadow of the future, (ii) training in communal values, and (iii) struggling against both the anti-communal restrictions of the state and the temptations of the market.

First, increasing the “shadow of the future” on the present is crucial for the making of a commons. In our case, this has two elements: the future shadow of the lobsters and the future shadow of the lobstermen. Lobstermen deal on a daily basis with other lobstermen who are largely local residents and whose livelihoods will depend upon their access to an abundant stock of lobsters far into the future. Moreover, they expect to communicate with and to make deals with other potential competitors concerning the lobster stock in the future. This situation allows them to escape from the infernal difficulties of the Prisoner’s Dilemma.

So if someone breaks the evolving rules of the commons, especially conservation laws that affect the future stock of lobsters, she can expect that the others will know and break off co-operation with her. Given the need for continual interaction on the sea, this could be a heavy burden. Certainly, this is the case in Maine where trap molestation is a constant threat while social sanctions and ostracism of defectors can “be more effective than a dozen wardens.”¹¹

Second, the training of the values of co-operation and reciprocity are important in the making of a commons, since they frame and weigh on the decisions concerning whether to co-operate with or defect from the rules of access and contribution to the common resource.¹²

This is clearly seen in the informal apprenticeship served by all who enter into Maine lobster fishing, for it is an artisanal industry that requires enormous communal efforts, especially in times of immediate danger, from storms to border defence. Lobstermen’s communities, or gangs, carry on this education in values and skills and in the process they have created a remarkable social system over many generations. By creating a distinct “moral economy,” this system has survived both economic and ecological crises, while simultaneously supplying the international market and exploiting a species that occupies a very fragile niche in the Atlantic’s ecology.¹³

Third, the commons needs to be valorized. Academic students of the commons know this process as “changing the payoffs,” for all too often the state criminalizes communal co-operation and the market tempts many to break communal bonds and limits. Together they often prevent commons from forming, so it is at this point that the struggle with the state and capital is especially pronounced in the drama. Consequently, it is important to end the criminalization of pro-commons behaviour and to show that following the commons’ rules leads to prosperity and not economic suicide.

The confrontation with state and capital in the making of the commons is especially clear in Maine’s lobster industry. For almost a century many of the daily activities of the lobstermen and -women—from territo-

rial defence to the harassment of unwelcome newcomers—were considered violations of law that carried heavy penalties. It was only after the passage of the Zone Management Law of 1995 that these practices were transformed into the realm of quasi-legality. For example, “in 1999, the zone councils were ... empowered to make proposals to limit the entry of new fishermen into their zone as older license holders retired.”¹⁴ Similarly, the market continually tempts those fishermen with a lot of capital to employ ever-larger boats with many crewmembers to over-fish. This has led to something of a class struggle within the lobster fishing communities between the “big” and “little” ones in an attempt to forestall the inevitable working-out of the market’s logic. Before the 1995 law there were many informal efforts to impose trap limits with all the tensions and dangers such efforts imposed, but in the late 1990s formal, state-sanctioned, and locally voted upon trap limits were installed throughout Maine.

Is the Making of the Knowledge Commons Possible?

With the general notion of a commons and a concrete example of the making of Maine’s lobster commons established, I now turn to the question of the making of the knowledge commons and universities’ involvement in that process. According to the general definition of a commons, at least three elements are necessary: (i) a common-pool resource; (ii) a community that accesses the resource; (iii) a set of rules for accessing the resource and meta-rules for making these rules. A number of oddities and paradoxes posed by the notion of the knowledge commons must be successfully addressed before we can actually engage in its making in a clear-headed manner.

The first difficulty is with the resource itself: knowledge. Knowledge as a common-pool resource constitutes texts, concepts, images, and sounds encoded and stored in a variety of forms—from binary electro-magnetic states, via ink and paper, to vinyl, magnetized tapes, or film, or even stone inscriptions. Although made up of individual points of access (often called commons as well), it is a vast (potentially infinite) expanse that includes anything from the languages of the ancient Mayans to the address of a local restaurant. This resource ontologically differs from the stock of lobsters on the coast of Maine. After all, the common-pool resource in the case of the lobster commons is spatially and temporally specific and has a relatively well-known process of reproduction. Knowledge has no defined location in space and time, its mechanisms of accumulation are not well known and it spans the material/immaterial, the abstract/concrete, the specific/general, and many other divides.

In other words, the totality of knowledge is hard to grasp, but *pace* the Maine Lobstermen's Association, it is infinitely more important for human existence than all the lobsters on the coast of Maine. In fact, it seems to escape from control by any particular government in the way global commons like the atmosphere, the oceans, and outer space do. Similarly, the market, or capital, is incapable of subsuming it since the market itself requires this commons to operate, primarily in the form of the background information required for each market transaction. Hence the power relations between these commons and the state and market differ profoundly—while the lobster common is pressed on each side by state and market, the knowledge common transcends and is a pre-condition of both. Finally, the end of the lobster commons is to allow the commoners to make enough money to support their needs through selling a commodity to a distributor; whereas the end of the knowledge commons is the accumulation of a common good that is neither monetary nor the source of livelihood of any particular community to the exclusion of others.

The immensity of the epistemic resource combined with its partial lack of tangibility makes it similar to language (given Saussure's distinction between *langue* and *parole*⁴⁵) that also has a status of a potentially infinite resource (since any grammar of a human language can generate an infinite number of grammatical sentences). Just as language is a product neither of government nor market, but an immense diurnal communal production of millions of speakers, listeners, readers, and writers, so too is knowledge a vast communal product being produced prodigiously on a daily basis. Just as one would be foolish to refuse to acknowledge the wealth of the gift of language because it is unruly and transcendent, one would be equally foolish to refuse to recognize the wealth of knowledge because it too is unruly.

Yet, however vast, wild, and transcendent it is, knowledge is increasingly being privatized and commoditized. Consequently, the powerful political charm of knowledge's low subtractability,—i.e., my use of an item of knowledge does not deprive you of its use—is being challenged by corporations and states. Corporations are using copyright and patent law to make people pay to use an item of knowledge that had previously been in the public domain, hence creating an artificial scarcity and increasing its subtractability. States are increasingly using their powers of secrecy and surveillance to make it possible, on the one side, to know that you and I know a particular item of knowledge and, on the other, to keep us ignorant of its knowledge of our knowledge. Together these transformations of knowledge, which reached a new maturity recently, create the need to protect the non-state and non-market access to knowledge as a resource for life, and set the stage for the knowledge commons.

A second difficulty arises with the community managing the knowledge commons. “No commons without community” is an axiom of commons studies on both the Right and the Left.¹⁶ In the case of the Maine lobster commons, there has clearly been a specified community managing the common-pool resource for about a century and a half: the harbour and island gangs. They have gone through many changes in number, equipment, self-definition, and attitude, with the crisis of the 1930s perhaps bringing about the most decisive changes, but they have provided a continuity of work and concern, since lobster fishing has been the basis of their livelihood in some cases for generations. But what is the community of the knowledge common? Is it the set of human knowers? If so, then it must include all of humanity. If not, then what subset of humans is distinctly involved in the management of the resource knowledge? The intellectuals, the academics, or the literate? None of these subsets seem correct, but then what is a commons that includes all of humanity? Is humanity a community?

These are pertinent questions and they pose conundrums galore, but they cannot be escaped by rejecting global solutions provided by global governance *tout court*. For just as environmental groups like Greenpeace must challenge the crimes of oil dumping and the killing of nearly extinct whale species that take place on the high seas far beyond the reach of local communities, so too must the access to the resource of knowledge be dealt with as a totality. It is true that at the moment most “global solutions only serve as a legitimization of a capitalist and imperial power.”¹⁷ This does not mean, however, that there cannot be ways of struggling on a global level that matches the logical level of the knowledge resource and in the process creating the type of communication and reciprocity that is an essential prerequisite for the creation of a coming human community. This indeed is happening with a number of efforts to create new forms of communal ownership and communication of knowledge—from the Creative Commons licenses, to free co-operation, open access, file sharing, peer-to-peer networks, etc.

A third difficulty arises from the rules of access and contribution to the common resource of knowledge. The rules that were developed in the lobster commons (V-Notching, double gauging, escape venting, etc.) were devised as part of an effort by the lobstermen to both remain economically viable and escape from the tragedy of the commons, i.e., the rules were functional to keeping the stock of lobsters large enough to sustain profitable catches. But what is the point of the rules for access and contribution for the knowledge common? How can rules be devised to avert the tragedy of the knowledge commons? Indeed, what is the “tragedy” in this case?

The true tragedy of the knowledge commons is the absorption of the totality of knowledge into the realm of state administration or market commodification. Consequently, the aim of the rule-making by the community of the knowledge commons is the creation of collective forces and practices that can prevent the overwhelming enclosure of the commons by state and market. The criterion for evaluating a successful set of rules would be both whether the realm of free access to knowledge increases and whether the contributions to knowledge creation increase as well.

Of course, knowledge is both an end and a means to an even higher end: the liberation of humanity from oppression. How the possible conflicts between knowledge as a means and an end are to be adjudicated is the ultimate question. But before we can anticipate this question, we must first examine how to make the knowledge commons.

The Making of the Knowledge Commons

In the previous sections we examined how other commons, including the lobster commons of Maine, were made and noted three considerations as essential to the making of a commons: increasing the shadow of the future, commoners learning commons values and practices and changing of the pay-offs for co-operation. We shall apply this scheme to the making of the knowledge common.

a. Increasing the “Shadow of the Future”

The shadow of the future element is the apocalyptic or revolutionary crisis moment in the making of the knowledge common. A mental temporal reversal that projects a future total enclosure of knowledge by both state and market on to decisions made today, is required in order to motivate the type of mass co-operation needed for the creation of the knowledge commons. Ironically, the combination of the war on terror surveillance and the maximization of neoliberal intellectual property policies of the last decade, has unleashed the social imaginary that is gathering force in the present social and economic crisis. It may well be that this period will become for the knowledge common the equivalent of what the 1930s was for the making of the Maine lobster common.

There is now a generalized sense of crisis with respect to the access of knowledge being voiced across the intellectual spectrum. Phrases like “the enclosure of knowledge,” “the crime of reason,” “the tragedy of the anti-commons,” and “the silent theft of the knowledge commons,” have become shibboleths of a movement that, like the ecological movement of the 1960s and 1970s warning of climate change, is now envisioning the

complete commodification and/or sequestration of knowledge.¹⁸ Let me review a small sample of this prophetic literature.

One of the most salient recent expressions of the extremity of our epistemic situation is by Noble-prize winning physicist, Robert B. Laughlin. He claims that the national security restriction on research as well as the patenting and copyrighting of knowledge has increasingly criminalized the exercise of reason and the pursuit of learning. This development justifies his introduction of his catch phrase, “the crime of reason,” into the discussion of the contemporary epistemic scene. He writes:

Our society is sequestering knowledge more extensively, rapidly, and thoroughly than any before it in history. Indeed, the Information Age should probably be called the Age of Amnesia because it has meant, in practice, a steep decline in public accessibility of important information.¹⁹

Laughlin sees in the “criminalization of learning” a profound contradiction between the desire to give to the market and state powers to achieve their purported ends for the greater good and the lingering respect for one of the most basic of human rights: the right to know. This desire and respect are now in contradiction. The consequences of the situation described by Laughlin’s epigram, “the Age of Reason is being pushed out of its ecological niche by the knowledge economy,” will only be fully felt in the future, but he argues that action to avoid it must begin now and that action will be costly (for many corporations) and dangerous (for many states).

David Bollier, a journalist and media activist, prophesizes that we are on the verge of a “copyright police state.” He writes:

Copyright owners want strictly to control their creative and informational works—in all markets, on all media platforms, and even in how people can use copyrighted products. This is propelling an unprecedented expansion in the scope and duration of intellectual property protection, as well as more intrusive kinds of enforcement and new technologies of control.²⁰

In effect, there is an ongoing “silent theft” of the dozens of resources that US citizens collectively own, from public forests to the electro-magnetic spectrum, but with special emphasis on the knowledge commons. “big content” computer and Internet corporations are the “silent thieves” who are enclosing and privatizing the immense wealth developed by thousands of generations of “knowers” without firing a shot.

Finally, consider the vision of Nancy Kranich, former president of the American Librarians Association, who claims that the impression of increased availability of knowledge during the Internet era is an illusion. She writes:

[E]ven though more people than ever have access to computers and the Internet, much valuable information is being withdrawn, lost, privatized, or restricted from the public, who used to be able to rely on this same information. In effect, this “walled garden” or “enclosure” online creates an increasing threat to democratic principles of informed citizens and academic principles of building on the shoulders of giants. Looks are deceiving: while it appears that we have more, we actually have less and less.²¹

It is difficult to assess her quantitative claims (is it more or less?), but the evidence she brings to bear on her prophecy is impressive. For example, she points out that libraries that subscribe to a database have nothing to offer users if they discontinue leasing, even if they had paid fees for decades, due to restrictions on archiving and preserving the material on the database. “When budget cuts come,” says Siva Vaidhyanthan, “the library has no trace of what it bought: no record, no archive. It’s lost entirely.”²² Do we have more data now and less later?

These individual voices are joining many others to cast the shadow of the future onto the present. They are beginning to become self-conscious and are slowly forming a collective force, i.e., a movement. These prophets’ hellish visions of an electronic, free market, Fahrenheit-451 world are echoed by the practical efforts of some universities and “knowledge rights” organizations that are challenging both the legal and administrative repression of free access to the knowledge commons.²³ These overt efforts to resist the growing privatized/securitized knowledge order are but observable peaks in an ocean of billions of acts of epistemic subversion that have become commonplace in the life of university faculty members and students. Together these developments constitute a growing movement of resistance to the complete neoliberal and national-security state destruction of the ever-nascent knowledge commons.

This movement is posing a number of unavoidable questions, especially to universities because they are the institutions that present themselves both as providing the preliminary training required to access knowledge and as expanding the dimensions of the knowledge commons through scientific and scholarly research and artistic creations. University administrators, faculty and student can no longer avoid responding to questions like:

- Will universities be advocates for open access to the knowledge commons?
- Will universities require that their faculty members make their research results available in the public domain?
- Will faculty members self-archive the products of their research and demand that their work be available in the public domain?

These are not easy questions to answer, mainly because they put into doubt the economic strategy of most universities in the neoliberal era. If answered affirmatively, for example, they will put universities in conflict with content providers like publishing, television, and film companies as well as internet providers. Unless driven by a vision of a catastrophe, the universities would lack the energy to deal with the resistance of these providers.

b. Training in Communal Epistemic Values

The second aspect of the making of the knowledge commons that is relevant here is the training of commoners in communal epistemic values. Historically, the creation of knowledge has been a social and even global process, as we now realize, but the ideology of individualism is still dominant in education. Learning as a singular enterprise has been the centre of bourgeois philosophy of education and still has a residual power to this day. "Is this your work?" is the primary question of assessment and the violation of the rule of isolated self-creation is the primary sin for this philosophy even though it has been clear since antiquity that knowledge is a collective product. The power of this individualistic paradigm, however, is now giving way to a collective methodology of knowledge production.

This kind of training in communal epistemic values is now becoming inherent in the prevailing models of knowledge production. David Bollier writes:

From libraries to biotech researchers to musicians, many groups are coming to recognize the value of their own peer-based production and understandably wish to fortify and protect it. In one sense, this is simply a rediscovery of the social foundations that have always supported science, academic research, and creativity. The scientific research community has long honored the sharing of knowledge and resources, open dialogue, and sanctions against fraudulent research. For years, academia has flourished with the same ethic of sharing and openness among the members of a self-governing community. The creativity of jazz, the blues, and hip-hop has always been rooted in musical communities and intergenerational traditions that encouraged borrowing, emulation, and the referencing of works by other artists.²⁴

These communal epistemic values Bollier refers to have become integrated in the technology of our time. How often do we begin our research on a listserve that makes it possible for us to coordinate our thoughts and knowledge with multiple interested others as if we were in the same room? Similarly, we have all been involved in information and file-sharing in networks that stretch across continents. Indeed, the co-operative training of factory workers that Marx so praised in

Capital—"When the worker co-operates in a planned way with others, he strips off the fetters of his individuality, and develops the capabilities of his species"—has now become diffused in the communication and epistemic technology inside and outside the factory or office.²⁵ So the training in co-operation—that had such revolutionary consequences in Marx's thought—has now become a commonplace experience for workers both inside and outside the waged workplace in the United States and Western Europe.

Howard Rheingold, a writer on the social implications of technological change, identified eight different "technologies of cooperation" that provide much of the training in co-operation that are now in use.²⁶ This article will not examine all eight of them, but simply note his discussion of "knowledge collectives," which "rather than treating knowledge as private intellectual property, they treat it as a common-pool resource, with mechanisms for mutual monitoring, quality assurance, and protection against vandalism and over-consumption."²⁷ These collectives need not be small. The most famous, Wikipedia—the *Encyclopédie* project of our times—is organized as a wiki (an easy to edit web page) that allows groups to create a large, self-correcting knowledge repository with millions of articles in hundreds of languages available for open access. But the key to such knowledge communities is the recognition of the exponentially growing power accruing to being a part of a huge coordinated group with enormous surplus capacity for computation as well as for investigation.

The making of the knowledge commons requires and potentiates the training in co-operation that is now inherent in the new technologies. But this development should not blind us—as a similar development blinded Marx—to the fact that the training in co-operation and communal values is not the unique product of mid-nineteenth century or early twenty-first century industrialization and mechanization.²⁸ This training and these values had been commonplace in human history down to early modern times and still are basic to the moral formation of most of the world's children to this day.²⁹

Nor should this development dazzle us—as Michael Hardt and Antonio Negri seem to have been³⁰—into thinking that this technology can only have one social outcome (increased co-operation) and will have a homogenizing effect on the work process throughout the planet, so that peasant farmers in India and shack-dwellers in South Africa will have an implicit alliance with computer programmers in Boston on the basis of the increasing immateriality and intellectuality of their work. True, industrial work became a paradigm of work in the nineteenth century; but that did not mean that *all* work was patterned on the factory system.³¹

Moreover, there is nothing inevitably unifying in a technology. Steam engines and computers can be both agents of division as well as agents of co-operation. Indeed, differences in the capital intensity of production processes are inevitably used to create hierarchies within the working class; both within enterprises and throughout the global system; with those working in the high-tech industries commanding a higher wage (and all that that means) than those working in the lower tech-industries.

However, there is no doubt that one of most surprising developments of the computer revolution is that alongside the “get-rich-quick” ethos of Silicon Valley, a fluorescence of communal behaviour has emerged among the cyber-commoners.³² This will undoubtedly add a new dimension to the residual communality of the human race that has been preserved in thousands of agricultural villages throughout Africa, South America, and Asia and promises to be the mixed soil of the knowledge commons.

However, though the Silicon Valleys and the Nile Valleys of the world are important for the knowledge commons, there is no doubt that the universities are going to be the central institutions responsible for training in communal epistemic values that is essential to the making of a knowledge commons. Whether they will live up to this responsibility is an open question, for if their increasing commitment to neoliberal values intensifies, they will certainly not.

c. Changing the “Pay-offs”: Struggle with State and Capital

Once the commons is foregrounded via the apocalyptic-prophetic message and the values of the commons are instilled in the coming generations, the makers of the knowledge commons must deal with the threats from the state to criminalize communal behaviour and from the market to tempt the commoners to defect from the community. These are continual threats and require a structural response if the knowledge commons is to be stabilized.

The state has a long history of criminalizing a wide variety of “customs in common.” For example, workers used to sell the wooden chips produced in building wooden ships in eighteenth century England to supplement their income. This was their custom in common. Samuel Bentham, Jeremy’s brother, redesigned shipbuilding yards to make surveillance of the workers more effective, and redesigned the law to criminalize the custom of appropriating and selling the chips. This surveillance and law reform dramatically lowered the pay-off of co-operating with other workers in picking up the chips and smuggling them out of the ship yard.³³

The state's sequestering of knowledge and its support of copyrights and patents criminalizes the "free" dissemination and reproduction of knowledge. The antagonistic responses have been both on a legal level—the challenges in national and international courts of the intellectual property laws—as well as by direct action, i.e., the hacking of government web sites, the sharing of music and film DVDs, the placing of copyrighted material on public domain web sites, etc. However uncomfortable this bifurcated (half legal and half not) struggle makes us, its success will be crucial to the survival and growth of the knowledge commons in the coming years.

The second aspect of the shift in pay-offs requires a direct confrontation with the market and the rent-seeking character of intellectual property owners. An item of intellectual property is a sort of meta-commodity that one rents in order to produce another commodity or an object of consumption, just as land is a meta-commodity that one rents in order to produce other commodities, for example, wheat for sale, or subsistence goods, such as wheat for home consumption. The claim of the defenders of intellectual property rights is that without the possibility of receiving rent—in the form of leases, royalties, or licenses—there would be no incentive for people to produce new texts, software, and machines at some cost to themselves.

Certainly, this rental pay-off is a temptation for many to accept the restrictions on textual reproduction and dissemination in exchange. Who would not be tempted to accept the royalties for a best-selling novel (if one was the author) or the licensing fees of a successful Windows-like software program (if one were the designer) while accepting the restriction on copying? Thus the intellectual property regime offers the temptation to reject open access to portions of the knowledge commons.

Though the temptation is real and is often the source of the destruction of commons—is its empirical premise correct? Would innovation stop without intellectual property rent incentives? This claim's truth is hard to assess, but there are two major pieces of countervailing evidence. First, the human race has been innovating for tens of thousands of years before intellectual property legislation began to be introduced in the eighteenth century. Second, in the last few decades there has been an enormous amount of original work done on all levels of the internet—from designing the world wide web to writing an entry on an obscure fifteenth century Italian poet for Wikipedia—that has not been copyrighted or patented.

This evidence reminds us that there are many ways of rewarding people for innovations not based on rents and their excessive restrictions on reproduction. These alternatives range from wages and profits, to "priz-

es,” “fame,” and “gifts.” Each of these forms of incentive has weaknesses and strengths, but there has been no argument or empirical evidence yet to demonstrate that the rental model is superior to them—indeed, the evidence mentioned above appears to call this model into question. Consequently, an important element in the making of the knowledge commons is the construction of alternative, non-market based forms of incentives for contributions to the knowledge commons.

Conclusion

At the end of this trajectory from lobster beds to university libraries it should be clear that the making of the knowledge commons is a huge task before us requiring a level of social imagination and collective will that surpasses the technical imagination and will that has created the digital computer and the internet. Shall universities play a productive role in this making or will they join with the corporate world in the project of enclosing and privatizing knowledge? This choice will determine not only the fate of the knowledge commons but also the future of universities in the twenty-first century. ■

Notes

¹ For a discussion of the necessary and sufficient conditions for the existence of a commons see Elinor Ostrom, *Governing the Commons* (New York: Cambridge University Press, 1990), 88-102. My formulation of these conditions has also been deeply influenced by conversations with my commoner comrades: Massimo De Angelis, Iain Boal, Silvia Federici, and Peter Linebaugh.

² Vandana Shiva, *Staying Alive* (London: Zed Books, 1989).

³ This term is often used by James Acheson in his *Capturing the Commons: Devising Institutions to Manage the Maine Lobster Industry* (Hanover: University Press of New England, 2003).

⁴ Acheson, *Capturing the Commons*, 42.

⁵ Colin Woodard, *The Lobster Coast: Rebels, Rusticators, and the Struggle for a Forgotten Frontier* (New York: Penguin Books, 2004), 191.

⁶ *Ibid.*, 266-273.

⁷ *Ibid.*, 191.

⁸ Acheson, *Capturing the Commons*, 81.

⁹ *Ibid.*

¹⁰ Elinor Ostrom, “Collective Action and the Evolution of Social Norms,” *Journal of*

¹¹ Woodard, *The Lobster Coast*, 269. For a discussion of “the shadow of the future,” see Robert Axelrod, *The Evolution of Cooperation*, rev. ed. (New York: Basic Books, 2004), 12-13.

¹² For a discussion of commons value practices see Massimo De Angelis, *The Beginning of History: Value Struggles and Global Capital* (London: Pluto Press, 2007), 238-244.

¹³ The notion of a “moral economy” has had many senses, I am employing here the one developed by E. P. Thompson in his essays “The Moral Economy of the English Crowd in the Eighteenth Century” and “The Moral Economy Revisited.” Both essays are in E.P.Thompson, ed., *Customs in Common* (New York: The New Press, 1991).

¹⁴ Acheson, *Capturing the Commons*, 97.

¹⁵ Ferdinand de Saussure, *Course in General Linguistics* (New York: Columbia University Press, 2011), 13-14.

¹⁶ Maria Mies and Veronika Bennholdt-Thomsen, “Defending, Reclaiming and Reinventing the Commons,” special issue, *Canadian Journal of Development Studies* XXII (2001): 997-1023; Elinor Ostrom, *Governing the Commons* (New York: Cambridge University Press, 1990).

¹⁷ Mies and Bennholdt-Thomsen, “Defending, Reclaiming and Reinventing the Commons,” 1022.

¹⁸ Respectively, George Caffentzis, “Professional Academic Ethics and the Structurally Adjusted African University,” *Africa, Human Rights, and the Global System: The Political Economy of Human Rights in a Changing World*, ed. Eileen McCarthy-Arnolds, David R. Penna, and Debra Joy Cruz Sobrepenna (Westport, CT: Greenwood Press, 1994), 173-191; Robert B. Laughlin, *The Crime of Reason and the Closing of the Scientific Mind* (New York: Basic Books, 2008); Michael Heller, “The Tragedy of the Anti-commons: Property in the Transition from Marx to Markets,” *Harvard Law Review* III, no. 3 (1998): 622-688; David Bollier, “Growth of the Commons Paradigm,” in *Understanding Knowledge as a Commons*, ed. Charlotte Hess and Elinor Ostrom (Cambridge, MA: The MIT Press, 2007), 27-40.

¹⁹ Laughlin, *The Crime of Reason*, 5.

²⁰ David Bollier, *Silent Theft: The Private Plunder of Our Common Wealth* (New York: Routledge, 2002), 120.

²¹ Nancy Kranich, “Countering Enclosure: Reclaiming the Knowledge Commons,” in *Understanding Knowledge as a Commons*, ed. Charlotte Hess and Elinor Ostrom (Cambridge, MA: The MIT Press, 2007), 86.

²² *Ibid.*, 89.

²³ *Ibid.*

²⁴ Bollier, “Growth of the Commons Paradigm,” 36.

²⁵ Karl Marx, *Capital*, Vol. I. (London: Penguin Books, 1976), 447.

²⁶ Howard Rheingold, "Technologies of Cooperation," in *The Art of Free Cooperation*, ed. Geert Lovink and Trebor Scholz (Brooklyn: Autonomedia, 2007), 29-65.

²⁷ Rheingold, "Technologies of Cooperation," 56.

²⁸ Marx, *Capital*, Vol. I, 453.

²⁹ David Graeber, *Debt: The First 5,000 Years* (Brooklyn, NY: Melville House Publishing, 2011), 94-102.

³⁰ Michael Hardt and Antonio Negri, *Multitude: War and Democracy in the Age of Empire* (Cambridge, MA: Harvard University Press, 2004); Michael Hardt and Antonio Negri, *Commonwealth* (Cambridge, MA: Harvard University Press, 2009).

³¹ George Caffentzis, "A Critique of 'Cognitive Capitalism'," in *Cognitive Capitalism, Education and Digital Labor*, ed. Michael A. Peters and Ergin Bulut (New York: Peter Lang, 2011), 94-102.

³² Gigi Roggero, *The Production of Living Knowledge: The Crisis of the University and the Transformation of Labor in Europe and North America* (Philadelphia: Temple University Press, 2011).

³³ Peter Linebaugh, *The London Hanged: Crime and Civil Society in Eighteenth-Century England* (Cambridge: Cambridge University Press, 1992), 371-400.

Open Access Scientific Publishing and the Developing World

JORGE CONTRERAS

ABSTRACT

Responding to rapid and steep increases in the cost of scientific journals, a growing number of scholars and librarians have advocated “open access” (OA) to the scientific literature. OA publishing models are having a significant impact on the dissemination of scientific information. Despite the success of these initiatives, their impact on researchers in the developing world is uncertain. This article analyses major OA approaches adopted in the industrialized world (so-called Green OA, Gold OA, and OA mandates, as well as non-OA information philanthropy) as they relate to the consumption and production of research in the developing world. The article concludes that while the *consumption* of scientific literature by developing world researchers is likely to be significantly enhanced through such programs, promoting the *production* of research in the developing world requires additional measures. These could include the introduction of better South-focused journal indexing systems that identify high-quality journals published in the developing world, coupled with the adjustment of academic norms to reward publication in such journals. Financial models must also be developed to decrease the reliance by institutions in the developing world on information philanthropy and to level the playing field between OA journals in industrialized and developing countries.

Introduction

Sociologist Robert K. Merton is perhaps best remembered for identifying the norms that characterize the practice of modern science. Among these norms is the willingness of scientists to share knowledge with one another.¹ Such sharing is critical to the advance of science and to the independent verification of scientific claims. The many benefits of scientific research—improvements to health, agriculture, infrastructure, and industry—also flow from the ability of scientists to share and build upon each other’s discoveries. But despite the importance of sharing scientific

information, the ability of scientists to access knowledge relevant to their fields remains under pressure. Since the beginning of modern science, the majority of scientific findings have been published in specialized journals. Journals select articles for publication using a system of peer review where researchers evaluate the submissions of their peers based on the submissions' scientific merit, originality, significance, and, in some cases, the reputation of the authors.

Different estimates place the current number of peer-reviewed scientific journals between 16,000 and 24,000,² yielding between 1.2 and 1.6 million articles per year. Yet the most selective and prestigious journals can publish only a fraction of the thousands of articles submitted to them each year.

In the traditional scientific publishing model, neither authors nor reviewers are compensated. Libraries that wish to make a journal's content available to its users pay substantial subscription fees. Due in large part to the growing role of commercial publishers in an industry formerly occupied by learned societies and university presses, between 1975 and 1995 the price of scientific journals spiralled upward at rates far in excess of inflation.³ The cost of subscribing to multiple journals, particularly in specialized technical areas,⁴ became prohibitive to all but the largest institutions. The result was a significant reduction in subscriptions by academic libraries, not to mention headlines such as "Libraries Stunned by Journal Price Increases."⁵ This phenomenon has been termed the "serials crisis."

The impact of the serials crisis was particularly pronounced in the developing world.⁶ In his 2006 book *The Access Principle*, John Willinsky poignantly recounts the experience of the Kenya Medical Research Institute (KEMRI), a leading East African research centre, which by 2000 could only afford to subscribe to five scientific journals, none of which focused on tropical diseases or KEMRI's other primary areas of research.⁷ Ironically, at that time, KEMRI was among the more fortunate institutions in the developing world. According to a World Health Organization (WHO) study conducted in 2001, 56 per cent of research institutions in very low-income countries had *no* subscriptions to international scientific journals and 21 per cent averaged only two such subscriptions. Even in the next income tier, 34 per cent had no subscriptions, and a further 34 per cent had between two and five.⁸ Today, governments in some middle-income developing nations are helping local institutions fund journal subscriptions via centralized procurement houses. Government strategies vary, however. While some governments provide a limited number of journal subscriptions to a broad range of public universities, others focus only on what are seen as top local institutions. Even in countries that could afford to fund local institutional subscriptions, such support is sometimes lacking, in part due to historical suspicion of the

The Global Call for Open Access

One response to the serials crisis has been the rise of a vocal and influential “open access” (OA) movement among scholars and librarians. This movement in scientific publishing is linked to the rise of the Internet in the 1990s, when it became widely apparent that research could be shared online at low cost and great speed. In 2000, Harold Varmus, the Nobel-winning Director of the US National Cancer Institute, and other prominent scientists formed the Public Library of Science (PLOS), a coalition dedicated to improving public access to biomedical literature. The PLOS circulated an open letter, eventually signed by 34,000 scientists in 180 countries, urging publishers to make “the full contents of the published record of research and scholarly discourse in medicine and the life sciences” publicly available within six months of initial publication.¹⁰

The OA movement gained further momentum in 2001 when a group sponsored by George Soros’s Open Society Institute met in Budapest to develop recommendations for expanding open access to peer-reviewed scientific literature. The resulting Budapest Initiative, released in February 2002, calls for self-archiving of journal articles by scholars and for a “new generation” of OA journals, disseminated as widely as possible.¹¹ The lofty goal of the Budapest summit was no less than “building a future in which research and education in every part of the world are that much more free to flourish.” Similar calls followed from Bethesda, Maryland in June 2003 and Berlin in October the same year.¹² The three declarations—Budapest, Bethesda, and Berlin—known as the “Three Bs,” received wide support from the international scientific and academic communities. Though they differ in detail, all three call for the free, online accessibility of scientific literature and the elimination of restrictions on its reproduction.

The OA initiatives culminating in the Three Bs were led largely by scientists, archivists, and advocates in Europe and North America. At the same time, similar concerns were being voiced by representatives of developing countries within the broader “Access to Knowledge” (A2K) movement. The A2K agenda, which shares an intellectual heritage with the more mature “Access to Medicines” movement, was first articulated in 2003 by a group of activists, non-governmental organizations, and developing world delegates to the World Intellectual Property Organization (WIPO).¹³ Early A2K discussions were concerned primarily with the

availability of educational materials and learning tools. The agenda has since grown to encompass a diverse range of issues surrounding the accessibility to the developing world of technological, cultural, and educational resources produced in the industrialized world. Access to scientific literature emerged as a key component of the A2K movement. The Declaration of Principles of the World Summit on the Information Society (WSIS), a meeting convened by the United Nations in December 2003, included as a key principle “equal access to all scientific knowledge and the creation and dissemination of scientific and technical information, including open access initiatives for scientific publishing.”¹⁴ Similar sentiments were expressed in the WIPO Development Agenda¹⁵ and a proposed (but still unsuccessful) A2K Treaty.¹⁶ The Pan-American Health Organization and Latin American and Caribbean Centre on Health Sciences Information led a coalition of the South, which met in Salvador, Brazil in 2005 to urge that access to scientific literature be considered a “universal right.”¹⁷ Calls for global open access to scientific information continue, including, most recently, in the Washington Declaration on Intellectual Property and the Public Interest. This declaration, developed by an international coalition of experts at the Global Congress on Intellectual Property and the Public Interest held at American University in August 2011, echoes the themes of the Three Bs declarations while speaking more broadly to mitigating the global trend toward intellectual property “maximization.”¹⁸

Modes of Open Access Publication

These calls for open access have not gone unheeded, and numerous OA initiatives have emerged over the past decade. These range from government mandates to university policies to innovative publishing models. Below is a summary of the principal modes of OA publication for scientific literature.

Self-Archiving—The Green Route

Before the advent of the Internet, researchers circulated their published articles to colleagues by mail or fax. The Internet has made the practice of sharing faster and more efficient. Many faculty members post copies of their work, both pre-publication and post-publication, on their departmental or institutional web pages, making it available to all without charge. This practice is termed “self-archiving,” or the “Green” route to OA. One study found that in 2008 approximately 12 per cent of the published scientific literature was available through Green OA archives.¹⁹

Though self-archiving enjoys the virtues of convenience and speed, it is not without its limitations. It relies on the technical capabilities and idiosyncrasies of the author's home institution, lacks indexing across different repositories, and suffers dislocation when authors move from one institution to another. Some disciplines have launched centralized archiving services such as arXiv.org (physics and mathematics) and SSRN (social sciences, economics, and law). These services generally allow free submission of articles, some limited indexing, and free access to all users. They are typically supported by volunteer efforts, institutional grants, or charitable contributions. In addition, numerous software tools now exist to enable self-archiving and tagging of documents so that they can be easily searched and indexed.²⁰

Perhaps the most serious challenge to self-archiving (whether institutional or centralized) is presented by copyright law. Even though scientific facts and conclusions are not themselves copyrightable, the articles (including text, diagrams, and illustrations) in which they appear are subject to copyright protection. Because scientific publishers typically require authors to assign them the copyright of articles, authors have traditionally been constrained from disseminating their published work outside the publisher's established channels. An author who wishes to post a copy of a published article on his or her web site cannot do so without the permission of the publisher. In response to this situation, a number of prominent research universities, in conjunction with groups such as the Association of College and Research Libraries (ACRL) and the Scholarly Publishing and Academic Resources Coalition (SPARC), began in 2005 to encourage researchers to use "author addenda" in their publishing contracts.²¹ These addenda typically reserve an author's right to publish her work on an institutional web site or other OA repository following journal publication. Like the riders to a real estate purchase agreement, author addenda require the agreement of both parties to be effective. Large institutions that subscribe to numerous publications have proven to possess sufficient leverage to persuade publishers to permit such archiving. Self-archiving of pre-print versions of articles after the expiration of an agreed embargo period is now permitted by a growing number of commercial publishers.²² But this is more difficult for smaller institutions and for institutions in the developing world.

Open Access Journals—The Gold Route

Green OA is designed to mitigate copyright-based access limitations imposed by proprietary journals. An alternative OA approach bypasses limited-access journals by making published literature open from the

outset. This approach is enabled by a relatively new category of OA journals, primarily in the biomedical sciences, that support themselves not by charging readers, but by charging authors who publish in them.²³ This model is known as the “Gold” route to OA. According to one recent study, approximately 8.5 per cent of articles published in 2008 were openly available from the publisher.²⁴

The first significant Gold OA publishing venue was launched in 2000 by for-profit publisher BioMed Central, today part of the Springer publishing group. BioMed Central publishes more than 220 OA journals across biomedical science. In 2003 PLoS launched its first OA journal, *PLoS Biology*. PLoS has since achieved significant recognition. Its flagship journal *PLoS ONE* published 6,749 papers in 2010, more than any other scientific journal.²⁵ Publication fees for PLoS journals range from US\$1,350 (for *PLoS ONE*) to \$2,900 (*PLoS Biology* and *PLoS Medicine*).²⁶ Increasing numbers of funding agencies have committed to pay OA publication fees for research that they support.²⁷

In addition to journals that began as OA vehicles (“born OA” journals), a number of proprietary journals have converted to Gold OA formats. Other proprietary journals now offer authors an option to choose whether to publish in the traditional manner, where the author is not charged, but access to the article is granted only to paying subscribers, or under a Gold OA model, where the author pays and access is free. Gold OA journals have grown steadily over the past decade and show signs of financial sustainability. One study found that in 2009 nearly 200,000 peer-reviewed articles were published in 4,769 Gold OA journals, representing between 6 and 8 per cent of the total peer-reviewed scientific literature published that year.²⁸ OA journals have thus seen impressive gains in just a decade, though the large majority of peer-reviewed scientific output continues to appear in commercial, limited-access journals.

Time-Delayed Open Access

The scientific publishing industry has not uniformly opposed OA initiatives and a few publishers have even embraced them. Journals such as the *New England Journal of Medicine* (*NEJM*) and *Molecular Biology of the Cell* (*MBC*) voluntarily make their contents publicly available after a waiting period (six months for *NEJM*, two months for *MBC*).²⁹ The theory behind such delayed-release programs is that institutions will continue to subscribe to journals in order to ensure that their researchers have access to the most current literature, even if content is eventually made publicly accessible. Though seemingly successful, such delayed-release programs have been adopted primarily in journals published by learned

societies, rather than commercial publishers. This is the case with both *NEJM* and *MBC*,³⁰ whose publishers serve their members through multiple channels, of which journal publication is only one. The largest publishers of scientific journals, Reed Elsevier (approximately 1,800 titles), Taylor and Francis (more than 1,000 titles), and Springer Verlag (more than 500 titles), which as of 2006 collectively controlled 60 per cent of scientific research content, are commercial interests with significant subscription and reprint revenues at stake.³¹ These organizations have not, by and large, engaged in any large-scale adoption of OA models, the notable exception being Springer's acquisition in 2008 of BioMed Central, the largest Gold OA publisher.

Institutional Mandates

Both Green and Gold routes to OA are largely voluntary. Authors choose to make their work openly accessible, either by self-archiving or submitting it to an OA journal. Beginning in 2008, however, several prominent research universities including Harvard, the Massachusetts Institute of Technology, and University College London began to implement policies arising from their frustration with commercial publishers' unwillingness to allow self-archiving. These policies typically *mandate* that faculty members deposit research publications in OA databases, whether or not the work has previously been published commercially, within some defined period after initial publication.³² Institutional mandates give scholars at these institutions a strong incentive to submit their work to journals that permit self-archiving or other OA releases, and consequently encourage commercial journals to permit such access. By the end of 2011 more than 150 institutions worldwide had implemented mandatory OA policies,³³ and self-archiving is now permitted by a growing number of commercial publishers.³⁴ The use of time delays before published content is granted OA status has facilitated negotiation and agreement on this difficult issue.³⁵

Funder Mandates and Repositories

Closely related to institutional OA mandates are requirements that have been implemented by funders of scientific research, both governmental and non-governmental. Non-governmental research foundations such as the Wellcome Trust in the United Kingdom, the Howard Hughes Medical Institute and the MacArthur Foundation in the United States, and nearly fifty other funding bodies throughout the world have implemented requirements for OA release of published research.³⁶ These mandates typically provide that if research is financially supported by the funder,

the researcher must deposit any resulting scholarly articles in an OA repository, though how exactly this requirement is met is often left to the individual researcher.

A more contentious debate surrounds the publication of government-funded scientific research, which represents a large portion of academic research globally. By one estimate, research funded by the US National Institutes of Health (NIH), with an annual research budget of more than \$30 billion, produces approximately 60,000 scientific papers per year.³⁷ From 2003, a growing number of scientists, archivists, and policy makers began to argue that it was inappropriate for taxpayer-funded research to inure solely to the financial benefit of publishers, and that the public should be granted free access to taxpayer-funded research. Accordingly, in June 2004 the US House Appropriations Committee instructed NIH to make all scientific publications generated by NIH-funded research available online. After considering more than a thousand responses received during a sixty day public comment period, NIH adopted a policy³⁸ that encouraged, but did not require, investigators to place the full text of their published articles in the National Library of Medicine's publicly-accessible PubMed Central archive within six months of publication.³⁹ With little direct incentive to comply, scientists did not submit their articles to PubMed Central in large quantities.⁴⁰ In 2007 Congress directed NIH to revise its policy to *require* OA publication of NIH-funded papers. The revised policy went into effect in 2008.⁴¹ All publications arising out of NIH-funded research must be submitted to PubMed Central within one year of publication. As of December 2011, the PubMed Central repository held approximately 2.3 million articles relating to the biomedical sciences. Similar OA mandates have been enacted by the European Research Council, the UK Medical Research Council, and numerous other funding agencies. Though government OA mandates such as the NIH policy have been opposed by the commercial publishing industry,⁴² legal challenges have not been successful in overturning them.

Open Access and the Developing World

Since the Budapest Initiative, concerns regarding the availability of scientific literature to researchers in the developing world have formed an integral part of the OA debate. Recalling the crippling subscription reductions experienced during the serials crisis, commentators agree that OA models are likely to benefit researchers in the developing world.⁴³ Yet, as shown in the preceding sections, there are numerous divergent models by which OA publishing is being implemented. Which of these

OA models are most likely to benefit, or least likely to disadvantage, researchers in the developing world? Are the needs of researchers in the developing world the same as, or somehow different from, the needs of researchers in the industrialized world?

The State of Science Publishing in the Developing World

To address these questions, it is useful to unpack some assumptions underlying the discourse on science in the developing world.⁴⁴ In the industrialized world, scientists generally fill two complementary roles: as *consumers* and as *producers* of information. Scientists as consumers read journal articles to keep abreast of developments in their fields. They use this reading for a variety of purposes: in educating students, in developing and using technology, and in formulating their own research programmes. Depending on the institution, the emphasis placed on each purpose will vary.

In the developing world, the relative weight placed on teaching, technological capacity, and research productivity is likely to vary even more. Some countries that are considered “developing” according to average income, such as South Africa, Brazil, India, and China, have prestigious research institutions whose faculties publish in well-regarded journals and collaborate with researchers around the world. Other developing countries, including most countries in sub-Saharan Africa, the Middle East, Southeast Asia, the Caribbean, and Latin America, possess few of these attributes. There are many statistics and studies attesting to the modest levels of scientific output from the lowest income countries.⁴⁵ David King’s frequently cited 2004 study of global scientific literature is telling.⁴⁶ Of all articles published between 1997 and 2001 in scientific journals indexed by Thomson ISI (approximately 8,000 journals, in 36 languages), roughly 35 per cent included authors based in the United States, 37 per cent in the European Union, 9 per cent in Japan, 5 per cent in Canada, and 3 per cent in each of Russia, Australia, and China. The only other developing countries to appear on the list were India (2 per cent), Poland (1 per cent), Brazil (1 per cent), South Africa (0.5 per cent), and Iran (0.13 per cent).

Similarly skewed figures exist with respect to the number of journals published in the developing world. A 2004 study reviewed the 43,500 peer-reviewed scientific journals found in Ulrich’s Periodicals Directory and found only 327 journals published in the 47 countries of sub-Saharan Africa (0.75 per cent).⁴⁷ Willinsky offers various explanations for the lack of research publication in the developing world.⁴⁸ These include the small number of locally-published journals, the lower pres-

tige and recognition of those local journals that do exist, the exclusion of those journals from internationally recognized indexes, the difficulty researchers from the developing world have getting work accepted by international journals,⁴⁹ and perceived peer reviewer bias against developing world authors. Other factors militating against developing world researchers include difficulties writing in English (the language of most international scientific publications), lack of editorial support, and lack of experience preparing manuscripts.⁵⁰

These findings suggest that, at least on an international scale, researchers in developing countries remain primarily *consumers* of scientific information. They use scientific journals primarily for educational purposes and to implement the latest technological advances in fields such as medicine, public health, agriculture, and hydrology. Their actual production of scientific information lags far behind the industrialized world. Even in their capacity as consumers, the situation of developing world researchers is complex. Observers in the industrialized world, accustomed to high-speed Internet access, often overlook the low rates of broadband penetration in much of the developing world.⁵¹ Many functions associated with electronic access to literature, from searching to downloading articles, are slower and less reliable.

A second factor is the coverage of the literature available in the developing world. In OA discussions, emphasis is usually placed on the biomedical sciences, as it is generally believed in the industrialized world that advances in medicine, biochemistry, and public health are likely to improve life in the developing world. Biomedical issues have been a staple of the development agenda for years in connection with the Access to Medicines movement, and thus form a natural extension in the context of OA. Next in line are other scientific fields with clear applicability to challenges faced by the developing world: engineering, climatology, agriculture, renewable energy, population science, infrastructure development, and the like.

Observers have also cited such fields as anthropology, paleontology, archeology, and geology as important, given the resources found in many developing countries. But how pressing is the need for the latest literature on mathematical theory, high energy physics, or planetary science, fields that are the subject of significant investigation in the industrialized world but have little direct bearing on developing world issues? Is the ultimate goal of expanding developing world access to scientific literature primarily *utilitarian*, in which case the value of a body of literature should be measured in terms of improving human health, economic development, and other tangible metrics, or based on an inherent *right* of all individuals to access the fruits of scientific research and participate

in the global intellectual community? Should all fields of knowledge be valued equally?⁵² Answers to these questions will affect strategies for implementing OA programmes in the developing world.

The Costs of Information Philanthropy

There is one additional and significant difference between the situations of researchers in the developing and industrialized worlds. Partially as a result of calls for global OA, a handful of programmes have been implemented by philanthropic organizations in conjunction with scientific publishers to provide researchers in the developing world with free or significantly discounted access to paid journals. These programmes exist independently and, some would argue, in defiance of OA publication. For example, in 2002 the WHO launched the Health InterNetwork for Access to Research (HINARI), a program in which six major commercial publishers offered academic and government researchers in developing countries free or heavily discounted online access to 1,500 journals in fields relevant to public health and medicine.⁵³ Today the programme has expanded to include 160 publishers and more than 8,000 journals. A sister programme, Access to Global Online Research in Agriculture (AGORA), was established in 2003 by the Food and Agriculture Organization of the United Nations (FAO). It makes 1,900 journals in agricultural science available to eligible researchers.⁵⁴

Online Access to Research in the Environment (OARE)⁵⁵ is a joint project of the United Nations Environment Programme (UNEP) and Yale University, supported by the MacArthur Foundation and other donors. It makes 4,150 environmental science journals from 350 publishers available to researchers in developing countries. Today, HINARI, AGORA, and OARE are grouped under the banner “Research4Life.”⁵⁶ Smaller and more focused programmes also exist. One example is the electronic Journals Delivery Service (eJDS) managed by the International Center for Theoretical Physics in Trieste, Italy, which distributes free copies of physics and mathematics articles to researchers in developing countries. A somewhat different approach is taken by the Programme for the Enhancement of Research Information (PERii), coordinated by the International Network for the Availability of Scientific Publications (INASP).⁵⁷ PERii works with more than fifty scientific publishers to make online content from 38,000 journals available to participants in the developing world with significant discounts (generally 90 to 98 per cent). PERii also seeks to educate institutions, libraries, and researchers in the developing world about the scientific publishing industry, and claims over 1,300 registered research institutions. The collective impact of these philanthropic programmes is

sizeable. A recent survey of African research libraries finds that they can now access on average 11,000 international online journals, a far cry from the single-digit figures seen just a decade ago.⁵⁸

While philanthropic programmes have undeniably expanded access to publications that would otherwise be inaccessible, commentators have questioned their overall usefulness and sustainability. Most obviously, any programme based on philanthropic support depends on the continuing generosity of donors (in this case, scientific publishers). While many of the largest commercial publishers participate in such programmes, they are not perpetually committed. Corporate philanthropy is funded largely by a corporation's paying customers. To the extent that pricing pressure from subscribers increases, publishers' willingness to "give away" content may decline.⁵⁹

More fundamentally, Leslie Chan and Sely Costa question whether content from leading Western journals, even in the biomedical field, is sufficiently relevant to research and practice in developing countries, where disease vectors, medical practices, crop varieties, and genetic factors differ substantially from those in the industrialized world.⁶⁰ To make scientific advances useful to the developing world, research relevant to the developing world must be published. Other authors, including Eve Gray and Smith Esseh, argue that the free availability of so much international scientific content may actually hinder the development of local knowledge and the growth of local scholarly publications.⁶¹ Y.Z. Ya'u even refers to the developing world's growing reliance on imported knowledge as a "resurgence of imperialism ... represented by knowledge dependence."⁶²

Theory aside, serious questions exist regarding the actual use of this abundance of international literature, and answers appear to vary based on whether the question is posed to libraries or researchers. For example, a recent study of junior-level public health researchers in Asia, Africa and South America found that nearly one-third of respondents preferred printed, hard-copy periodicals over electronic resources, and more than half expressed dissatisfaction with the accessibility of both print and online resources at their institutions.⁶³ While statistics compiled by Elsevier on behalf of Research4Life indicate increases in research output by scientists in the developing world since the initiation of the HINARI, AGORA and OARE programmes,⁶⁴ the methodology and reliability of these claims has been questioned.⁶⁵

Finally, one must consider the effect on research of the underlying humanitarian goals of the philanthropic support of knowledge access: curing disease, ending hunger, improving quality of life, building infrastructure, and enabling economic development. While these goals are laudable, they fail to encompass the whole of the scientific enterprise. It

would be hard to justify the study of gravitational fields or string theory under the banner of “Research4Life.” In this way, humanitarian efforts can be constraining. Should researchers in the developing world allow the judgment of well-meaning donors to circumscribe the boundaries of their scientific curiosity?

The Green Route and the Developing World

Leslie Chan, one of the original Budapest Initiative signatories and a leading advocate for OA, has suggested that the self-archiving “Green” OA route is “the key to a rapid advance in scientific growth throughout the world.”⁶⁶ Among the benefits of Green OA are its ability to make otherwise inaccessible literature available in the developing world (so-called North-South knowledge transfer) and to make research from developing countries broadly available to the international community (South-North and South-South knowledge transfer). It is useful to consider these two points in the context of the inbound (consumer) and outbound (producer) character of developing world science.

With respect to researchers in the developing world as *consumers* of knowledge, it is hard to dispute Chan’s logic. To the extent that scientific articles published in commercial journals (still the favoured route for publication) are made available by their authors on institutional web sites or collective archiving services, scientists everywhere stand to benefit. Assuming institutions can agree with publishers on copyright issues, continued Green OA archiving by researchers in the industrialized world will benefit researchers in the developing world (i.e., North-South transfers).

It is less clear that self-archiving will meaningfully increase research output by scientists in the developing world, or make their work more visible to (or respected by) scientists in the industrialized world (i.e., South-North transfers). Two kinds of articles can be self-archived: articles published in established journals (in which case the self-archiving establishes an alternative, often free, means of access), and all other work, including work published in less known local journals, together with unpublished white papers, reports, theses, and pieces that otherwise do not appear in the established literature. To the extent that researchers in the developing world publish through traditional, mainstream channels, their work is already available to the same extent as that of their colleagues in the industrialized world, and self-archiving serves the same function as self-archiving by those colleagues: it makes published work available through an alternative, free mechanism. This is a positive outcome, but it represents only a small percentage of the research output of the developing

world, where researchers experience significant difficulty placing their work in highly-ranked international journals.

The greater benefit sought by Green OA advocates is the wider dissemination of the other work produced in the developing world. Here, self-archiving seems an imperfect solution. Making work available on the Internet indeed results in global accessibility. Search engines such as Google Scholar will index it and enable it to be downloaded. But is it likely that this work will be read and cited more frequently simply because it is available? The traditional peer-reviewed journal publishing system, imperfect as it is, serves a valuable credentialing role. It assures the reader that articles have met minimum criteria of value. Unmediated self-archived articles lack this “seal of approval” and will less likely gain the trust and attention of the international scientific community. Self-archiving may also undermine the ability of new journals from developing countries to gain respect and develop an international following, as a proliferation of unmediated self-archived articles may drive “serious” scientists more firmly into the arms of the international publishing establishment.

Green OA self-archiving also suffers practical impediments. Self-archiving is typically implemented by individual institutions on their own web sites. This system has proven to work well for major American and European research institutions, with robust network infrastructures, backup mechanisms, and high-speed broadband connections. The picture is different at many resource-strapped institutions in the developing world.⁶⁷ Access to a researcher’s work may depend on the functioning of patchy connections and homespun networks. I experienced the effect of such difficulties while researching this article. Using Google Scholar, I found an article about citations to geology journals in South America. When I attempted to access the article I found that the domain name for the web site on which it was archived had expired and reverted back to the domain registrar. The article was, for all practical purposes, lost to the world. One solution to the institutional infrastructure problem is collective archiving services such as arXiv.org and SSRN. Here, a centralized, often grant-supported external service handles the archiving. The scope of these services is still limited (arXiv.org covers primarily physics and mathematics). Moreover, because they do not provide selection, quality-control, or peer review, they are not seen as substitutes for journal publication (though they often do host articles that have been published in journals).

Another significant hurdle for Green OA arises in connection with scientific data. Results reported in scientific articles must be distinguished from the experimental and observational data generated by research and upon which published results are based. A journal article typically in-

cludes a brief presentation of findings, often in summary or tabular fashion, together with the scientist's analysis and conclusions. The data reported in a journal article are typically only a fraction of the "raw" data.⁶⁸ However, in order for other scientists to evaluate an article's claims fully, they often need access to the full data set. When and how data sets should be made available to the scientific community is the subject of significant debate.⁶⁹ Particularly in the biological sciences, funding agencies can require that data be deposited in publicly administered databases such as NIH's GenBank and dbGaP repositories. In other cases, scientific journals require the deposit of data supporting assertions made in published articles and sometimes maintain data repositories themselves.⁷⁰ Whether and how self-archived articles ought to make data available is unclear. Ensuring access to data places significant additional demands on local IT infrastructures far beyond those involved in archiving text files of articles.

The Gold Route and the Developing World

As in the industrialized world, the Gold (author-pays) OA route has been advanced as an alternative or complement to Green OA self-archiving in the developing world. Under a Gold OA model, articles are selected and published through a traditional peer-review system, then made freely available. Journal costs, particularly in the biosciences, are often covered by fees levied on authors, generally in the range of \$1,000 to \$3,500. As consumers of research, scholars in the developing world clearly benefit from the free accessibility of OA journals. In this respect, they are situated no differently than scholars in the industrialized world.

The situation becomes more complex when considering the effect of Gold OA on the production and recognition of research. Studies show that placement of articles in OA journals substantially increases the visibility and citation of articles by authors in the developing world.⁷¹ But these statistics do not reveal how widely researchers in the developing world use Gold OA publishing routes. Author fees present significant obstacles. This being said, many OA publishers waive or heavily discount author fees for researchers in low-income countries. BioMed Central, the publisher of more than 220 OA journals, waives fees for all authors in World Bank low-income or lower-middle-income countries, some 90 countries, including Egypt and Nigeria, but which nevertheless excludes scientifically productive nations such as India, China, Brazil, Iran, and South Africa.⁷²

Assuming that such fee waivers continue, this situation might seem suited to greater research publication, at least in very poor countries. But problems arise when locally-produced OA journals are added to the pic-

ture. Like OA journals based in the industrialized world, these journals need to meet costs associated with publication, editing, and peer review. Yet these journals cannot depend on income from a steady stream of researchers in the industrialized world. Their authors are likely to be from the developing world. As such, these journals cannot afford to waive fees, as this would eliminate most of their income. Absent some other means of support (through grants or governmental subsidy), Gold OA journals in the developing world face a perverse competitive challenge from journals in the industrialized world when soliciting quality contributions from developing world authors.⁷³

Some OA journals in the developing world take a different approach. Hindawi Publishing, based in Cairo, publishes more than 300 OA journals, ranging from *Advances in Power Electronics* to *Oxidative Medicine and Cellular Longevity*.⁷⁴ Though Hindawi is based in Egypt, it does not cater to Egyptian or developing country audiences. Its journals are mainstream publications that compete with the likes of BioMed Central and PLoS. Hindawi's decision to operate out of Cairo is based on the low cost base and educated workforce.⁷⁵ Journals such as Hindawi's contribute to the national economies of their host countries, but do not achieve the development goals ascribed to OA publishing in the developing world. They are in effect international journals that outsource their labour to a low-cost market.

To observers of the OA movement, the above reservations may seem misplaced, or at least incongruous. First, many "open access" journals in the developing world do *not* charge author fees, effectively mooted the Gold OA author-pays debate. In some cases high-quality OA journals are operated on a volunteer basis by dedicated researchers. In other cases, journals may be more akin to self-archiving sites, without significant selection, editorial, or peer-review functions. Such efforts provide a service to the community, but are not substitutes for full-fledged journals. Some OA journals are subsidized or fully funded by government programmes, academic institutions, professional societies, or charitable donations. None of these, however, eliminate the need for commercially-viable, peer-reviewed OA journals in the developing world. Volunteer and subsidised activity cannot be relied on as long-term solutions for a robust and globally-respected publishing industry.

Second, all indications point to significant growth in the number of OA journals in the developing world. A quick review of the Directory of Open Access Journals (DOAJ), operated by Lund University in Sweden,⁷⁶ shows that after the United States (with 1,333 OA journals), the country with the next greatest number of OA journals is Brazil, with 656. India ranks fifth with 372 journals, Turkey tenth with 177, and Colombia, Poland, Egypt, Chile, Iran, Argentina, and Mexico all appear in the

top twenty (ranking above technology powerhouses such as South Korea, Sweden, Finland, the Netherlands, Switzerland, and even Japan). Moreover, numerous well-regarded aggregators of developing world OA journals now exist, including the South American *Scientific Electronic Library Online* (SciELO) funded, in part, by the Brazilian government,⁷⁷ the pan-African *African Journals OnLine* (AJOL),⁷⁸ and Bioline International, which offers peer-reviewed journals from sixteen developing countries in Asia, Africa, and South America.⁷⁹ These facts might indicate that OA publishing has been a great success in the developing world. Yet the full picture is different.

Unlike the more traditional indices of scientific literature (Thomson ISI, Ulrich's Periodicals Directory, Scopus), DOAJ statistics are self-reported. Journals in DOAJ need not be peer-reviewed, nor demonstrate continuing viability. Recent studies of the OA journal literature find that the large majority of long-lived, frequently-cited journals are still published in "scientifically-advanced" countries.⁸⁰ While OA journals appear to be proliferating in the developing world faster than in the industrialized world, it is not clear that they are having a sizeable impact on scientific practice in either theatre.

Mandates and the Developing World

One of the largest repositories of full-text biomedical literature is PubMed Central, managed by the US National Library of Medicine. As discussed earlier, all NIH-funded publications must be deposited into PubMed Central within a year of publication. Non-NIH funded literature may also be deposited in PubMed Central, and a number of non-US funders such as the Wellcome Trust encourage the use of this repository to satisfy their own OA requirements. Clearly the 2.3 million articles freely available in PubMed Central—and the increasing number of other funder OA mandates in the industrialized world—can benefit researchers in the developing world as consumers of content.

Nevertheless, researchers in the developing world should be wary of reliance on government-mandated information philanthropy. Just as commercial publishers might discontinue subscription discount programs, so could the governments of the United States and other industrialized nations seek to limit access to the information resources funded by their citizens. A system where articles in PubMed Central could be downloaded only by individuals with a US account, or using a verified .edu domain, is not hard to envision.

Moreover, mandates by funders in the industrialized world are likely to have little effect on the *production* of scientific output in the develop-

ing world, where few researchers are supported by the NIH or by other industrial world funders. Researchers in the developing world are left, then, without the “stick” of OA mandates when negotiating the publication of their work with commercial publishers. This begs the question of whether governments in the developing world should follow the lead of the United States and the European Union and impose mandatory OA policies on research produced with their backing. This suggestion was put forward in a draft National Open Access Policy for Developing Countries adopted by delegates at a 2006 meeting hosted by the Indian Institute of Science in Bangalore.⁸¹

The move toward NIH-like pronouncements by developing world governments, while defensible, could be risky. US trade negotiators take a dim view of governments that seek to erode copyright and similar intellectual property protections. In the context of biomedical research, one has only to recall the vehement Access to Medicines debate and the “compulsory licensing” terms of the so-called Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement⁸² and subsequent Doha Declaration to envision potential objections to strong OA policies by countries invested with publishing interests. Commercial interests have continued to protest the NIH policy, and to push for revoking it through counter-legislation in the United States.⁸³ In the realm of copyright law, the recent international Anti-Counterfeiting Trade Agreement (ACTA) sponsored by the United States demonstrates a trend toward greater enforcement of proprietary rights and limitations of user flexibility.⁸⁴ ACTA, ostensibly drafted to prevent global media piracy, has been criticized as negatively impacting A2K in developing countries.⁸⁵ The effect of the treaty on OA mandates can easily be imagined. One publisher recently referred to the NIH OA policy as nothing less than “a means for facilitating international piracy.”⁸⁶

Other OA mandates in the developing world that do not directly impinge on intellectual property rights may be less controversial internationally, but may generate controversy within local scientific communities. The Bangalore draft policy described above encourages researchers in developing countries to publish in OA journals. While such statements of encouragement have been of limited effectiveness, more mandatory policies have also been discussed. Such policies, however, run the risk of alienating the very researchers that they are trying to empower. As explained by Padmanabhan Balaram, Director of the Indian Institute of Technology, scientists in the developing world wish to publish in prestigious venues, with the greatest likely readership. Artificially forcing them to publish in OA journals of lesser impact could be resented and resisted, as it would be in the industrialized world.⁸⁷

Given the challenges faced by researchers in the developing world, is OA publishing likely to advance their scientific work in a meaningful way? The answer is almost certainly “Yes,” though not without effort, and not without adjustments to traditional ways of thinking about scientific research and publishing.

Many commentators have identified the need for more and better South-focused scientific journals. While recent years have seen an increase in the numbers of online OA journals in such developing countries as Brazil, Egypt, and India, most such journals are not indexed by international bodies and have low or non-existent impact factors. It is not surprising that the best scientists in the developing world submit their work to recognized international journals. Career advancement, peer recognition, and overall status in the scientific community are shaped by the reputation of the journals in which a scientist publishes. It is not surprising that scientists publishing in lesser-known OA journals in the developing world fail to gain international recognition. Of the millions of articles published each year, an individual can only read a small fraction, and many scientists use measures such as journal impact factor, reputation, and personal experience as proxies for quality. Thus, while raw materials for improving the scope, reach, and impact of developing world science already exist in the form of Green and Gold OA systems, they have not yet had the impact one might hope to see.

How might this situation be improved? There are, of course, no panaceas for a problem that is entwined with so many issues of North-South interaction. However, a few measures might begin to address these challenges. First, better systems to differentiate among developing world OA journals on the basis of quality could be implemented. As in the North, not all journals in the South are created equal. Some will falter, some will disappear, some will remain amateur efforts without solid peer review or selection criteria, and some will function primarily as vehicles for the self-archiving of content by researchers. All of these efforts should be encouraged, fostered and applauded. However, there is also value in identifying the leading developing world journals, which stand on a par with journals in the industrialized world. Current indexing systems and impact ratings overlook many deserving developing world journals for reasons historical, cultural, and logistical.

Eventually, the best developing world journals may receive their deserved place in existing indexes. Until that happens the scientific community should call for the development of a selective South-focused journal

index that includes, for example, the top 10 to 20 per cent of journals published in developing countries, or with developing country issues as their focus. Such rankings might be based on journal longevity, consistency of output, composition of editorial board, composition of peer review panels, citations, and readership. The availability of such a “South-Elite” OA journal index could encourage existing international indexes to include developing world journals, and persuade leading researchers in the developing world to view publication in such journals as desirable.⁸⁸

Second, leading universities and research institutions in the developing world can support locally-published journals, not only financially, but also through formal and informal recognition of researchers publishing in such journals. Whether in Boston or Bogota, university departments are comprised of individuals, and departmental leadership is comprised of successful individuals in their fields. Traditional metrics of academic achievement include publication in prestigious, internationally recognized journals. It is not surprising that promising junior faculty in the developing world are encouraged by their institutions and mentors to publish in international journals. To the extent that tenure and review committees at leading institutions in the developing world instead promote publication in South-focused journals, the reputation of such journals would further be enhanced, within the developing world and beyond.

Third, developing world researchers should pay greater attention to research emanating from the rest of the developing world. One recent study shows that citations to papers written by South African authors fall well below global citation averages, even in fields where South African researchers are extremely productive.⁸⁹ The South African results compare unfavourably to those in Kenya, in which researchers collaborate regularly with non-Africans but primarily as representatives of “field sites” rather than as independent investigators.⁹⁰ Another recent study found that researchers from sub-Saharan Africa were far more likely to collaborate with non-Africans than with each other.⁹¹ These results suggest that researchers in the developing world look to the industrialized world for collaboration and information. For scientific production in the developing world to improve and gain recognition, researchers in the developing world must engage each other’s work, and forge their own collaborations with each other.

Finally, financial models must be developed to decrease reliance on information philanthropy, which distorts information markets and influences behaviour in counterintuitive ways. Fee waivers for Gold OA author-pays journals are meant to help authors in developing countries, but often do not apply to the most scientifically productive of such countries. Moreover, fee waivers create challenging competitive pressures for

locally-produced OA journals, lacking the base of paying authors that Gold OA journals in the industrialized world have. One solution would be to eliminate fee waivers and ask OA and commercial publishers in the industrialized world to contribute to a fund to support the Gold OA author fees of qualified developing world researchers. Funds would be paid to whichever OA journal accepted a developing world researcher's work. This system would level the playing field between OA journals in the developing and industrialized worlds, while enabling developing world researchers to publish in relevant and high quality OA journals, regardless of fees.

OA models have brought about significant changes in the world of scientific publication and knowledge dissemination. While such models have already had a positive impact on researchers in the developing world, more can be done to fulfil the promise of OA publishing for the global consumption and production of scientific research. ■

Notes

¹ Robert K. Merton, "The Normative Structure of Science," in *The Sociology of Science*, ed., Norman W. Storer (Chicago: University of Chicago Press, 1973), 267–278.

² *The Economist*, "Access All Areas," August 5, 2004; Manon A. Ress, "Open-Access Publishing: From Principles to Practice" in *Access to Knowledge in the Age of Intellectual Property*, eds. Gaëlle Krikorian and Amy Kapczynski (New York: Zone Books, 2010), quoting David W. Lewis, 475–477.

³ European Commission, *Study on the Economic and Technical Evolution of the Scientific Publication Markets in Europe: Final Report*, January 2006, 23. This period of sustained price increases has been termed the "serials crisis."

⁴ According to one study, the average subscription to commercially-published journals in the field of economics in 2001 cost over \$1,600. Theodore C. Bergstrom, "Free Labor for Costly Journals?" *Journal of Economic Perspectives* (Fall 2001): 183. Specialist publications, particularly in the medical literature, can cost in the range of \$20,000 per year. Pamela Burdman, "A Quiet Revolt Puts Costly Journals on Web," *New York Times*, June 26, 2004.

⁵ "Libraries Stunned by Journal Price Increases," *Science* 236, no. 4804 (1987): 908.

⁶ The term "developing world" is a fraught one. This article does not delve into the various metrics by which the developmental status of a country may be judged, but rather uses the term with intentional imprecision to denote the many countries that are not generally viewed as leaders in the scientific community.

⁷ John Willinsky, *The Access Principle: The Case for Open Access to Research and Scholarship* (Cambridge, MA: The MIT Press, 2006), ix and 93–94.

⁸ Barbara Aronson, "Improving Online Access to Medical Information for Low-Income Countries," *New England Journal of Medicine* 350, no. 10 (2004), 966–968.

⁹ See generally Mahmood Mamdani, *Scholars in the Marketplace: The Dilemmas of Neo-Liberal Reform at Makerere University, 1989–2005* (Dakar: Council for the Development of Social Science Research in Africa, 2007).

¹⁰ The text of the PLoS 2001 letter can be found at <http://www.plos.org/about/what-is-plos/early-history/>.

¹¹ The statement of the Budapest Initiative can be found at <http://www.soros.org/openaccess/read>.

¹² The Bethesda Statement on Open Access Publishing offers "concrete steps" that scientists, publishers, libraries, and funding agencies can take to "promote the rapid and efficient transition to open access publishing." It can be found at <http://www.earlham.edu/filpeters/fos/bethesda.htm>. The Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities offers several conditions and definitions further elaborating the path toward an OA regime in scientific publishing. It can be found at <http://oa.mpg.de/berlin-prozess/berliner-erklarung/>.

¹³ Ahmed Abdel Latif, "The Emergence of the A2K Movement: Reminiscences and Reflections of a Developing-Country Delegate," in *Access to Knowledge*, eds., Krikorian and Kapeczynski, 99 and 109–112.

¹⁴ World Summit on the Information Society, *Declaration of Principles*, Art. 28, December 12, 2003, <http://www.itu.int/wsis/docs/geneva/official/dop.html>.

¹⁵ World Intellectual Property Organization, *The 45 Adopted Recommendations under the WIPO Development Agenda*, 2007, <http://www.wipo.int/export/sites/www/ip-development/en/agenda/recommendations.pdf>.

¹⁶ The text of the proposed A2K Treaty (draft of May 9, 2005) can be found at <http://www.cptech.org/a2k/a2k—treaty—may9.pdf>. A good discussion of the proposed treaty terms and of the relevant negotiations is contained in David W. Opderbeck, "The Penguin's Paradox: The Political Economy of International Intellectual Property and the Paradox of Open Intellectual Property Models," *Stanford Law and Policy Review* 18, no. 1 (2007): 114–116.

¹⁷ International Seminar: Open Access for Developing Countries, *Salvador Declaration on Open Access: The Developing World Perspective*, September 21–22, 2005, <http://www.icml9.org/meetings/openaccess/public/documents/declaration.htm>.

¹⁸ Washington Declaration on Intellectual Property and the Public Interest, August 27, 2011, <http://infojustice.org/washington-declaration>.

¹⁹ Bo-Christer Björk et al., "Open Access to the Scientific Journal Literature: Situation 2009," *PLoS ONE* 5, no. 6 (2010).

²⁰ Willinsky, *Access Principle*, App. F.

²¹ See SPARC, *Author Rights: Using the SPARC Author Addendum to Secure Your Rights as the Author of a Journal Article*, <http://www.arl.org/sparc/author/addendum.shtml>.

²² The RoMEO database hosted by the University of Nottingham lists 217 publishers

that automatically allow institutional self-archiving of articles, and 58 more that allow self-archiving after the expiration of an embargo period. See <http://www.sherpa.ac.uk/romeo/PDFandIR.php?la=en> (accessed December 4, 2011).

²³ Not all OA journals charge author fees. Some are operated on a volunteer basis by interested researchers or receive support in government subsidies or charitable contributions. For the purposes of this article, I discuss the “Gold OA” model as an author-pays model. Reliance on volunteer efforts and subsidy and charitable contributions involve uncertainties that make them less reliable models for long-term sustainability.

²⁴ See Björk et al., “Open Access.”

²⁵ John Whitfield, “Open Access Comes of Age,” *Nature* 474, no. 428 (2011): 428.

²⁶ PLoS, Publication Fees for PLoS Journals, <http://www.plos.org/journals/pub-fees.php> (accessed July 4, 2010).

²⁷ Declan Butler, “US Seeks to Make Science Free for All,” *Nature* 464 (2010): 822–823. A group of major research universities and institutes, including Harvard University, the Massachusetts Institute of Technology, Dartmouth College, Cornell University, the University of California, Berkeley, Columbia University, the University of Ottawa, and the Memorial Sloan-Kettering Cancer Center, have formed a group called the Compact for Open-Access Publishing Equity to advocate for greater payment of OA publication fees by research funders. See <http://www.oacompact.org/compact/>.

²⁸ Mikael Laaski et al., “The Development of Open Access Journal Publishing from 1993 to 2009,” *PLoS ONE* 6, no. 6 (2011). Significantly higher figures for OA journals are reflected in the online Directory of Open Access Journals (www.doaj.org), which lists more than 7,300 OA journals in 117 countries. However, these figures rely on self-reporting, do not account for discontinued or merged journals, and do not require that journals be peer reviewed.

²⁹ Willinsky, *Access Principle*, 68.

³⁰ *NEJM* is published by the Massachusetts Medical Society and *MBC* by the American Society for Cell Biology.

³¹ Willinsky, *Access Principle*, 18.

³² See Eric Priest, “Copyright, Scholarship, Authorial Autonomy, and the ‘Harvard’ Open Access Mandate,” *Northwestern Journal of Law, Science and Technology* (forthcoming 2012); John Timmer, “MIT to Make All Faculty Publications Open Access,” *Ars Technica*, March 24, 2009, and “Open-Access Publishing Gains Another Convert,” *Nature* 459 (2009): 627.

³³ ROARMAP Registry of Open Access Repositories Mandatory Archiving Policies, <http://roarmap.eprints.org/>.

³⁴ RoMEO database, University of Nottingham, <http://www.sherpa.ac.uk/romeo/PDFandIR.php?la=en> (accessed December 4, 2011).

³⁵ Jorge L. Contreras, “Prepublication Data Release, Latency, and Genome Commons,” *Science* 329, no. 5990 (2010): 393; Jorge L. Contreras, “Data Sharing,

³⁶ ROARMAP.

³⁷ Willinsky, *Access Principle*, 2.

³⁸ Policy on Enhancing Public Access to Archived Publications Resulting from NIH-Funded Research, NOTOD 05-022, February 3, 2005, <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-05-022.html>.

³⁹ United States National Library of Medicine, <http://www.ncbi.nlm.nih.gov/pmc/>.

⁴⁰ According to a 2006 progress report from NIH to Congress, the compliance rate with NIH's voluntary policy was 3.8 per cent. Peter Suber, "NIH Report to Congress," *Open Access News*, February 16, 2006, <http://www.earlham.edu/fllpeters/fos/2006/02/nih-report-to-congress.html>.

⁴¹ NIH, Revised Policy on Enhancing Public Access to Archived Publications Resulting from NIH-Funded Research, NOT-OD-08-033, April 7, 2008, implementing Division G, Title II, Section 218 of PL 110-161 (Consolidated Appropriations Act, 2008).

⁴² The proposed Research Works Act (H.R. 3699) (2011) was introduced in the U.S. House by Representatives by Rep. Darrell Issa (R-CA) and Rep. Carolyn Maloney (D-NY) on December 16, 2011. This act would have prohibited any federal agency from requiring the author of a federally-funded article to distribute, make available, or offer or disseminate it through the Internet or other electronic network. The bill has since been withdrawn. The earlier Fair Copyright in Research Works Act, H.R. 801 (2009) would have prohibited federal agencies from adopting open access publication policies.

⁴³ In contrast, Jutta Haider notes two apparently contradictory discourses embodied in the OA dialog: that of modern Western scientific superiority and dominance, and that of openness, collaboration, and participation. She casts doubt on the moral authority of Western reformers seeking to bring OA publishing to the developing world. Jutta Haider, "Of the Rich and the Poor and Other Curious Minds: On Open Access and 'Development,'" *ASLIB Proceedings* 59, nos. 4-5 (2007). See also Ulrich Herb, "Sociological Implications of Scientific Publishing: Open Access, Science, Society, Democracy and the Digital Divide," *First Monday* 15, no. 2 (2010).

⁴⁴ While the focus of this article is on the natural and biomedical sciences, the situation in the developing world is not dramatically different in the social sciences. See International Social Science Council, *World Social Science Report 2010—Knowledge Divides* (UNESCO Publishing: 2011), <http://www.unesco.org/shr/wssr>.

⁴⁵ See, for example, B.M. Gupta, S.M. Dhawan, and R.P. Gupta, "Indicators of S&T Publications Output: Developed versus Developing Countries," *DESIDOC Journal of Library and Information Technology* 27, no. 1 (2007): 5-16, offering an overview of this literature.

⁴⁶ David A. King, "The Scientific Impact of Nations," *Nature* 430 (2004): 311.

⁴⁷ Samuel Kwaku Smith Esseh, "Strengthening Scholarly Publishing in Africa: Assessing the Potential of Online Systems" (doctoral thesis, University of Brit-

ish Columbia, April 2011), <https://circle.ubc.ca/bitstream/handle/2429/34184/ubc-2011-spring-esseh-samuel.pdf?sequence=1>.

⁴⁸ Willinsky, *Access Principle*, 103–07.

⁴⁹ Some have attributed this difficulty to bias and, occasionally, racism. See Zoe Corbyn, “A Threat to Scientific Communication,” *Times Higher Education*, August 13, 2009.

⁵⁰ Joanna Adcock and Edward Fottrell, “The North-South Information Highway: Case Studies of Publication Access Among Health Researchers in Resource-Poor Countries,” *Global Health Action*, November 13, 2008.

⁵¹ International Telecommunications Union, *Measuring the Information Society* (Geneva: ITU: 2011).

⁵² Note that the utilitarian and rights-based approaches are not mutually exclusive, and neither has been co-opted entirely by advocates from either the industrialized or developing world. See the Salvador Declaration, which blends both approaches in its pronouncements, “Scientific and technological research is essential for social and economic development” and “It is important that access be considered as a universal right”.

⁵³ WHO, About HINARI, <http://www.who.int/hinari/about/en/> (accessed December 3, 2011).

⁵⁴ FAO, About AGORA, <http://www.aginternetwork.org/en/about—agora/> (accessed December 3, 2011).

⁵⁵ Online Access to Research in the Environment, About OARE, <http://www.oaresciences.org/about/en/index.html>.

⁵⁶ Research for Life, www.research4life.org (accessed March 20, 2012).

⁵⁷ INASP, *PERii: Information Delivery*, <http://www.inasp.info/file/ea36eicc2424e-badbe73d076d430faa7/perii-information-delivery.html>.

⁵⁸ Smith Esseh, “Strengthening Scholarly Publishing,” 292.

⁵⁹ At least one of the major publishers supporting the Research4Life programs, Elsevier, has publicly committed to continue to support these efforts through 2015. Francis Cox, “Bridging the Information (Philanthropy) Gap,” *Elsevier Editors’ Update*, May 2009, <http://www.elsevier.com/wps/find/editorsinfo.editors/editors—update/issue26e>.

⁶⁰ Leslie Chan and Sely Costa, “Participation in the Global Knowledge Commons: Challenges and Opportunities for Research Dissemination in Developing Countries,” *New Library World* 106 (2005): 141 and 146.

⁶¹ Eve Gray, *Achieving Research Impact for Development: A Critique of Research Dissemination Policy in South Africa* (2007), 6–7; Smith Esseh, “Strengthening Scholarly Publishing,” 56–57.

⁶² Y.Z. Ya’u, “The New Imperialism & Africa in the Global Electronic Village,” *Review of African Political Economy* 31, no. 99 (2004): 11.

⁶³ Adcock & Fottrell, “The North-South Information Highway.”

⁶⁴ Elsevier, “Research Output in Developing Countries Reveals 194% increase in Five Years,” July 2, 2009, <http://www.elsevier.com/wps/find/authored-news-item.cws-home/companynews05-01269>).

⁶⁵ Philip M. Davis and William H. Walters, “The Impact of Free Access to the Scientific Literature: A Review of Recent Research,” *Journal of the Medical Libraries Association* 99, no. 2 (July 2011). The authors criticize the report of these findings, which “did not provide information on the methods used to reach that conclusion, and no attempt was made to control for potentially important confounding factors, such as country wealth, national expenditures on research and development, number of active scientists, emergence of research centers in high-impact fields such as medicine, or improvements in library and information technology infrastructures. The authors also provided no data on the number of articles published in each country, as even modest increases in article publication in countries with historically low output can result in high percentage increases. In the absence of more detailed information, the Research4Life results should be considered speculative at this point.”

⁶⁶ Leslie Chan, Barbara Kirsop, and Subbian Arunachalam, “Open Access Archiving: The Fast Track to Building Research Capacity in Developing Countries,” *Science & Development Network* (November 2005).

⁶⁷ Willinsky, *Access Principle*, 96–97.

⁶⁸ For example, the full genomic sequence of an organism might require hundreds or thousands of pages to print, whereas most journal articles are in the range of ten printed pages or less.

⁶⁹ See, e.g., Contreras, “Prepublication Data Release.”

⁷⁰ US National Research Council, *Sharing Publication-Related Data and Materials: Responsibilities of Authorship in the Life Sciences* 32 (2003).

⁷¹ James A. Evans and Jacob Reimer, “Open Access and Global Participation in Science,” *Science* 323 (2009): 1025.

⁷² BioMed Central, *Open Access Waiver Fund*, <http://www.biomedcentral.com/authors/oawaverfund> (accessed December 4, 2011).

⁷³ See BioMed Central Blog, “The Blossoming of Open Access in Africa,” November 7, 2011, <http://blogs.openaccesscentral.com/blogs/bmcblog/entry/the-blossoming-of-open-access> (accessed December 4, 2011).

⁷⁴ Hindawi Publishing Corporation, <http://www.hindawi.com/> (accessed March 20, 2012).

⁷⁵ Nancy L. Maron, *Hindawi Publishing Corporation: The Open Access Contributor Pays Model*, Ithaka Case Studies in Sustainability, 2009, <http://www.ithaka.org/ithaka-s-r/research/ithaka-case-studies-in-sustainability/case-studies/SCA-BMS-Cas-eStudy-Hindawi.pdf>.

⁷⁶ Directory of Open Access Journals, “Open Access Journals by Country,” <http://www.doaj.org/doaj?func=byCountry&uiLanguage=en> (accessed December 4, 2011).

⁷⁷ *Scientific Electronic Library Online*, <http://www.scielo.org/php/level>.

php?lang=en&component=42&item=1 (accessed March 20, 2012).

⁷⁸ *African Journals Online*, <http://www.ajol.info/> (accessed March 20, 2012).

⁷⁹ *Bioline International*, <http://www.bioline.org.br> (accessed March 20, 2012).

⁸⁰ Hajar Sotudeh and Abbas Horri, "Countries Positioning in Open Access Journal System: An Investigation of Citation Distribution Patterns," *Scientometrics* 81, no. 1 (2009); Sheikh Mohannad Shafi and Mohammad Haneef Bhat, "The Impact of Open Access Contributions: Developed and Developing World Perspectives," *Digital Publishing and Mobile Technologies*, 15th International Conference on Electronic Publishing, June 22–24, 2011.

⁸¹ Workshop on Electronic Publishing and Open Access, "A National Open access Policy for Developing Countries" (November 2–3, 2006), <http://www.ncsi.iisc.ernet.in/OAworkshop2006/pdfs/NationalOAPolicyDCs.pdf>.

⁸² Agreement on Trade-Related Aspects of Intellectual Property Rights, April 15, 1994; Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 108 Stat. 4809, 1869 U.N.T.S. 299.

⁸³ Research Works Act (H.R. 3699)

⁸⁴ See Brook K. Baker, "ACTA—Risks of Third Party Enforcement for Access to Medicines," *American University International Law Review* 26, no. 3 (2011): 579.

⁸⁵ Andrew Rens, "Collateral Damage: The Impact of ACTA and the Enforcement Agenda on the World's Poorest People," *American University International Law Review* 26, no. 3 (2011): 783.

⁸⁶ Butler, "US Seeks to Make Science Free," 822.

⁸⁷ Center for Internet and Society, "Professor Balaram Talks Open Access," November 15, 2011, <http://www.cis-india.org/openness/professor-balaram-talks-open-access>.

⁸⁸ Some might argue that journal indexing systems are becoming obsolete as article-level citations and statistics become more prevalent. However, fairly or unfairly, it remains that in many scientific disciplines publication in an indexed journal serves as a proxy for the quality and significance of an article, with implications for a researcher's career and ability to secure funding.

⁸⁹ Mohammed Jeenah and Anastassios Pouris, "South African Research in the Context of Africa and Globally," *South African Journal of Science* 104 (September/October 2008): 351.

⁹⁰ *Ibid.*, 354.

⁹¹ Omwoyo Bosire Onyancha and Jan Resenga Maluleka, "Knowledge Production through Collaborative Research in Sub-Saharan Africa: How Much Do Countries Contribute to Each Other's Knowledge Output and Citation Impact?" *Scientometrics* 87, no. 2 (January 2011).

Conceptualizing the Commons: Genetic Resource Management, Property Claims, and Global Innovation Ethics

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ABSTRACT

This paper analyses if and how genetic resources can be conceptualized as part of the knowledge commons. By drawing on the legal and philosophical discussion of ownership claims—including intellectual property—on plant genetic information, it is argued that the tension between local or national sovereignty and a global commons character is grounded in new conceptual challenges of regulating access to genetic knowledge. Two considerations that have not been sufficiently taken into account are discussed. First, genetic information must be viewed as a special type of dual resource, which comprises informational and material aspects. Dual resources demand a reconsideration of conventional types of property to assess whether the rights and duties that they entail cope with ethically sensitive areas such as drug development and crop improvement. Second, the discourse on the knowledge commons can be usefully complemented by a re-interpreted concept of a “common heritage,” adequately understood less as a property regime, and more as providing a normative vision of global genetic resource management. This includes conceiving of new governance structures or institutions that can address imbalances of power in bio-technological innovation politics.

Introduction

Ideas of managing natural resources in communities, as a “commons”, have recently been taken up in a discourse on governing informational resources: the so-called knowledge commons. Charlotte Hess and Elinor Ostrom, who are among the main advocates of this evolving field, describe their approach as “a new way of looking at knowledge as a shared resource, a complex ecosystem that is a commons—a resource shared by a group of people that is subject to social dilemmas.”¹ They emphasize

that this new paradigm requires interdisciplinary study that can take into account the various epistemic, economic, and institutional aspects of structuring information resources.

Debate about the concept of a knowledge commons first arose in connection to the now overwhelming importance of digitalized information in the global knowledge-economy. Science has been the forerunner of this development and continues, more visibly than ever before, to embody the social dilemmas that Hess and Ostrom declare to be the main characteristics of a commons. Genetics and different forms of new “omics” technologies are becoming more strongly dominated by increasingly complex networks between research, the economy, and international politics.² The natural resources that are the basis of bio-innovation, such as improved crops or large drug development efforts, however, are also the protagonists of sometimes fiercely fought controversies. Patents on biological processes, genetically modified crops, and pharmaceuticals developed from genetic resources and the discourse on biopiracy are only two of the most publicized topics. They reflect the growing ethical tensions generated by genetic resource management on a global scale.³

Moreover, the very nature of genetic resources as a major asset of the knowledge commons challenges conceptual categorizations in economic and ethical terms: (i) they have material and informational aspects, and (ii) are intergenerational and interregional. Before we can try to address emerging problems of global innovation ethics, there is a need to clarify what kind of goods genetic resources are. In particular, I will try to outline the sense in which genetic resources could be part of a commons that emphasizes their knowledge-related dimensions.

In what follows, I first situate the claims of commons proponents in a general taxonomy of goods, before analysing them in relation to international law documents that regulate genetic resources and biodiversity. I aim to show that these regulations adhere to overlapping conceptions of ownership and do not sufficiently take into account the specific conceptual features of genetic resources. This is problematic insofar as they also have an impact on important ethical questions. In fact, by clarifying the concept of commons for genetic resources, the problems diagnosed indicate a shift from narrower questions about ownership rights to wider questions of global innovation policies and institutions.

Genetic Resources, Biodiversity, and the Concept of a “Commons”

The entity that I want to rethink here appears in the academic and popular literature under various names that emphasize its value in diverging

ways: genetic resources, genetic diversity, or biodiversity. The main focus of my thoughts will be genetic resources and biological diversity as they relate to plants, since the impact of new trade regimes and debate on conceptual and ethical ramifications is most advanced in this field. For my purposes, plant genetic resources will be defined as:

genetically determined traits in useful plants that can be characterized, evaluated, and utilized by farmers to meet essential ecosystem requirements. These resources are not simply the genes encoded in the DNA of plants, but they are the genetic expressions of particular genes that have been recognized and selected by humans.⁴

Plant genetic resources are crucial for plant breeding, agricultural productivity and ecosystem maintenance, the basis for worldwide food security as well as biotechnological and biomedical products such as pharmaceuticals. It is, however, important to note that concepts and principles such as “common heritage of humankind” and “(genomic) sovereignty” apply to plant and animal (including human) genetic resources in general by virtue of their unprecedented accessibility as genetic information resources and their bio-economical importance.⁵

On the other hand, biodiversity, “one of the cornerstones of sustainable development,” can be defined as “the sum of genetic and phenotypic differences existing in living organisms...at the molecular, individual, population, and ecosystem levels.”⁶ Here, I will refer to “genetic resources” for simplicity, but these terminological differences should be kept in mind while I develop the argument.

How to conceptualize genetic resources as a good on a global scale, even in an attempt to abstract from its ethical intricacy for the moment, is by no means obvious. Following Hess and Ostrom’s characterization of the knowledge commons, we can try to get a grip on some of the possibilities in which genetic resources can be deemed “common.” Firstly, one must distinguish a more general concept of “commons” as a shared resource or common-pool resource which can be constituted by different types of goods—irrespective of a specific property regime—from the legally-recognized set of rights that defines common property.⁷

If genetic resources were part of a global commons or a common good in the sense of a property regime, they would give rise to symmetrical freedoms of use and exploitation to anyone, subject to a wide variety of possible management rules. In contrast to a regime of private property, no single person could gain control of the resource in question. The access to these resources could not be completely open, however, given the fact that genetic resources derived from the world’s biodiversity are located in specific countries and are used by specific communi-

ties. Plants, crops, seeds, and germ-plasm are local common resources, embedded in traditional practices and cultures. The second reason why genetic resources can no longer be part of a common property in its legal meaning is that they have become excludable and rivalrous goods: they can be legally protected in the form of intellectual property through patents and Plant Variety Protection (PVP).

Consequently, if genetic resources are not a global common property, in which sense can they be “common”? Are genetic resources common-pool resources in the sense outlined by Hess and Ostrom in relation to the knowledge commons? That is, can they consist of various types of goods and property regimes while maintaining “many characteristics of a commons?”⁸

The authors point out that a commons is not a value-laden concept, but this seems to be true for local common resources of natural, material or informational kind only in the sense that there is no preconceived way that will lead to sustainable and robust systems. However, Ostrom’s work on economic governance has identified promising institutional design principles for enduring natural common-pool resources. These are:

- clearly defined boundaries;
- rules well-matched to local needs and conditions;
- potential for individuals affected by these rules to participate in modifying the rules;
- the right of community members to devise their own rules;
- a system for self-monitoring members’ behaviour;
- a graduated system of sanctions;
- access to low-cost conflict-resolution mechanisms for community members; and,
- nested enterprises—appropriation, provision, monitoring and sanctioning, conflict resolution, and other governance activities—organized in a nested structure with multiple layers of activities.⁹

It is nonetheless acknowledged that common resource management is in constant threat of collective action problems that require particular commitment by community members, investment of social capital, and trust.

Considering this tension, it is surprising that Hess and Ostrom seem to downplay the values associated with the invocation of a commons, since their theoretical framework can hardly be understood solely by drawing on a series of empirical studies of resource management. In fact, as they also underline repeatedly in relation to the knowledge commons, common resources are vulnerable to enclosure, degradation, and social

dilemmas. Moreover, the current resurgence of a commons literature is clearly not a historical coincidence. The rationale for conceptualizing genetic resources with the help of a theory of knowledge commons is based on the acknowledgement that the public nature of these goods is endangered. The perceived value of plant genetic resources has increased rapidly due to powerful means of realizing their potential with new biotechnologies. Simultaneously, there is a growing awareness that they are a limited natural resource. This makes them akin to other goods, such as the deep seas or outer space, which are of global common interest beyond technological and economic exploitation only after becoming accessible as a resource. It is therefore instructive to review the changing conceptual landscape that informed the most important documents of international law on global common resources and biodiversity.

Globalized Access and Conservation Frameworks

Retrospectively, genetic resources can be conceived of as having been global public goods; that is, non-excludable and non-rivalrous across borders, and not monopolized by the interests of specific individuals, groups, or the state. But this “publicness” has not been explicitly acknowledged in international governance treaties: rather, it seemed to follow naturally from the traditional processes of plant and crop evolution. Seeds, crop types, and germplasm were exchanged, improved, and selected in a decentralized manner, following largely informal but nonetheless binding rules and norms like reciprocity. Strong claims to ownership or authorship were and are unsuitable “where land and other natural resources are communally owned, seed is exchanged or shared, invention is collective, provenance is ambiguous, and natural and artificial selection are intertwined.”¹⁰

Internationally, plant exploration and collection has developed into a more formalized practice since European migration and colonialization began in the fifteenth century. Before the advent of genetic technologies, diffusion of crops and seeds was an open access regime, if only in the sense that the question of clear rights of ownership on the supranational level was not on the political agenda. What were to become genetic resources were exchanged, dispersed, and traded in local communities that followed norms and rules grounded in expectations of reciprocity. This is not to imply symmetry of access, particularly across borders, but the point remains that the publicity of these resources, free from a common property regime in the legal sense, did still adhere to rules and norms.

Common property without rules is at risk of a “tragedy of the commons,” a notion that had lasting influence on a discrediting of debates

concerning the commons. In Garrett Hardin's oft-cited scenario, a commonly held resource such as a field will inevitably become overused and eventually destroyed. Rational people will attempt to use it most profitably for themselves, in this case by keeping as many cattle as possible on the commons, with the effect of overgrazing a limited resource shared by all. Since nobody acts in the common interest to stop the depletion of the resource, freedom of the commons eventually "brings ruin to all."¹¹

Stephen Brush argues that the debate on the efficiency of common property arrangements in the 1960s may have been related to crop scientists' use of the phrase "the common heritage of mankind."¹² This latter concept had been introduced into the language of international law in the context of preventing degradation of extra-territorial areas, such as outer space, Antarctica, the sea bed, and the resources to be found in them.¹³ From the 1970s onwards, important policies to prevent erosion of genetic diversity emerged with the establishment of the International Plant Genetic Resources Institute. Negotiations at the United Nations Food and Agricultural Organization (FAO) then led to the International Undertaking on Plant Genetic Resources (IU). The latter states its objective in article 1: "This Undertaking is based on the universally accepted principle that plant genetic resources are a heritage of mankind and consequently should be available without restriction."¹⁴

But what does "common heritage of mankind" mean in terms of ownership and management of genetic resources? The criteria of implementation, adapted from the original context of extra-territorial areas and resources to genetic diversity, would be:

- There can be no state sovereignty or private ownership over genetic resources since they are part of the common heritage of mankind. Even if biological material is owned by individuals and falls under the sovereignty of states, genetic resources are not owned and do not fall under state sovereignty;
- Genetic resources should be managed by an international regime;
- Any benefits derived from these resources in terms of useful products should be shared internationally;
- The resources should be used only for peaceful purposes;
- The fruit of research involving these common resources should be exchanged freely and publically.¹⁵

However, the IU—based on these ideas that appeal to common interests beyond property rights—did not become legally binding. The motivation to strengthen cooperation, specifically of collections of plant genetic

resources *ex situ* (seed banks), and defend access to all plant genetic resources free from patent rights met criticism from developing and industrialized countries. In 1989, an amendment to the IU clarified that plant breeder's rights (mainly in industrialized countries) were compatible with the resolution, while emphasizing the important contribution of farmers all around the world to the conservation and development of plant genetic resources. A last effort was made to underline that what had been conceived of as a common or public resource must not fall prey to degradation or even justify exploitation of less technologically equipped countries: "free access" does not necessarily mean "free of charge" and benefits gained from genetic resources under the IU "are part of a reciprocal system."¹⁶

With annex III of the IU in 1991 the principle of common heritage became "subject to the sovereignty of states over their plant genetic resources."¹⁷ One year later, the FAO adopted the Convention on Biological Diversity (CBD) that introduced binding state sovereignty over genetic resources. The text speaks of a re-affirmation of state sovereignty, meaning that "authority to determine access to genetic resources rests with the national governments and is subject to national legislation" (Article 15),¹⁸ even though the now explicit acknowledgement of the concept seems politically motivated to appease concerns of inequity from less biotechnologically developed countries. The objectives of the CBD still mention the intrinsic value of biodiversity conservation, but the general framework to accomplish this task has changed. Conservation and development now seem to be mainly achievable through facilitated global access and technological use, for instance in pharmaceuticals, as long as bilateral contracting mechanisms, informed consent, and benefit-sharing arrangements are in place. This also applies to potential intellectual property on inventions based on plants or plant genetic material, but it is not clear how far-reaching national sovereignty in such a case is or should be. Should it apply to external use of previously taken biological samples and abstract uses of its informational content?¹⁹

The issue remains contentious while the CBD is silent on the justification of the sovereignty approach in relation to patents based on plant genetic resources. Instead, it focuses on sovereignty in the sense of national regulation of access and emphasizes that countries should implement benefit or profit-sharing mechanisms in case of product development based on genetic resources from their territories.²⁰ International debate, specifically on access to genetic resources in *ex situ* gene banks and collections, continued until 2001, when the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) was adopted. This treaty can be seen as an attempt to strike a balance between

the potentially competing interests of state sovereignty over plant genetic resources and a revived view of the same resources as part of the public domain. To this end, it establishes a multilateral system of exchange and benefit-sharing for breeding and research purposes that applies to a defined subset of crop genera.²¹ Sovereign rights are recognized, and also cover decisions concerning intellectual property. In the case of commercialization of new plant varieties the innovator is supposed to contribute financially to the multilateral system. The treaty provides a framework for this type of negotiation, though many details are unresolved, such as the concrete form and addressee of benefits. These problems complement the basic difficulty of how to properly assess contribution of different parties to an improved plant trait.

The last document of major relevance for the outlook of international genetic resource management is the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). As part of the liberalization of global trade fostered by the WTO, TRIPS was the key step to the implementation and standardization of an international regime of intellectual property rights and came into force in 1995. It must also be seen as an expression of the ever-increasing importance of (bio)technological innovation for the world economy. Through TRIPS, members agree to develop and enforce intellectual property legislation while retaining the freedom to exclude patents on living organisms and essentially biological processes. Concerning crop cultivars or plant varieties, however, members must allow for patents or establish a sui generis system for their protection.²²

Standardization, Diversity, and Bio-Innovation: some Prima Facie Concerns

As mentioned before, the focus here will be less on claims concerning the de facto impact of international law on access, use, and conservation of global genetic resources, and more on the conceptual basis of the policy landscape I have outlined. In particular, I want to highlight some ambiguities and potential inconsistencies in the shift from a “common heritage regime” to regulations that pre-eminently rely on the concept of sovereignty. This development is complemented by a growing preoccupation—obvious in the public and academic debate but largely circumvented in the documents named above—with the influence of intellectual property rights on genes, organisms, and essentially biological processes.

In general, it seems fair to say that these governance frameworks seek to counterbalance the increasing pressure on privatization of bio-

logical material and value derived from them with efforts of what has become known as “benefit-sharing.” As sovereign states, developing countries are formally acknowledged to be equal participants in the bio-economy and the genomics revolution. Furthermore, these agreements in theory incorporate the interests of an increasing number of different “stakeholders”: subsistence and commercial farmers, crop breeders in the public and private sector, national and international gene banks, seed companies, crop scientists and the biotechnology industry.

More worryingly, conservation of genetic diversity has become viewed mainly through the lenses of economic and scientific use and product development. Furthermore, governance rules are largely dictated by ownership paradigms that mirror Western European and American models, such as TRIPS. Sovereignty and benefit-sharing transfer nominal power to groups and nations, such as Andean indigenous farmers. However, even a brief look at the idea of justice and equity behind the CBD, ITPGRFA, and TRIPS shows that there is good reason to be sceptical on their effectiveness to achieve fairness on common grounds.

Unresolved questions revolve around the scope and limits of national sovereignty, the relation between potentially conflicting local and national sovereignty and the overall strength of the concept in the face of global technological and economic competition. Sovereignty in a general sense and patents or PVP are mutually compatible, but what happens in the case of conflict? How realistic are benefit-sharing agreements that lack clear specification of duties? The main problem is that the approach outlined assumes a procedural idea of justice and equity, in which interests are negotiated as if all parties involved start with the same baseline of control and representation powers. According to scholars like Doris Schroeder and Thomas Pogge, politically motivated sovereignty following the CBD is just precisely because it takes into account context such as inequality of countries in terms of income and industrialization. In this interpretation, the sovereignty approach takes moral precedence over a regime of free access that is seen to facilitate exploitation of poor countries.²³

However, local groups and less developed countries still have to bargain and are additionally subject to the constraints under TRIPS that assume equal terms and equal possibilities of profiting. Contextualization in fact seems to commit us to more than mere possibility to contract: it must theorize and incorporate the way different countries use their genetic resources, the way they maintain and develop them, and the potentially radically diverse ideas of what innovation is in the first place. As a consequence, we cannot assume that state sovereignty over genetic resources is meaningful by itself.

The concerns outlined echo some of the worries that have been put forward prominently in the discourse on biopiracy and bioprospecting. Many discussions of cases, among them notoriously cited ones such as the neem tree case and the Merck-InBio agreement criticize, often emphatically, a unidirectional and uncompensated appropriation of genetic resources that belong to the commons, or at least to nations or local landowners.²⁴

A central concern of these debates fostered by activists, academics and NGOs such as the Action Group on Erosion, Technology and Concentration (ETC group) seems to be that ethically controversial issues, in particular when entangled deeply with social and economic facts of inequality, are insufficiently addressed by democratic deliberation. Despite my sympathy with this claim it seems that the strong focus on intellectual property and new forms of “colonialization” deflect attention from even more basic problems and conceptual ambiguities. Besides the idea that material and ethical claims should be unravelled, the issue of property rights including patents as a very specific type and associated ownership claims must be addressed.

As we have seen, international regulation of genetic resources has shifted from an ambivalent concept of common good or common heritage to the principle of national sovereignty. National sovereignty, even if considered a positive or just development, is also an insufficiently delineated concept. The third relevant concept, intellectual property rights (primarily patents), is not necessarily incompatible with other control rights and property interests, but their use might have a negative impact on the diffusion of information and therefore inhibit accessibility of products or temporarily skew markets through monopoly pricing. The tool of patents has, however, become politicized: while one side tends to represent it as an evil by itself, defenders exaggerate the possibilities that strong patents have in terms of moral justification.²⁵ Without following this line of argument, it is crucial to point out that the commons, sovereignty, and intellectual property are not concepts of equal theoretical standing. They are not only vaguely defined and insufficiently justified in relation to genetic resources, but could not be replaced by each other because they refer to different, though overlapping problems.

Subsumed under the term “bio-innovation,” what is at stake in the regulation of access to genetic resources reaches from ecological stability, food security, and cultural diversity to the fostering of economic and technological development for research and healthcare. This brings us back to the initial questions of if and how genetic resources can be considered common on a global scale conceptually, ethically, and as a mat-

ter of law and policy. First of all, it is important to emphasize that we all depend on the exchange of genetic resources,²⁶ their conservation and, subject to discussion, their technological improvement. Contrary to what is suggested in the biopiracy and bioprospecting discourse, there should therefore be a common interest in international regulation that balances ecology and development. This is also the reason why the CBD, ITPGRFA, and TRIPS should be made consistent.

Secondly, the special nature of genetic resources must be explicitly acknowledged and theorized. Biodiversity and technological use as resources have become intermingled in a way that does not allow a view of them only as a tangible good that is used and traded like other material goods. Notwithstanding the prominence of intellectual property in the debates mentioned, genetic resources are often treated as if it was clear how to situate them in a traditional taxonomy of goods. While subsistence farmers or traditional farmers will use them mainly as a tangible good, the interests of technologically-advanced researchers or large corporations in the pharmaceutical sector concern information attached to these resources. Information that is already contextualized in a local community including cultural, spiritual, and aesthetic value, may also be valuable as a global knowledge resource.

Local and global knowledge resources, information, and genetic information attached to plants and their context are valuable crucially for what could ultimately be achieved on their basis to provide subsistence and ecological stability, to select and improve crops in traditional and biotechnological form, or to become a component of medicines. Genetic resources are in this sense dual (material and informational; interregional and intergenerational) resources, with a contemporary emphasis on their economic, ecological, and cultural value as a source of actual and potential knowledge. Information and knowledge encoded and related to genetic resources are valuable by means of the very fact that they represent biodiversity:

Unlike other natural resources such as forests, PGR do not derive their value solely from the physical artefacts themselves—the proteins that make up the genes. Much of their value is determined when engaged in a relationship with the ecosystem, farmers, and scientists. Varieties are valuable because they contain characteristics *that are different from the characteristics of other varieties*. The value that plant genetic resources provide to breeders, farmers, humanity, and the ecosystem is an ability to adapt to changing environmental, market, and social conditions.²⁷

This perspective underlines the problematic status of traditional knowledge associated with genetic resources and of farmer's rights in an international framework that is grounded in a limited concept of innovation. The final aim and the appropriate tools of innovation, given that we can

justify an interest in some general technological improvement, must be contextualized. Moreover, we need to ask if the taxonomy of goods and proposed legal property concepts are appropriate for incorporating complex, dual, local, and simultaneously global entities.

Sovereignty, for example, depends more and more not only on control or possession of the good in question, but on what can be called “access goods.” These goods are related to knowledge, education, and the availability of technology. If we would want to use sovereignty to imply a duty to provide less developed countries with more equal chances (and not a right to total control of a resource that does not adhere to national borders), we might invoke for instance the concept of “genomic sovereignty” that refers to the capacity of a community or country to control both access to and use of samples, data, and knowledge concerning biological and genetic resources.²⁸

If this is the path of innovation we want to follow, we can use this concept to clarify that greater equity would also include more contextualized support of exploiting informational or knowledge resources. Eventually, it could imply moral and legal duties to provide transfer of technology to less developed countries. This approach has similarities to the CBD’s mechanism of benefit sharing, but would be supplemented by a theory of innovation and innovation rights and duties. To this end, it seems necessary to conceptualize genetic resources as resources through the admittedly still patchy framework of the knowledge commons. In the next and last section, I make a proposal concerning the conceptual tools that can be employed for this task that tries to incorporate the ethical concerns sketched above.

Reformulating the Commons for Genetic Resources and Biodiversity

The label of the “common heritage of mankind” has never been explicitly applied to genetic resources, possibly due to definitional difficulties.²⁹ Despite, or maybe also because of its informal use, the idea of the common heritage was assimilated to a global commons regime with free in the sense of unregulated, open access. Somewhat ironically, common heritage became perceived as negative for both market liberals and globalization critics with anti-colonial concerns alike due to its putative ineffectiveness and unfairness as a management and property scheme.

Assuming that common ownership must lead to degradation and depletion of goods (a “tragedy of the commons”) neglects the fact that common goods exist and are sustainable on local scale, as well as in-

ternational cooperation based on reciprocity norms in the international crop scientists' community. Moreover, insofar as genetic resources are unlimited knowledge resources, their value grows with diffusion and application of skills such as agricultural practices. Since knowledge resources are non-rivalrous, non-depletable, and not easily excludable goods, their value is endangered rather than protected by regulations and practices that lead to underuse.

Even more importantly for the present context, the rhetoric of the tragic commons seems to imply that there is no serious sense in which genetic resources can be common. Schroeder and Pogge stress the ambivalence that also the concept of a "common heritage" applied to biodiversity and genetic resources carries:

One interpretation is that our common human heritage must be used and enjoyed on terms that benefit all. The other is that our common heritage is available to be used and exploited at will on a first-come, first-served basis. ... It matters greatly then how the common heritage idea is interpreted—specifically, whether its implementation combines privileges and rights of access with the obligation to share benefits, or instead simply allows private appropriation by the fastest or strongest or best equipped, without any benefit-sharing requirements.³⁰

If we look at the international regulation of access to genetic resources, we might get the impression that talk of the "common good" or "common heritage" is obsolete, and even worse, fraught with terminological confusion. However, commentators disagree about the importance of these concepts, their interpretation, and their normative connotations. Schroeder and Pogge argue that the common heritage regime, interpreted as a "free-for-all," contributed to the exploitation of developing countries, with deleterious long-term effects: "As a result of this free-for-all, those in the South today sometimes face high barriers to access to goods based on the biodiversity of their own territories." Despite this, they concede that biological resources should ideally be freely accessible.³¹ Another commentator, Chika Onwuekwe, shares the view that treating plant genetic resources as commons or part of a common heritage is unjust and inequitable. Furthermore, it is "legally incomprehensible within the context of property rights, and the principle of sovereignty in international law."³² The bioethicist Baruch Brody, on the other hand, argues that national sovereignty is not adequately justified such that alternatives like the global commons view or the common heritage view must be reconsidered.³³

I agree that sovereignty is neither clearly defined nor adequately justified in the CBD, even though the CBD installed with sovereignty also a benefit-sharing system that seems to bring us closer to at least conceptual-

izing equitable access and use of genetic resources. But a global commons view cannot be an alternative, because it would consider genetic resources on a par with any other resource, without taking into consideration its specific characteristics or inequalities between countries' research and innovation potential. There would be no justification for compensatory claims or other special features of contextualized genetic resources if they are about non-economic values or potential limits of patents on organisms or essentially biological processes. Because the global commons view is only a property regime, it is not capable of encompassing foundational and applied questions of responsible transnational innovation policy.

What about the common heritage perspective? If it is true that genetic resources are not legal common property (as Onwuekwue maintains) it follows that there is only one way to reformulate the "genetic commons": as a kind of value or ethical regime. Pilar Ossorio makes this point quite clear when she distinguishes two conceptual lineages that have informed the debate of global public goods, later encoded in the common heritage concept. The first is the "Common Heritage Property Doctrine" that "vests all people or all nations with equal property interests in a territory or resource."³⁴ It grew out of concerns about equity in accessing natural resources that had previously been *res nullius* (things owned by no one) and was intended to contribute to new governance structures and redistribution of benefits from the exploitation of these resources. The other historical conceptual lineage is the "Common Heritage Duties Doctrine." It refers to all nations' duties to preserve certain highly significant cultural artefacts and natural monuments and can be traced to nationalist preservationist movements and the laws of war. This approach is not explicitly about property, but emphasizes international cooperation to maintain the world's natural and cultural heritage for future generations. Central to this conceptual lineage is an appeal to ecological values, to the interdependence between humans and the natural world, and to educational functions of preserving a common heritage. Humans are seen as responsible stewards of nature.³⁵

By incorporating abstract and concrete dimensions—preservation of resources and ideas attached to them—this may provide a model to reflect on the values that seem particularly relevant for global genetic resources as contextualized knowledge resources. On this basis, we can attempt to specify norms for a distribution of the benefits of access to genetic resources so as to achieve more equality as envisaged by the common property doctrine, even if genetic resources cannot be a global common good. And if we specify that a commons of genetic resources across national borders has to include duties and responsibilities, we might avoid an economic and ethical "tragedy of the commons."

In reality, the consequences of viewing genetic resource management against this backdrop are very demanding in terms of conceptual resources from different fields that have to be mobilized. Not the least, they give rise to considerations about new global institutional structures. Monique Chemillier-Gendreau, for example, eloquently described the conceptual and legal impasse that “thinking the commons” poses within the scope of current legal regimes:

[I]nternational law is built on a central norm, around which its whole normative body is articulated: the norm of the equality of sovereign states. Factually incorrect, this norm is nevertheless an insurmountable obstacle to the notion of a common heritage of humankind, which finds neither the instruments, nor rules sufficiently in line with reality, nor a hint of a solution to the problem of its holders and beneficiaries that it needs to blossom.³⁶

Since contractual social relations between sovereign states are not conditioned by higher international obligations, they tend to reinforce rather than mitigate existing inequalities of power. It is unclear if this problem must remain intractable, but there are some hints as to how we might try to conceive of new global forums for strategies and values in genetic resource management. In this context, it might be possible to revive in particular one of the criteria of implementing a legal regime of common heritage for genetic resources, though now as part of a normative mission: international management or rather governance institutions. These could be similar or extended versions of organizations like “The Global Institute for Justice in Innovation” recently proposed by Buchanan, Cole and Keohane. The purpose of this institution would be to promote the diffusion of important innovations through centrally directed compulsory licensing of intellectual property, multilateral accountability, and other means.³⁷ But we would also need a forum to discuss norms that should guide innovation policy in the first place to accommodate better the two demands of equity and (bio)cultural diversity. Rethinking genetic resources and biodiversity by means of an analysis of the limits and possibilities of the “commons” and their specific features as knowledge resources offers some benchmarks in this multidisciplinary endeavour.

Conclusion

Genetic resources and biodiversity provide an important case to clarify in particular the ethical consequences of the concept of a knowledge commons within a global context. The questions of if and how genetic resources can be common on a global scale are addressed by first acknowledging the conceptual nature of genetic resources as dual: they

have a material, biophysical component, but are mainly sought for because of their informational content. These features complement the ethical unease associated with their regulation through international treaties between national sovereignty, common heritage, and intellectual property rights.

Clearly, genetic resources in various forms are managed as common goods on a local scale in many parts of the world, but their regulation as globally managed and easily distributed and tradeable goods thanks to biotechnology and digital technologies poses new questions. The global commons view does not accommodate these special and contextual features. Genetic resources literally became resources because of new dimensions of knowledge management in a global network of research and innovation which depends on access to a good that encompasses biodiversity, single plants, germ-plasm, and genetic information including all its future research potential. This complexity and its ethical impact mean that it is time to consider more concretely the normative dimensions of the concept of the knowledge commons. If it is true that genetic resources epitomize the social dilemmas of “thinking the common” in a world of inequality and simultaneous dependence on knowledge-related economical development, then we have reason to conceptualize genetic resources as valuable goods. However, as the controversies on use and access to biotechnological products show, their value is not merely economic but is accompanied by culturally relative questions of naturalness and artificiality, of progress and conservation.

In this article, I maintained that two perspectives on ownership are central to advance responsible genetic resource management: insofar as genetic resources are knowledge resources for all (and increasingly so) we should try to keep them public; and insofar they are not *res nullius* but embedded in local practices, we must find institutional ways to address the power imbalance in defining aims and constraints on (biotechnological) innovation. This perspective on the knowledge commons outlined resonates also with Hess’ and Ostrom’s description of a “complex ecosystem,” but additionally tries to include innovation-theoretical and ethical concerns. Taking into account the values that informed the concept of a common heritage, we already possess the basic tools for a more normative informed vision of the knowledge commons genetic resources would be an essential part of. In this vision, genetic resource management is not only about ownership claims, but fundamentally involves duties and reciprocal norms. ■

¹ Charlotte Hess and Elinor Ostrom, "Introduction: An Overview of the Knowledge Commons," in *Understanding Knowledge as a Commons*, ed. Charlotte Hess and Elinor Ostrom (Cambridge, Mass.: MIT Press, 2006), 3.

² New "omics" technologies include genomics, proteomics, and metabolomics.

³ One of the main advocates of the bio-piracy discourse is Vandana Shiva. See for example Vandana Shiva, *Biopiracy: The Plunder of Nature and Knowledge* (Cambridge, MA: South End Press, 1997). For an overview of the ethical debate concerning biotechnology patents in Europe see Baruch A. Brody, "Intellectual Property and Biotechnology: The European Debate," *Kennedy Institute of Ethics Journal* 17, no.2, (2007): 69-110.

⁴ Pablo B. Eyzaguirre and Evan M. Dennis, "The Impacts of Collective Action and Property Rights on Plant Genetic Resources," *World Development* 35, no.9 (2007): 1490.

⁵ Melodie Nöthling Slabbert and Micheal Pepper, "A room of our own? Legal lacunae regarding genomic sovereignty in South Africa," *Journal of Contemporary Roman-Dutch Law* 73 (2010): 434.

⁶ Paul Gepts, "Who Owns Biodiversity, and How Should the Owners Be Compensated?" *Plant Physiology* 134 (2004): 1295.

⁷ Hess and Ostrom, "Knowledge Commons," 5.

⁸ Ibid.

⁹ See Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge: Cambridge University Press, 1990), 90-102.

¹⁰ Stephen B. Brush, "Protecting Traditional Agricultural Knowledge," *Washington University Journal of Law and Policy* 17 (2005): 72.

¹¹ Garrett Hardin, "The Tragedy of the Commons," *Science* 162, no. 3859 (1968): 1243-1248.

¹² Brush, "Agricultural Knowledge," 65.

¹³ See Kemal Baslar, *The Concept of the Common Heritage of Mankind in International Law* (The Hague: Martinus Nijhoff, 1998).

¹⁴ Commission for Genetic Resources for Food and Agriculture (FAO), "International Undertaking on Plant Genetic Resources," <http://www.fao.org/ag/CGRFA/iu.htm> (accessed October 13, 2011).

¹⁵ Baruch Brody, "Intellectual Property, State Sovereignty, and Biotechnology," *Kennedy Institute of Ethics Journal* 20, no.1 (2010): 55-56.

¹⁶ FAO, "International Undertaking."

¹⁷ Ibid.

¹⁸ United Nations, Convention on Biological Diversity (CBD), <http://www.cbd.int/convention/text/> (accessed October 12, 2011).

¹⁹ Brody, "Intellectual Property," 65-66.

²⁰ In addition to the CBD see *Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits* (2002), <http://www.cbd.int/abs/bonn/> (accessed October 12, 2011).

²¹ FAO, International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), <http://www.planttreaty.org/content/texts-treaty-official-versions> (accessed October 12, 2011).

²² WTO, Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), <http://www.wto.org/english/tratop-e/trips-e/t-agm-e.htm> (accessed October 12, 2011). Particularly article 27, "Patentable Subject Matter," is subject to ongoing debates.

²³ Doris Schroeder and Thomas Pogge, "Justice and the Convention on Biological Diversity," *Ethics and International Affairs* 23, no.3 (2009): 267-280.

²⁴ For a discussion of the neem tree case and its deployment in the bio-piracy discourse see Chris Hamilton, "Biodiversity, Biopiracy and Benefits: What Allegations of Biopiracy Tell us About Intellectual Property," *Developing World Bioethics* 6, no.3 (2006): 158-173. For the implications of viewing the Merck case as an instance of bio-prospecting or bio-piracy see Brody, "Intellectual Property," 59-61, and Schroeder and Pogge, "Biological Diversity," 269-270.

²⁵ For an argument as to the latter claim see James Wilson, "Could There Be a Right to Own Intellectual Property?" *Law and Philosophy* 28 (2009): 393-427.

²⁶ Brush, "Agricultural Knowledge," 84.

²⁷ Eyzaguirre and Dennis, "Plant Genetic Resources," 1490.

²⁸ Nöthling Slabbert and Pepper, "A room of our own?," 435-436.

²⁹ Brush, "Agricultural Knowledge," 69.

³⁰ Schroeder and Pogge, "Biological Diversity," 268-269.

³¹ *Ibid.*, 278.

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Overcoming Issues of Exploitation in Integrating Indigenous Knowledge with Western Science through Implementation of a Participatory Model

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ABSTRACT

Exploitation has long been a major issue in the discussion of integrating indigenous knowledge with Western science for drug innovation. However, whilst discussions focus on the negative impact the relationship has on indigenous communities, they have failed to suggest a practical step forward in resolving the conflict. Furthermore, given that drug innovation is declining,¹ there is pressure to find ways of integrating the two knowledge systems. This paper aims to present an option for such reconciliation by presenting a model based on participation. By drawing on the role of participation in both development and innovation discourses, the model identifies a pathway which represents the interests of both indigenous communities and firms involved in drug innovation. India is used as a case study to exemplify ways in which participation has been implemented on various levels in current medical strategies. Not only does India provide an illustration of how participation can work, but it also identifies potential pitfalls in the practical application of this type of model.

Introduction

Indigenous knowledge (IK) can be defined as the knowledge that is generated and maintained by indigenous communities, cultures, and societies.² Knowledge of this nature is central to the workings of local communities and is embedded in the institutions that govern them.³ Ethnographic studies initially fuelled the recognition of a diversity of IK systems; however, IK did not appear in the international development discourse until the late 1970s.⁴ In contrast, the drug industry has shown a long-running appreciation for IK with the extraction of natu-

ral products and investigations into the scientific proof of traditional folklore providing a foundation for drug discovery in the eighteenth century.⁵ This is a trend that continues to this day with current estimates showing that plant-derived medicines represent 25 per cent of all drugs prescribed.⁶ Despite this repeated interaction between indigenous and Western forms of knowledge, the relationship is commonly associated with issues of exploitation of the proprietors of IK through appropriation and wrongful ownership of their accumulated knowledge. It is this criticism, of the interaction of these two forms of knowledge, which presents a problem for maintenance of the knowledge commons.

The argument of wrongful ownership of IK centres on intellectual property rights (IPR) and has been discussed for almost a century.⁷ This controversy stems from the tension arising between: i) the interests of the commercial industrialized world, manifesting in the implementation of IPR to protect knowledge, thereby incentivising innovation, and ii) the interests of the proprietors of IK who reap relatively small rewards from the appropriation of their ancestral knowledge. With this long-running debate generally providing the foundation for discussions surrounding the interaction between Western science (ws) and IK, it is difficult to imagine a process through which this can be resolved. For instance, one potential avenue suggested, the possibility of reconceptualizing the IPR system, has been answered with claims that this would not overcome the conceptual shift of IK from a public to private space.⁸ In response to these issues this paper will attempt to incorporate literature from the sociology of science, development studies, and innovation studies to move towards a new approach emphasizing the participation of both local communities and private enterprises in the drug discovery and development process and local development schemes.

Due to the aforementioned long-running debate in the literature concerning the combining of IK with ws, it is the assertion of this paper that a new perspective is necessary. This relies on the assumption that practices that combine IK with ws are not preventable and will continue to take place. It is therefore necessary to explore ways in which the exploitation of local people can be minimized. Furthermore, it has to be conceded that both development and innovation discourses acknowledge the importance of recognizing a diversity of sources of knowledge in order to implement transdisciplinary strategies.⁹

This paper will begin by constructing a theoretical framework, drawing from streams of development and innovation studies, which demonstrates the common emphasis on participation as a beneficial tool. These disciplines will also be situated within a broader sociology of science discourse. Using this theoretical framework I will then use the case

Theoretical Framework

The following theoretical framework will attempt to explore the role of participation in different disciplinary contexts. This will illustrate how a model based on participation could help overcome issues of exploitation commonly associated with the activities of therapeutics firms to appropriate knowledge regarding biodiversity. The sociology of science provides a theoretical background for the discussion of scientific and technological knowledge as social constructs. The development studies discourse will then be used to explore the potential benefits to local people through their involvement in the medical innovation process, drawing on knowledge management to demonstrate the benefits of this participation to organizations in which medical innovation is situated. The argument will begin by justifying the position of IK in relation to WS through an exploration of the epistemological similarities between them. This will provide a foundation on which theories of scientific and technological knowledge will be built in later discussions. The first theory of this kind explores the pathways in which science and technology can be applied to development, arguing that participation of IK is necessary to satisfy these multiple pathways. The discussion will then move on to explore the components of knowledge, which will highlight the importance of participation in terms of knowledge transfer. This will provide evidence to assess another contentious issue, the digitization of IK. The concluding section of the theoretical framework will demonstrate how models of participation can more directly combat exploitation via social capital and trust building.

Foundations—Sociology of Science

Common discussion in early development discourse, from the 1950s to the early 1980s, addressed the differences between IK and WS and the relative inferiority of IK.¹⁰ At this time IK was conceptualized to be dependent on intuition and cultural specificity.¹¹ Recent claims echo such distinctions, situating IK as “tacit, intuitive, experiential [,and] informal.”¹² However, despite these enduring assumptions, there has also been an equally established argument for the reverse. For instance, one scholar argues that, due to the lack of consensus on how to define “scientific,” separate from “non-scientific” knowledge, maintaining the distinction between WS and IK, which involves the exclusion of the latter, is impractical.¹³

A further argument against the distinction between WS and IK focuses on the context in which the two types of knowledge are situated. WS is generally associated with being objective and existing in an autonomous vacuum detached from the culture and society in which it is produced. Traditionally this construct of WS forms the basis for its separation from IK, a culturally-embedded form of knowledge. However, popular discourse from the sociology of science emphasizes the influence social and political constructs have on the production of WS. A large proportion of this “social constructivist” literature is centred on the work of Bruno Latour, who maintains that natural forms, including scientific discovery, are products of the interactions that exist between actors.¹⁴ This literature extends to the argument that due to the inherent influence of social and political factors in the production of knowledge, the involvement of interested stakeholders is critical for the legitimizing of science.¹⁵ The apparent embedded nature of WS is reminiscent of the claims regarding the form of IK, thereby supporting their similarities.

This argument is used specifically to bolster the argument for benefit sharing which, based on the UN Convention of Biological Diversity in 1992, represents the current criteria for agreements through which IK is appropriated by private companies.¹⁶ This essay will take the argument for benefit sharing further, by specifying terms of such agreements that would lead to enhanced advantages for each party through the participation of indigenous communities in the research developed from their IK.

In conclusion this essay suggests that, despite the obvious differences in terms of power relations, the above arguments illustrate how current epistemological assumptions on both WS and IK show distinct convergence.¹⁷ This justifies IK as a valuable knowledge source to be used in parallel with other science and technology strategies.

Development Pathways

Science and technology have recently been acknowledged as integral to the development process.¹⁸ However, the literature suggests that the strategies for the application of science and technology should not be limited to direct engagement with global development strategies for growth and development. Leach and Scoones discuss three pathways that are perceived to link science and technology with development.¹⁹ The first two pathways outline the traditional view that scientific and technological innovations are associated with economic growth and poverty reduction strategies.²⁰ The third, “the slow race to citizens’ solutions” demonstrates a less mentioned but equally important application which

addresses local-level problems by utilizing bottom-up and participatory models.²¹ By applying this development pathways framework to medical innovation, strategies for combining IK with WS could work towards satisfying aspects of all three pathways. Firstly, medical innovation can help to build capacity in developing countries, in addition to the utilization of natural resources, contributing towards economic growth. Furthermore, through the involvement of local people, the innovation process can focus on providing technologies that are relevant to a range of people in terms of cost, availability, administration, delivery, and access through participation and the proximity of local people to the process. So far this theoretical framework has focused on the similarities between IK and WS. By drawing on the pathways to development discourse, this paper has demonstrated the important role of participation in exploring applications of science and technology to development. Building on that analysis, knowledge management discourse can also be used to justify participation given its ability to increase the speed of innovation.

Tacit Knowledge

The literature highlighting the emerging knowledge economy has begun to show an appreciation for the idea that knowledge is key to competitive advantage.²² This increased interest in the production, transfer, and utilization of knowledge has instigated a return to discussions over the nature of knowledge. As Polanyi indicated in 1967, common consensus now acknowledges that there are two dimensions that compose knowledge.²³ “Know that” is the more straightforward of the two and relates to the knowledge that can be transferred through codification. “Know how,” or tacit knowledge, relates to the context and practices in which the knowledge is situated and is therefore harder to codify.²⁴ It has been suggested that in order to sufficiently transfer elements of explicit knowledge, it is first necessary to share an element of tacit, practice-based knowledge.²⁵ Strategies to overcome the issues of transferring this tacit component of knowledge draw on the close interaction between individuals to facilitate the transfer of knowledge.²⁶ Discussion surrounding the ethnographic method of participant observation also draws on this theory, acknowledging that by understanding both the tacit and explicit elements of knowledge, a deeper understanding of the context in which it is created can be gained.²⁷ Therefore, because tacit knowledge can be shared through interaction and participation, a participatory model can potentially be used to help overcome the problem of verbal promises that are not seen through by pledged action.²⁸

As discussed earlier, traditional perceptions of IK emphasized its tacit nature. The aim of this paper is not to contest this, but to build on the knowledge management discourse with respect to the epistemological convergence of the two types of knowledge, specifically wherein ws has begun to be appreciated for its tacit composition. In addressing the challenges associated with integrating IK and ws, the importance of thoroughly understanding the context in which IK is produced has already been highlighted.²⁹ The knowledge management literature can also have applications by drawing on the lessons learnt from the similar situation of licensing agreements in commercial settings. Discussions surrounding these types of agreements have emphasized that neglecting the tacit component of knowledge leads to inefficiencies in the knowledge transfer process.³⁰ This application of the literature suggests that through the participation of the proprietors of IK and ws, the knowledge gained would be more relevant than the information gathered in traditional agreements due to the ability for the tacit component of the knowledge to be transferred.³¹

Combination therapies are playing an increasingly important role in medical innovation, most famously for the treatment and prevention of malaria.³² It is in this respect that the tacit and contextual elements of IK are seen to become relevant, characteristics which have previously been disregarded in agreements between private firms and the proprietors of IK. Further, tacit knowledge relevant to the medical innovation process, that may not be transferred in the absence of participation of the proprietors of IK, include knowledge regarding administration, diagnosis, and dosage practices.³³ The knowledge gained through close interaction between individuals helps support the use of a participatory model in its ability to overcome the issues associated with integrated IK with ws for the purpose of medical innovation.

Further exploration of the transfer of tacit knowledge through a participatory model facilitates an argument against another contentious issue regarding the exploitation of IK, namely its digitization. The digitization of IK involves the documentation of knowledge that has previously been limited to oral histories. Digitization strategies have been suggested to overcome issues of wrongful ownership of knowledge by firms seeking patent protection. This is facilitated by proving that the knowledge is not novel, thereby inhibiting patents being filed, according to the legislation set out by the World Trade Organization.³⁴ This issue has been brought into debate with respect to many criticisms, including: issues of tribal secrecy, traditions of oral transmission, shifts in power/control relations, and disregard for the complexities of IK through removal from its cultural context.³⁵ It is the purpose of this

paper, based on the importance of the tacit dimension of knowledge to argue that the participation and involvement of the proprietors of IK could attempt to overcome these issues.

Trust-Building

This theoretical framework has attempted to draw on a diverse disciplinary basis to emphasize a universal importance of participation in combating the issues of exploitation that arise through combining IK with WS. The role of participation in overcoming the issues of exploitation can be further supported by a discussion of trust building. This section will demonstrate that by building relationships of trust between actors, participation can attempt to overcome exploitation of indigenous people. The knowledge management literature will, again, provide a framework in this section and will draw on the common problem of the tension between co-operation and competition between individuals and firms who are participating in the same network. In the literature this conflict is suggested to be overcome through the application of social capital. Discussions about social capital began in community studies, when the term was defined as the benefits to close communities which arise through the frequency of personal interactions between individuals.³⁶ In knowledge management the term has been applied to the ability of organizations to play an active role in networks. Networks are an important resource for organizations and, when based on high levels of social capital, developed through communication, and interactions with others, can help to overcome issues associated with competition from the other organizations in the network: "trust lubricates cooperation, and cooperation itself breeds trust."³⁷ By applying this theory to the suggested participatory model, it can be concluded that through close interactions, actors in the network can build relationships based on trust, and therefore take a step towards overcoming exploitation.

This theoretical framework has aimed to provide a basis for discussing the combination of IK and WS for medical innovation through participation of the actors involved. The importance of participation to overcoming exploitative relationships has been supported by theories situated in development and innovation studies. The former has allowed us to recognize the similarities between IK and WS in terms of converging ideas of the nature of the knowledge involved. It has also led to a discussion on the role of participation in development pathways, wherein if drug innovation is conceptualized as a development pathway then the engagement of local people and the involvement of IK represents a method of using science and technology on a local level. Participation was also found to be

significant in the knowledge management theories embedded in innovation studies. Here it was discussed that tacit knowledge is undervalued in current agreements that integrate WS with IK, and by providing a platform for involvement of different actors, knowledge can be transferred and applied more effectively. Furthermore, by considering this tacit element of knowledge, an argument in support of digitization efforts can be presented. This section concluded by looking to social capital as an explanation for using participation to overcome exploitative relationships in the use of IK in medical innovation. The following section of this paper will analyse the implementation of participatory strategies in India.

Case Study—India

As a case study, India presents a unique opportunity to envisage how IK and WS can work together to meet development goals. As we have seen so far, not only can this process empower local communities, but it can also contribute to economic growth through the development of a sustainable medical industry. India makes an interesting case for two main reasons: i) it has an established pharmaceutical industry based on a history of developing generic drugs, and ii) it has a strong tradition of IK, both in terms of widespread “great traditions” but also in smaller local knowledge systems.³⁸ Furthermore, not only does the Indian government value the development of industries based on science and technology and place it at the forefront of their policy agenda,³⁹ it also recognizes IK as an important tool in this process.⁴⁰

This case study will attempt to assess the extent to which India is implementing a participatory model in their strategy to combine IK with WS for medical innovation. The analysis will look at the great tradition, Ayurveda, and also more local systems of IK. The discussion of Ayurveda will begin by looking at the characteristics of the IK, in terms of the system that has evolved, and its recognition as a health system both nationally and internationally. I will then go on to discuss the significance of the digitization process as a national strategy. Finally, I will highlight the networks that have built up around Ayurveda and how this has highlighted an important process of reverse pharmacology, from which lessons can be applied to other IK cases around the world. The following discussion, concentrating on local practices of IK will explore more detailed examples of initiatives implemented in an attempt to overcome exploitation. From this, I will attempt to provide further justification for a bottom up approach, as well as demonstrate trust building activities and people centred development strategies.

As mentioned briefly above, the Ayurvedic medical system, one of the oldest in the world, is comparable to Chinese medicine in its acceptance, use, and international recognition. The values associated with Ayurveda are broadly demonstrated by exploring the morphology of the word; Ayu means “life” and Veda means “knowledge” in Sanskrit.⁴¹ In India the Ayurvedic tradition is practiced alongside Western medicine and is an important contributor to providing healthcare for the population.⁴² Its central role in Indian healthcare is further demonstrated by the numerous training and research institutes responsible for producing 400,000–500,000 practitioners in the Ayurvedic traditions throughout India.⁴³ In terms of the spread of this tradition outside India, it is also fast it is also quickly becoming internationally recognized, with a research centre reportedly being established in the United States.⁴⁴ In the context of this paper, despite suggested differences between the “big” and “small” traditions, the case of Ayurveda provides an example in which IK has received both national and international recognition and respect.

One of the platforms for discussing the combination of Ayurveda and ws-based medical innovation practices in India is built on the digitization efforts of the Traditional Knowledge Digital Library (TKDL). The TKDL was set up as a collaboration between the Council for Scientific and Industrial Research (CSIR) and the Department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy (AYUSH).⁴⁵ The initiative aims to translate and codify the Ayurveda practices from the original Sanskrit texts into five international languages, English, German, French, Japanese and Spanish to enable recognition by international patent offices.⁴⁶ Despite the contention surrounding the digitization of IK, as discussed above, the motivation for the TKDL was to prevent the ownership of these knowledge systems through patent protection. This initiative stemmed from several costly legal battles fought by the Indian government, opposing patents on traditional remedies such as turmeric, neem, and basmati rice.⁴⁷

India's philosophy on the incentives provided by patent protection is exemplified in a recent interview with the director of the CSIR. In this interview Dr Brahmachari presents India as a country in full support of the open source innovation model, which disregards the need for patent protection as a strategy for reducing costs of drugs for diseases affecting small markets.⁴⁸ In line with this strategy, it has recently been reported that the TKDL will be made more public, particularly in areas such as tuberculosis, cholera, and malaria.⁴⁹ This ideology provides further justification for the TKDL, particularly in addressing the diseases of

poor populations. The theoretical framework led to a conclusion that despite the problems associated with digitization, due to the tacit nature of knowledge, the context, cultural heritage, and complex structure would be maintained through the participation of local communities in the use of their IK, even in the presence of the documentation strategies, on a value-adding basis. Furthermore, participation of the proprietors of IK would be a pre-requisite for the dissemination of this knowledge. The TKDL strategy allows for the participation of different actors by creating a team of experts in IK alongside patent examiners, IT experts, scientists, and technical officers, thereby working towards a potential solution to the obstacles associated with digitization.⁵⁰

From the theoretical framework, it has been concluded that participation is also important in the innovation process itself; the involvement of proprietors of IK is shown to be an important strategy for combining WS with IK. In this respect, the Ayurvedic tradition has allowed theorists the opportunity to better understand the importance of this involvement through a strategy called “reverse pharmacology.”⁵¹ Reverse pharmacology relies on the idea that medicinal IK has been developed and practised on humans over hundreds of years.⁵² Reverse pharmacology thus claims to overcome a major hurdle of the innovation process by reversing the typical strategy for medical innovation, which progresses from laboratory to clinic, by instead moving from clinic to laboratory.⁵³ Here it has been acknowledged by regulatory bodies such as the US Food and Drug Administration (FDA) that large bodies of human anecdotal data can substitute the requirement for animal studies in an investigative new drug (IND) application.⁵⁴ This highlights the importance of participation during the integration of WS with IK due to the requirement of the tacit knowledge of indigenous communities to be used in the drug registration process. Furthermore, this acknowledgement may prove an important step forward in reducing time and costs associated with medical innovation.⁵⁵

By defining reverse pharmacology as a method of achieving these benefits, the importance of integrating IK medical practitioners with WS researchers for the purposes of medical innovation also becomes apparent:

a rigorous scientific approach of integrating documented clinical experiences and experiential observations into leads by transdisciplinary exploratory studies and further developing these into drug candidates or formulations through robust pre-clinical and clinical research.⁵⁶

The general ideology supporting the reverse pharmacology model is applicable in other countries and to other systems of IK. The implementation of reverse pharmacology, therefore achieves several things by i) acknowledging IK systems in regulatory frameworks, ii) encouraging the

involvement and participation of practitioners of IK, and iii) implying a role for networks in this process.

The networks constructed around IK in India, and in particular around the application of Ayurveda, provide a platform to facilitate the combination of IK and WS in line with strategies for minimizing exploitation. One of the most prominent of these efforts in India is the New Millennium Indian Technology Leadership Initiative (NMITLI), which was set up by the CSIR in 2000 under the Public-Private Partnership model.⁵⁷ The NMITLI is a network of sixteen Indian research institutions, hospitals, and pharmaceutical firms, that facilitates national level consultations with Ayurvedic physicians and scholars.⁵⁸ Through this structure there seems to be an obvious appreciation for the importance of the contextual and, sometimes, tacit knowledge that can only be contributed by practitioners of IK. However, despite the advantages this entails for the initiative, it has been criticized for a lack of involvement from industrial partners, which has been suggested as a reason for its limited success.⁵⁹ This critique illustrates that the combination of IK with WS cannot only be achieved through public initiatives but requires the presence of diverse knowledge sources.

An assessment of the strategies for combining Ayurveda with WS in India has acknowledged the importance of participation on a national scale. However, due to the nature of national institutions already established around Ayurveda, with the exception of the reverse pharmacology method, this case presents limited usefulness when applying the lessons learnt to local IK systems. Therefore, in addition to the national level approach, it is also necessary to represent more localized traditions of IK in our discussion of India. The following two examples will illustrate the different outcomes observed when implementing bottom-up and top-down models of participation.

Jeevani

Jeevani is a drug which originated from IK of the Kani “tribes-people” in Kerala.⁶⁰ It came from a plant which researchers from the Tropical Botanical Garden and Research Institute observed had energizing effects on their local guides during an expedition. After much negotiation with one of the Kani tribes, permission was given for the researchers to use the plant for laboratory testing. Upon examination, however, no effect was found and the researchers returned to the tribe who advised that the effect was produced by a different part of the plant.⁶¹ This simple narrative of the use of IK exemplifies the time wasted by not actively involving the proprietors of IK in the research process from the beginning.

Once the researchers had identified the active ingredient and developed a marketable drug from the plant, they made a benefit-sharing agreement with the Kani community that had provided the IK.⁶² This is hailed as an exemplary case of benefit-sharing, despite it preceding the international Convention on Biological Diversity (CBD). However, critics have pointed out several problems with this process.⁶³ These problems demonstrate the importance of participation in all aspects of the medical innovation process, including any licensing and/or manufacturing agreements, in order to avoid exploitation. In this case contention was raised in the agreement made between the TBGRI and the company responsible for manufacturing the product.⁶⁴ In the contract there was no mention of the entitlement of 50 per cent of the proceeds for the Kani community, as the TBGRI had promised. Furthermore, concerns were raised over the low fees negotiated by the TBGRI, and it has since been claimed that the product was undervalued. Further discrepancies arose when other local Kani tribes laid claim to the same IK, and criticized the process for excluding them from the negotiations.⁶⁵ This final point raises further complexities for participatory models of combining IK with WS, as it highlights the requirement for all communities involved in a particular IK to participate. Furthermore, this raises questions about how researchers gain access to the information regarding the users and producers of certain types of knowledge. One suggestion may be to implement and encourage bottom-up strategies for bioprospecting, wherein local communities participate in agreements only on their own initiative and therefore, presumably, on their terms. One such case is presented below.

Gram Mooligai Limited Company

The Gram Mooligai Limited Company (GMLC) is a community-based enterprise set up by a group of local people in Tamil Nadu. The activities of the organization not only include the gathering of medicinal plants but also, and most significantly for the purposes of this paper, the production and marketing of “phytomedicine based on ethnomedical knowledge.”⁶⁶ The organization arose from the influence of NGOs in the region, whose motivation was to conserve medicinal IK. The NGOs aimed to facilitate this through the documentation of IK and local capacity building. The objectives of these initiatives reinforce the discussion of development pathways, wherein participation, in this context, aims to empower local people by giving them ownership of their IK, thus facilitating people-centred development.⁶⁷

Furthermore, the GMLC, owned by the medical plant gatherer and cultivator groups, maintains close ties with the village network, thereby

adding an extra layer of actors involved in the process. In terms of the nature of participation, scientists from the NGOs are said to be involved in interacting with folk healers, a relationship which could be perceived as facilitating connections to external networks. The authors describe this relationship between the scientists and the community as one that is based on trust.⁶⁸ This further confirms that close interaction and participation can lead to trust between actors, a point highlighted in the theoretical framework. Despite encouraging reports, potential pitfalls in a model based on participation can also be identified. Here, the authors argue that digitization risks making IK unrecognizable by stripping of it of essential information. For example, folk healers use methods such as smell and taste to imply the efficacy of medicines, which the NGOs are reportedly attempting to codify in their documentation strategy; but this will likely prove challenging. This raises important issues of power relations, wherein the digitization of these practices implies some degree of imposed control by third parties.⁶⁹ This emphasizes the idea that local people should have a voice in these activities and therefore be empowered to speak out about the potential harm of a process that attempts to document tacit knowledge. Despite the problems with digitization of IK in this case, it still provides insights into the ways in which participation can foster a more equitable and less exploitative model for combining IK with ws.

Conclusion

The body of this paper has been concerned with supporting a model that combines IK with ws for medical innovation by prioritizing the participation of all relevant actors. The discussion began by identifying the similarities of IK and ws by illustrating their convergent epistemologies. Evidence for the importance of IK in addition to ws is most noticeable in the case of Ayurveda in India, which has seen increased domestic popularity and internationalization. The implementation of reverse pharmacology, a method which can be applied to the use of IK in medical innovation more generally, also provides an avenue for recognizing IK as equally important to ws in medical innovation. Such recognition heightens respect for IK by the global community, thus reducing exploitation. The discussion then turned to demonstrating the benefits of participation to local communities by exploring the different development pathways which could be satisfied. This was also illustrated in the case study, which showed that the NGOs involved in establishing the GMLC were primarily concerned with empowering a people-centred approach to development.

The theoretical framework then began to draw on strategies from knowledge management to recognize the importance of the tacit dimension of knowledge. It was acknowledged that the complexities of transferring this dimension of knowledge could, in part, be overcome by recognizing the role of participation. All three strands of the case study have demonstrated this aspect of the argument. The Ayurveda section demonstrated a reliance on participation in reverse pharmacology innovation strategies; the Jeevani case illustrated the problems associated with traditional bioprospecting agreements; and the GMLC case exemplified the issues associated with attempting to digitize certain types of knowledge, for example its tacit element. However, in response to this last point, a bottom-up approach, such as a participatory model, would allow this tacit knowledge to be utilized and shared under the terms of the communities involved.

Finally, we can close the conceptual loop by directly linking participation with trust-building and the implied effect that this has on exploitation. Here the knowledge management discourse demonstrated that networks overcome competition conflict through the development of social capital. It was further suggested that a similar dynamic may be applied to the case of combining IK with WS, whereby social capital, and therefore trust, could work both ways and decrease the chance of exploitation. This was confirmed most saliently in the case of GMLC, where trust was found to be built through interaction and participation with the scientists from the NGOs. Further evidence came from the Indian NMITLI, which included practitioners of Ayurveda in the innovation process.

Having analyzed a participatory model for combining IK with WS for medical innovation, I can conclude that despite the obstacles, genuine participation could provide an avenue to move away from issues of exploitation. Furthermore, it has highlighted that the bottom-up element of participation is an important factor, allowing the communities who possess the IK to be actively involved, take ownership of their knowledge, and drive their own pathway to development. This conclusion is also relevant to the argument that knowledge is socially constructed because participation is central to the production of knowledge, given that it is embedded in social and political context. Throughout the discussion, this paper has attempted to illustrate that, in addition to the situation in India, a model for participation can be implemented in other countries, where the exploitation of IK is too often and too easily the means to economic rewards for global pharmaceutical companies. ■

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Statistics of Identity: Representation of Minority Groups in the Population Census

NITZAN PERI-ROTEM

ABSTRACT

The question of minorities' representation in national statistics has gained an important place in the public agenda of Western countries today. In recent decades, different minority groups have expressed interest in being represented in population censuses for purposes of advocacy and for enhancing social recognition. Identity categories defined by a census become a form of common knowledge that shapes public policy and social relations. The introduction of new questions on ethnicity and religion in the British census during the past twenty years and the ongoing debate on the cultural categories that are used in the census make it an interesting case-study for the conflict around the public identification of different social groups. This paper follows the trends in the representation and categorization of minorities in the population census, and the underlying processes that led to these changes.

The national census is the ultimate arena where knowledge and power interact. The information that is collected in a census is used by the government and local authorities when planning future policies, and in making decisions on how to distribute public resources.¹

According to Michel Foucault, the rise of the governmental state was linked to the gathering of national statistics, that is, the collection of "knowledge of the state" in all its aspects and dimensions, which enables the central government to extend its control over the population.² However, the census can also be seen as a knowledge commons, since it is a public data resource that is collected from the entire population and its artefacts can be used by all citizens for different purposes. In addition, similar to other forms of knowledge, the census has strong ties to the surrounding society and is affected by its rules and norms.³ Thus, the population census is more than simply a statistical tool for counting individuals within a given territory; rather, its structure and content are shaped by

political and social forces, which vary among different cultures and over time. Therefore, the census both reflects and influences social reality.⁴

The British population census has seen significant changes in the past two decades in terms of data collection on different social groups: in 1991 a question on ethnicity was introduced for the first time and a decade later, a question on religion was added to the 2001 census in England and Wales, after being absent for 150 years.⁵ The social and political processes that have led to these developments will be discussed in the following sections, as well as the ongoing debate on identifying minority groups in the census. Additionally, the case of France, where similar changes in its population census are being considered, will also be discussed.

The beginnings of the idea of a national census date back to the eighteenth century, as several countries in Scandinavia started to collect statistical population data.⁶ However, the first “modern” national population census, with regular periodic enumeration of individuals, took place in the United States in 1790, with the commencement of the decennial census. By the end of the nineteenth century, most Western countries were carrying out a national census, which became a defining feature of the modern state.⁷

In the United Kingdom, the population census began in 1801. The first four censuses strictly provided counts of the population, and it was only later that the census recorded data on individuals.⁸ Since 1851, questions on place of birth and nationality were asked in the census, though there was no direct question on race or ethnicity.⁹

After the Second World War, following the experience of fascism and the Holocaust, the overt expression of racism was no longer politically acceptable and a conscious effort was made in the West to remove it from the political agenda. In Britain, three *Race Relations Acts* were introduced in 1965, 1968, and 1976, outlawing racial discrimination. However, it was argued that the change was mainly on the discourse level, while in practice, racial inequality persisted.¹⁰ Following the new legislation, the government instructed census officials to create new categories to include the groups targeted by the *Race Relations Acts* in order to obtain statistical information on a variety of social indicators, such as family structure, housing, employment and education.¹¹

The debate on whether or not to introduce a question on “ethnicity” in the UK census therefore emerged during the 1970s. At that time the Commission for Racial Equality (CRE) was leading a campaign in favour of an ethnic question, while other groups, including anti-racist campaigners, were against it.¹²

The main argument of those in favour of the ethnic question was that reliable information on ethnic groups is essential to identifying dis-

crimination and promoting social equality. Additionally, data on minority groups enable local authorities to apply for specified funding and services. On the other hand, the opponents of the question raised concerns that the data would be used for immigration control and repatriation purposes, and thus, the question would lead to policies against foreigners rather than in their support.¹³ Moreover, they argued that population statistics of race and ethnic origin had been misused in the past, as in the case of Nazi Germany for the systematic persecution of Jewish people and other groups.¹⁴

The 1981 census in Britain was planned to include a question on ethnicity. However, after nearly a third of black and Asian respondents expressed their objection to the question in the census pilot tests,¹⁵ it was rejected on the grounds of being “too sensitive to ensure a good response.”¹⁶ Thus, it was only with the census of 1991 that the ethnic question was introduced, following several modifications that were decided through a consultative process with representatives of the ethnic groups.¹⁷

According to Ahmad, the process of formulating a satisfactory question on ethnicity resulted in “an amalgam of categories based on colour ... notions of national background ... and geographical origin.”¹⁸ Thus, respondents were asked to categorize themselves as one of the following: White, Black Caribbean, Black African, Indian, Pakistani, Bangladeshi, Chinese, Other Asian or Other.

Although the question was generally accepted, it was criticized for failing to conceptualize existing ethnic categories and for presenting “white” as a homogenous group. Therefore, it was subsequently revised in the 2001 census to reflect a wider variety of options, including mixed races, and the white category was subdivided into “British,” “Irish” and “Any other White background.” In the 2011 census, the question was further revised, increasing the number of possible racial and ethnic classifications.¹⁹

A decade after the introduction of the ethnic question, an additional voluntary question on religion appeared in the census of England and Wales for the first time since 1851.²⁰ The process of adding the religion question was somewhat similar to the inclusion of the ethnic question, since in both cases there was a vigorous debate on the advantages and disadvantages of these questions and the wording that should be used.²¹

Since the religion question was removed in the mid-nineteenth century—due to claims of inaccuracy and arguments over the nature of the question—there have been several attempts to reintroduce it by members of the census advisory board and by Christian organizations, such as the Bible Society. These attempts were unsuccessful, partly due to lack of support from senior church leaders. However, prior to the 2001 cen-

sus, there was an unprecedented number of requests for questions of a cultural dimension, including a request for a question on religion from various religious associations, such as the Muslim Council of Britain and the Board of Deputies of British Jews.²²

Interestingly, the demand for the inclusion of both the ethnic and the religion questions in the census was heavily promoted by representatives of the ethnic and religious groups rather than the central government.²³ In the case of the religion question, some sections of the Muslim community²⁴ particularly stressed the importance of having a distinct category of religion, since it is a primary marker of their identity and is thus much more meaningful to them than being simply categorized as "Asian."²⁵

It should be noted, however, that the ethnic and religious organizations which pressed for their inclusion in the census did not necessarily represent the views of members of these groups, as the addition of the religion question was not universally accepted.²⁶ The arguments against it were reminiscent of those made in the debate over the ethnicity question, including concerns for the possible misuse of the data and the increased exposure to discrimination as a result of being identified with a specific minority group. Moreover, some have argued that religion is essentially a private matter, into which the state should not intrude.²⁷

Eventually, it was decided that the question on religion would be voluntary, and the final version that appeared in the 2001 census asked "What is your religion?" with the possible options: None, Christian, Buddhist, Hindu, Jewish, Muslim, Sikh, and any other religion (in that order).²⁸ However, as will be discussed in the following section, the public debate on the religion question in the census has yet to be resolved.

The inclusion of new ethnic and religious categories in the British census raises some questions regarding issues of identity and the relationship between majority and minority groups. More specifically, the purpose here is to follow the processes that led to the change in religious and ethnic representation in the census and to better understand why questions that were once considered to be too sensitive are not only acceptable today but are also requested by some segments of society.

The explanations for these phenomena may be related to various developments, both in the global and the local spheres. According to Vincent Cable, processes of globalization and modernization are responsible for bringing cultural issues, such as religion, ethnicity, and language, into the forefront of political agenda.²⁹ The efficient spread of information and ideas through global communications systems, global capital markets, and the continuous migration from poor to richer countries may pose a threat to cultural identity both for the majority group in a

changing social and demographic landscape and for minority groups who may face dangers of exclusion or forced cultural assimilation, producing a demand for minority self-definition.

This analysis sheds some light on the reasons for the increased interest by members of both minority and majority groups in the collection of data on people's religious and ethnic background. On the one hand, this kind of data may be used to promote progressive change for minority groups; on the other hand, it can be misused to propagate fears about the erosion of the "British character."³⁰

According to Fordham and Ogbu, minorities which experience discrimination in economic, political, and social domains, as well as facing obstacles to assimilation, may develop a sense of collective identity and a cultural reference in opposition to the social identity of the majority group.³¹ In this regard, the ethnic and religious categorization in the census may function to increase social recognition for minority groups as well as a means for gaining political power. As Jacqueline Urla argues, the census plays a vital role in determining the political representation of minority groups:

Minorities understand that in the current political economy of knowledge, numbers function as authoritative "facts". They have responded in some cases by attempting to deploy those modes of techno-representation to serve their own purposes: to make themselves visible, to make claims upon the state, and to describe who they are to themselves and to society.³²

The importance of statistics in gaining social power is also emphasized by Kertzer and Arel, who contend that:

identity politics is a numbers game, or more precisely a battle over relative proportions, both within the state and within particular territories of the larger state. Groups fear a change of proportion disadvantageous to themselves, as this often directly affects how political and economic power are allocated.³³

A notable example of the "numbers game" is the campaign by the British Humanist Association (BHA)—a national charity representing the interests of non-religious individuals in the UK—in response to the data produced from the religion question in the 2001 census. The BHA demanded a change in the way religion is asked in the census, arguing that the current question leads to a distorted picture of the proportion of non-religious people in England and Wales, showing a lower percentage of people with no religion and higher percentage of "Christians," in comparison to the figures shown in other surveys in Britain:

The Census data on religion says nothing about the actual religious practice,

involvement, belief or belonging of the population. However, both central and local government use such data in resource allocation and for targeting equality initiatives. And the figure stating that 72% of the population are “Christian” has been used in a variety of ways, such as to justify the continuing presence of Bishops in the House of Lords, to justify the state-funding of faith schools (and their expansion), to justify and increase religious broadcasting and to exclude the voices of humanists in Parliament and elsewhere.³⁴

Although the BHA’s request for an alternative question on religion was eventually denied, they initiated another campaign, which aimed to influence the way people respond to the question on religion, by calling for those who are not religious to tick the option “No religion” in the 2011 census form, rather than not answering the (voluntary) question at all, or choosing Christian “out of habit.”³⁵

Thus, attempts to promote social recognition through the census are made by various types of social groups, whose members may feel under-represented in the public arena. Another example is the campaign led by some gay and lesbian people in Britain, calling for lesbian, gay, bisexual, and transgender (LGBT) census respondents to write “lesbian” under the religion question in the census, in protest of the absence of a question on sexuality.³⁶

However, other members of the LGBT community did not approve of the demand for collecting data on sexual orientation in the census, due to the personal and sensitive nature of this information. The campaign was also criticised for being counterproductive and for assuming that homosexuals are a homogeneous group with more or less similar needs. As Brent Martin wrote for *The Guardian*:

I think of myself as a citizen of the UK first, and a gay man second, I don’t see myself as outside of society, but part of it. My basic social needs are the same as anyone else. If I get hit by a bus, I’d like to know there is an A&E nearby, regardless of my sexuality.³⁷

Martin’s argument reflects the basic controversy over minority representation in national statistics. At the heart of this controversy, which could be called the “multicultural dilemma,” is the conflict between individual and group rights. The first type relates to the basic human and civil rights of freedom and equality, including “primary goods” such as income, health care, education, the right to vote, freedom of conscience, etc., while the second type refers to the recognition and respect for practices and world views of particular social groups.³⁸

The principles of multiculturalism, as expressed in the second approach, were criticised for creating fixed and narrow identities and for

increasing the separation between different social groups. Anthony Appiah contends that public identification of people as members of a particular ethnicity, nationality, or sexuality may pose a threat to individual autonomy, as these collective identities “come with notions of how a proper person of that kind behaves.” These modes of behaviour are often negative and therefore enhance stereotypes and create a barrier to equality, rather than promoting it.³⁹

According to Malik, multiculturalism is not the solution for diverse societies but part of the problem. Malik takes issue with the notion that multicultural policies came as a response to minorities’ demand for their differences to be recognized. Rather, he argues that these policies are imposed from the top, as part of a government strategy to defuse the anger created by racism. This way, instead of tackling the central problem of racial discrimination, the focus moves to cultural differences between various groups of society. Moreover, the emphasis on ethnicity as a key to entitlement of political power and financial resources forces people to view themselves in terms of their ethnicity, race or other cultural signifiers, rather than in broader universal terms.⁴⁰

Kertzer and Arel have also raised the concern that the link between group identities and political benefits may by itself provide an incentive for social groups to demand recognition, and that the census, where social categories are being defined, can be transformed into a “mechanism of identity formation.”⁴¹

The controversy over whether and how cultural identities and minorities should be recognized by public institutions can be found today not only in the United Kingdom, but in most Western societies.⁴² Another country that has faced the dilemma of minority representation and social cohesion in recent decades is France. Although France has a different historical and political background than Britain, there are some similarities between these countries, since both are dealing with the contradiction between the “racialization” of the social discourse and the desire to promote a belief in equality.⁴³

For many years France has avoided using ethnic categories in the census (with the exception of the colonial territories) as a consequence of its traditional republican stance, which rejects any identity categorization apart from civic identity, in defence of French national unity. The French census mainly differentiates between French nationals and foreigners. Furthermore, collecting data on individuals’ ethnicity or religion causes certain unease within the French society, due to the abuse of official statistics on the Jewish population by the Vichy regime during the Second World War.⁴⁴ Thus, statistical classification by race, ethnicity, religion, or language is considered discriminatory in France and is forbidden by law.⁴⁵

However, since the mid-1980s there has been a growing debate on the statistical identification of people according to their origins. The debate was initially concerned with issues of controlling and quantifying the flow of migration to France, though it has gradually given way to the question of what has become of the immigrants in terms of assimilation and integration. The broadening of the debate was derived by increasing awareness in politics and the media of problems of social exclusion and discrimination in the workplace and in housing allocation.⁴⁶ Those in favour of the collection of ethnic statistics dismiss the idealization of the vision of a unified population in France, arguing that the only way to fight discrimination is by assessing the discriminatory practices statistically.⁴⁷

Similar claims were made by Yazid Sabeg, an advisor to President Nicholas Sarkozy, who is promoting a change of policy that would enable the collection of data on ethnicity in the next census:

People find it hard to look the reality of this country in the face, which is that the population of the country has changed ... There is an entire fringe sector that feels discriminated against because of how they look, their physical appearance or their surnames, and who feel pretty much illegitimate in the country and who suffer real social discrimination.⁴⁸

However, as Blum argues, there is great doubt about whether the census in France could generate an acceptable categorization scheme, due to the diversity of opinion and the firm opposition to identifying individuals by their race or ethnicity.⁴⁹

It can be seen that the process of adding and modifying questions in the census is political in nature, involving extensive discussion, consultation and debate.⁵⁰ The formulation of these questions reflects the relationships between majority and minority in a given society and may also reinforce social and cultural classifications.

The introduction of new ethnic and religion categories in the British census and the promotion of ethnic classification in the French census suggest that the public discussion on the representation of minorities in those countries has changed. Different social groups have recognized the power of the census to influence public policy; being a reliable source of information on their relative social and economic status, it forms a robust basis for political advocacy and campaigns for equal opportunities. In addition, a census category of a specific religion or ethnic group is a proof of their visibility and of being publicly recognized as a distinct group.

To some extent, these trends support Kertzer and Arel's hypothesis that there has been a shift in the decision making process of census categories from being dominated by high authorities to a more complex political struggle involving the groups that are being, or demanding to

be, categorized.⁵¹ These practices emphasize the function of the census as a knowledge commons. The census acts as a public resource of information through which social identities are being formed, redefined, and quantified. Moreover, the information derived from the census can be translated into other social resources and political power.

According to Peter Levine, being involved in the creation of public knowledge could be regarded as additional goods, since this kind of work builds social capital, strengthens communities and provides the skills that are needed for effective citizenship.⁵² Additionally, as more people affected by the resource regime participate in making and modifying its rules, it becomes more efficient and durable, since the managing of the public resource is based on wider agreement and trust.⁵³ Without such agreement, the census as a reliable source of information could be in danger, since a large number of refusals to reply or false replies may damage the census as a whole.⁵⁴ Thus, both the state and minority groups can benefit from the public involvement in the planning process of the census.

By affecting the way they are being represented in the census, minority groups are getting their voice heard and being recognized as active participants in the political domain. However, the increasing number of cultural classifications that are being documented and redistributed to the population may also incur some negative effects: the emphasis on ethnicity and religion as public identities can increase the separation of minority groups from the wider society by signalling them as fundamentally different from the majority. This was apparent in the options of response for the questions on religion and ethnicity. In both questions, there was one homogenous category that relates to the majority group (e.g. White, Christian), while in the ethnicity question for example, all non-whites were asked to choose a more specific classification according to their ethnic and national origin.

The census, as a common resource of information, may be used for varied purposes either by the government, social organizations, or individuals. Its power derives from being a government tool for making decisions on policy planning and distribution of public goods. Some groups may strive to be represented by the census in order to enhance their political influence and gain public recognition. The state in its turn also has an interest in obtaining more specific data on the population, since expanding knowledge enables better planning and therefore better control. However, once the information has been recorded, it can be used to promote agendas that may be different from the original purpose, or lead to unintentional consequences, such as increased segregation or exclusion of minority groups. ■

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- ³ For an overview of the knowledge commons see Charlotte Hess and Elinor Ostrom, "Introduction: An Overview of the Knowledge Commons," in *Understanding Knowledge as a Commons: From Theory to Practice*, ed. Charlotte Hess and Elinor Ostrom (Cambridge, MA: MIT Press, 2007), 3-26.
- ⁴ David I. Kertzer and Dominique Arel, "Censuses, Identity Formation, and the Struggle for Political Power," in *Census and Identity: The Politics of Race, Ethnicity, and Language in National Census*, ed. David I. Kertzer and Dominique Arel (Cambridge: Cambridge University Press, 2002), 2.
- ⁵ Joanna R. Southworth, "Religion in the 2001 Census for England and Wales," *Population, Space and Place* 11, no. 2 (2005): 75.
- ⁶ John C. Dewdney, "Censuses Past and Present," in *A Census User's Handbook*, ed. David Rhind (London: Methuen, 1983), 1.
- ⁷ Kertzer and Arel, "Censuses," 7.
- ⁸ Diamond, "The Census," 9.
- ⁹ Kenneth Leech, *A Question in Dispute: The Debate about an 'Ethnic' Question in the Census* (London: Runnymede Trust, 1989), 2. It should be noted that the concept of race, which is widely used in social, political and academic discourse, is basically a subjective category, rather than a biological scientific definition. In addition, the meaning of race has changed over time and according to a given political context. See Kenan Malik, *The Meaning of Race: Race, History and Culture in Western Society* (Basingstoke: Macmillan, 1996), 4-5.
- ¹⁰ Malik, *The Meaning of Race*, 18.
- ¹¹ Kertzer and Arel, "Censuses, Identity Formation, and the Struggle for Political Power," 13.
- ¹² Leech, *A Question in Dispute*, 2.
- ¹³ Waqar Ahmad, "Ethnic Statistics: Better than Nothing or Worse than Nothing?" in *Statistics in Society: The Arithmetic of Politics*, ed. Daniel Dorling and Stephen L. Simpson (London: Arnold, 1999), 128.
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- ¹⁶ Diamond, "The Census," 16.

- ¹⁷ Bhrolchain, "The Ethnicity Question for the 1991 Census," 559.
- ¹⁸ Ahmad, "Ethnic Statistics: Better than Nothing or Worse than Nothing?" 126.
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- ²⁰ Southworth, "Religion," 75.
- ²¹ Paul Weller, "Identity, Politics, and the Future(s) of Religion in the UK: The Case of the Religion Questions in the 2001 Decennial Census," *Journal of Contemporary Religion* 19, no. 1 (2004): 3-21.
- ²² Southworth, "Religion," 76-77.
- ²³ Bhrolchain, "The Ethnicity Question for the 1991 Census"; Leech, *A Question in Dispute*; Southworth, "Religion."
- ²⁴ It may be more appropriate to use the term "Muslim communities," as in the case of most religious and ethnic groups that are far from being homogenous. See Kenan Malik, *From Fatwa to Jihad: The Rushdie Affair and its Legacy* (London: Atlantic, 2009).
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- ²⁶ Kenan Malik, *From Fatwa to Jihad*; Southworth, "Religion."
- ²⁷ Weller, "Identity, Politics, and the Future(s) of Religion in the UK," 10.
- ²⁸ Ibid, 7.
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The Politics of HIV/AIDS Research: An Interview with Nicoli Nattrass

Nicoli Nattrass is a professor of economics and the director of the AIDS and Society Research Unit at the University of Cape Town. She has published widely in the areas of economic policy and the political economy of AIDS. Recent publications include *The AIDS Conspiracy: Science Fights Back* (Columbia University Press, 2012), *Mortal Combat: AIDS Denialism and the Struggle for Anti-retrovirals in South Africa* (University of KwaZulu-Natal Press 2007) and *The Moral Economy of AIDS in South Africa* (Cambridge University Press, 2003). In 2008, Nicoli Nattrass published "AIDS and the Scientific Governance of Medicine in Post-Apartheid South Africa," in which she argued that approximately 343,000 deaths and 171,000 new HIV infections could have been avoided had the government rolled out Anti-Retrovirals (ARVs).¹ She spoke to us in February 2012 about the article's reception and reflected on the politics of the knowledge commons from the perspective of a "practitioner."

STAIR: Could you describe the response to your paper? How was it received by the research community in South Africa and further afield, and did it have an impact on policy-making in the country?

NN: As far as I can tell those estimates had almost no impact on the research community or policy. Neither that article nor an earlier set of estimates I published in a book a year earlier had any play in the press.

STAIR: Later that year, *Pride Chigwedere*, a doctoral student at Harvard, replicated your results.² Could you explain what the main differences were between your work and that of Chigwedere?

NN: I used an epidemiological model developed by the Actuarial Society of South Africa to estimate the impact of Mbeki's policies. This model allows you to run different scenarios. The question I posed was: "How many people would have been saved if South Africa had rolled out anti-retrovirals at the same rate as the Western Cape Province?"³ Chigwedere used a much simpler model (which he developed himself) and asked the question: "How many people would have been saved if South Africa had adopted an approach similar to Botswana?" We came up with broadly similar answers.

¹"The Politics of HIV/AIDS Research: An Interview with Nicoli Nattrass," *St Antony's International Review* 8, no. 1 (2012): 118-121.

NN: I do not understand why he failed to acknowledge my work. He told me he was not aware of my article—he said that he searched the medical journals only—but I am pretty sure he knew of my book. Perhaps he thought that neither really counted. Perhaps he read my work and then forgot about it. Perhaps he just wanted to appear to be more path-breaking than he was (doctoral students sometimes feel pressured to be original in this way), but it does annoy me when scholars from prestigious Northern institutions do not bother to cite Southern scholars.

STAIR: Chigwedere's work was widely cited and disseminated. It formed the basis of an editorial in Nature, and was the subject of front page articles in the Times of South Africa, the New York Times, and the International Herald Tribune, as well as being featured on the BBC and CNN. What factors do you think are responsible for the wide dissemination of his work relative to your own?

NN: Well, the fact that he was from Harvard made all the difference. The press picked up on it, calling it the “Harvard Study.” That seemed to lend the estimates substantial legitimacy—to the point that it got noticed in the academic community and in policy circles. I know that the Harvard press people pushed it heavily but they were pushing on a door that opens easily for them. I was gratified, however, to see that Nature did acknowledge my work in that editorial, effectively pointing out that their research was consistent with mine. But even so, it was only because I had personal connections with a stringer for Nature that the journal even knew I had published that article.⁴

STAIR: What do you think would have happened had Chigwedere not published his work, or not published it at an institution like Harvard?

NN: It would certainly have sunk without trace. So I am actually very happy that his piece did get the play it did. It was an embarrassment to the South African government and helped pressure them to change their policies.

STAIR: Do you think this is an idiosyncratic experience, or is it a more general barrier that researchers from the Global South face?

NN: It is definitely a wider problem. There are Northern academics who simply assume that Southern academics are not worth citing. And there are Northern academics who regard the ideas and papers they pick up from visits to Southern academics as if it was their own “data” that they collected on a field trip.

STAIR: What implications does this have for how we conceptualize the knowledge commons? It seems that, in your case at least, the free movement of knowledge was not impeded by intellectual property rights; instead, it seems to have been impeded by more intangible social factors, like trust and institutional reputation.

NN: I am not sure what you mean by the knowledge commons. It sounds like a worthy ideal. But inevitably the process of deciding what knowledge is, is shaped by social processes of fact-making. This is a function of which journals it is published in, which institutions it comes from and the publicity it generated. A study from Harvard thus has huge built-in advantages, in terms of being considered worthy of the knowledge commons.

STAIR: What developmental implications do you think this lack of trust or interest in research from the South has?

NN: The key problem is devaluation of local knowledge and understanding. This can lead to bad policymaking.

STAIR: What can the research community and policymakers in the South do to counteract the lack of trust or interest in research from the South relative to the North?

NN: Journal editors and reviewers need to be more critical of the references in papers. The academic search engines are very good these days. It would be a simple matter to ensure that scholars from elite institutions are not simply citing each other, and it would be very easy to check to see that they are not raiding or replicating ideas from scholars in other disciplines. I actually think it was outrageous of Chigwedere to say to me that he did not know about my article because he had only searched medical journals and it was outrageous of the journal to let him get away with doing that.

STAIR: This is true. However this does place a fairly high burden on reviewers, and I am not sure it gets at underlying structural issues in developing countries. One of the contributors to this journal, Jorge Contreras, has suggested that

a South-elite index be created to help academics and administrators identify higher quality journals, particularly for the open-access stables like Scientific Electronic Library Online (SciELO) and African Journals Online.⁵ Do you think this could help balance out the asymmetry, and what kinds of obstacles might it encounter or create?

NN: That sounds like a promising route to go down—yes, I believe it would probably help mitigate the North-South imbalance.

STAIR: How useful would targeted partnerships either between Southern and Northern research institutions, or between institutions in the South be in creating a culture of mutually informing research communities? We ask this question, bearing in mind that South-North collaborative research tends to receive substantially higher citation rates than South-South collaborations or individual research from the South.

NN: I think that North-South research partnerships are a good idea, but it is not easy to set them up. They often involve costly (in terms of time) application processes for funds—many of which fail—and they are all too easily stitched together to give the appearance of collaboration, when the reality is very different. I have become quite sceptical these days about potential Northern collaborators who approach me out of the blue. I find it more productive working with Northerners I know and trust and it takes time, connections, and luck to find those people. ■

Notes

¹ She used demographic modelling to estimate the impact of Thabo Mbeki's HIV/AIDS denialism.

² Pride Chigwedere et al, "Estimating the Lost Benefits of Antiretroviral Drug Use in South Africa," *Journal of Acquired Immune Deficiency Syndromes* 49, no. 4 (2008): 410-415.

³ It is important to note that the Provincial Parliament of the Western Cape was controlled by the opposition and provided anti-retrovirals despite opposition from the national government.

⁴ A stringer is an informal or irregular correspondent for a publication.

⁵ Jorge Contreras, "Open Access Scientific Publishing and the Developing World," in this journal.

Libya and the Responsibility to Protect: Lessons for the Prevention of Mass Atrocities

RUBEN REIKE¹

ABSTRACT

This article identifies three lessons for the prevention of mass atrocity crimes from international prevention efforts in the 2011 Libya crisis. First, Libya suggests that situations of mass atrocity risk will not always be foreseeable. It is therefore crucial to develop more robust, direct, and targeted strategies for dealing with imminent crises. Second, the tools that are usually listed under the Responsibility to Protect's (R2P) third pillar are also critical for preventing mass atrocities in an immediate phase. However, pillar three (the response pillar) is widely absent from the debate, which focuses primarily on pillars one and two. Third, the Libya crisis suggests that "taking sides", abandoning impartiality, and operating without host state consent may be necessary to prevent mass atrocities. This challenges the United Nation's approach to most conflict situations, in which consent and impartiality are key operating principles. Together, these lessons show that preventing mass atrocities might often be more controversial and coercive than is sometimes presumed.

Introduction

In many respects, the 2011 Libya crisis is an interesting case for the principle of the "responsibility to protect" (R2P). From a norm-development perspective, it is noteworthy that actors of the "international community" repeatedly invoked the R2P in relation to the crisis. UN Security Council Resolutions (UNSCR) 1970 (February 26) and 1973 (March 17) both directly refer to the primary responsibility of the Libyan state to protect its population from genocide, war crimes, ethnic cleansing, and crimes

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against humanity.² Moreover, senior policymakers such as Ban Ki-moon, Navi Pillay, and Barack Obama publicly embraced the international community's residual responsibility to protect given the failure of the Libyan state to live up to its protection responsibilities.³ This unambiguous framing of a crisis in R2P terms is unprecedented.⁴ In addition, from both conceptual and operational perspectives, the Libya crisis provides the opportunity to clarify aspects of the R2P's under-developed preventive dimension.⁵ Although many commentators and practitioners agree that the prevention of mass atrocities lies at the core of the R2P,⁶ it remains unclear exactly what prevention means in an R2P context. In particular, there is little agreement about how the prevention of mass atrocities crimes⁷ differs from the prevention of armed conflict more broadly.⁸ During the Libya crisis, members of the international community explicitly argued that international engagement was aimed at protecting civilians from mass atrocities threatened by the Gaddafi regime rather than at preventing an armed conflict.⁹ This makes Libya a good case for studying specific aspects of mass atrocity prevention and drawing lessons for the future.

In what follows, I will argue that the Libya case suggests at least three lessons for the prevention of mass atrocities, each of which challenges key assumptions of the emerging debate on the preventive dimension of the R2P. First, Libya suggests that situations of mass atrocity risk will not always be foreseeable. Libya had not been identified as a country of concern by any of the analysts monitoring the risk of mass atrocities or conflict.¹⁰ Thus, a focus on so-called "root-cause prevention" did not have much to say about the case. In the absence of better structural indicators, therefore, it seems crucial to develop more robust, direct, and targeted strategies for dealing with imminent crises. This does not mean that structural prevention is not important, but it cautions against the current trend of increasing emphasis on this strategy.¹¹ Second, the Libya crisis suggests that the tools that are usually listed under pillar three (the R2P's response pillar) are also critical for preventing mass atrocities in an immediate phase. This preventive dimension of the R2P's third pillar is widely absent from the debate on the "responsibility to prevent," which focuses primarily on pillars one and two, that is, on capacity-building in at-risk states.¹² Third, the Libya crisis suggests that "taking sides", abandoning impartiality, and operating without host state consent might be necessary elements of strategies that aim at the immediate prevention of mass atrocities.¹³ This challenges the United Nation's (UN's) approach to most conflict situations, in which consent and impartiality are key operating principles. Together, these lessons show that preventing mass atrocities might often be more controversial and coercive than is sometimes presumed.¹⁴

My argument is developed in four parts. To begin, I discuss the emerging debate on the “responsibility to prevent” to highlight some of its key underlying principles and to show that it lacks empirical research on what distinguishes mass atrocity prevention from conflict prevention. In the second and third sections, I briefly describe the details of the Libya crisis to contextualize a discussion of the international community’s preventive engagement in that crisis. I identify the tools that were employed and analyse how they were used. On that basis, in the fourth part I discuss the lessons from the Libya case for mass atrocity prevention, arguing that Libya challenges some key assumptions of the emerging debate on the R2P’s prevention dimension. I conclude by summarizing my main findings.

The Emerging Debate on the Responsibility to Prevent

At the 2005 UN World Summit, more than 170 Heads of State and Government accepted three interlinked responsibilities, which together constitute the principle of “responsibility to protect.” First, states accepted the responsibility to protect their own populations from genocide, war crimes, ethnic cleansing, and crimes against humanity. Second, states promised to assist each other in fulfilling their domestic protection responsibilities. Third, the international community took on a collective responsibility to react, in a timely and decisive manner, to manifest failure to protect populations from the above mentioned mass atrocities.¹⁵ Those three responsibilities are now commonly summarized as the R2P’s three pillars.¹⁶ While most of the R2P debate initially focused on the third pillar, associated with questions of military intervention, scholars and practitioners increasingly emphasize the R2P’s prevention dimension, which they derive from pillars one and two.¹⁷ Leading R2P advocate Gareth Evans notes that, “recognition of these realities—that prevention is the single most important dimension of the responsibility to protect—is at the heart of the 2005 World Summit’s conclusion, as it was of the reports leading up to them.”¹⁸ Edward Luck, UN Special Adviser on the R2P, argues unambiguously that the R2P’s first goal “should be prevention, prevention, prevention.”¹⁹

However, even though many agree that the prevention of mass atrocities is the key constitutive element of the R2P, it is still unclear what exactly prevention means and entails.²⁰ Much of the emerging scholarship on the “responsibility to prevent” adopts a conflict prevention framework and simply maps it on to R2P. In other words, the prevention of conflict generally is seen as the best means of preventing the commission

of the four crimes associated with the R2P (genocide, war crimes, ethnic cleansing, and crimes against humanity). This is particularly clear in the 2001 report of the International Commission on Intervention and State Sovereignty (ICISS), the work of Gareth Evans, and the genocide prevention plan of former United Nations Secretary General Kofi Annan.²¹ In accordance with conflict prevention thinking, the ICISS and Evans conceptualize prevention in terms of structural prevention (long-term and root-cause focused) and direct prevention (short-term). They emphasize the importance of the structural component—long-term capacity-building in at risk states²²—not least because it is assumed that structural prevention is less intrusive.²³ Moreover, they believe that the key conflict prevention principles of consent, impartiality, and minimal use of force should also guide mass atrocity prevention.²⁴ For example, both the ICISS and Evans argue that preventive deployments need to have the consent of the governments involved.²⁵ Moreover, Evans argues that:

It is important to appreciate, in the discussion of different preventive measures that follows, that *the primary focus is on what states at risk can do for themselves*, by their own national effort and with their own national capacity, and what they can do *voluntarily* for each other by way of offering support. The prevention of mass atrocities, like the prevention of conflict more generally, should start, and if possible finish, with the *minimum of intrusion*.²⁶

However, this conceptualization of the R2P's prevention dimension is increasingly being challenged. The Outcome Document of the 2005 UN World Summit, widely regarded as outlining the authoritative interpretation of the rights and responsibilities associated with the R2P,²⁷ restricted the R2P's scope to the four international crimes of genocide, war crimes, ethnic cleansing, and crimes against humanity.²⁸ Scholars have argued that limiting the R2P to those four international crimes was critical for gaining political consensus on the R2P and securing its inclusion in the 2005 World Summit Outcome Document.²⁹ It is also noteworthy that not all incidences of mass atrocities occur in contexts of armed conflict.³⁰ In fact, around 33 per cent of all mass atrocities are committed in peacetime³¹, and others which occur in the context of armed conflict do not have a clear causal link to that conflict, for example Nazi Germany's extermination of Jews during World War II. In fact, most of the recent cases that were most relevant to R2P debates occurred in contexts where armed conflict was not (yet) present, such as Libya, Kenya, Guinea, or Kyrgyzstan.³² Thus, as the International Peace Institute notes, "The references to genocide, war crimes, ethnic cleansing, and crimes against humanity ... give R2P a distinctive focus and imperative."³³ Yet there has been little discussion of what this "distinctive focus and imperative" entails.³⁴ More

specifically, there is a noticeable lack of empirical research into the guiding principles and potential tools of mass atrocity prevention.³⁵

The population of cases that would allow genuine insights into the prevention of mass atrocities is small, a problem well acknowledged in the field of genocide studies.³⁶ The Libya case is important in this regard as the international community explicitly argued that it aimed to prevent mass atrocities and not armed conflict. The Libya case thus provides a rare opportunity to clarify aspects specifically relating to the prevention of mass atrocities.

The 2011 Crisis in Libya

This section discusses the unfolding of the Libya crisis to contextualize the subsequent discussion of the international community's preventive engagement. In particular, I show that there was a widely shared sense that large-scale mass atrocities were a real possibility in Libya and that the actions of the international community genuinely aimed at preventing those crimes.

The Libya crisis emerged in the midst of the so-called "Arab Spring," which erupted in Tunisia on December 17, 2010. In the ensuing months, a wave of domestic uprisings spread throughout the Arab world, toppling first the Tunisian President Zine al-Abidine Ben Ali (January 14, 2011)³⁷ and then the Egyptian President Hosni Mubarak (February 11, 2011).³⁸ Other long-standing leaders in the region, particularly those of Algeria, Jordan, Yemen, and Bahrain, struggled to suppress domestic protests and riots.

In this climate, anti-government protests erupted in Libya on February 15, 2011 in response to the arrest of some prominent human rights activists in the city of Benghazi. It is interesting to note that at the time that the first protests erupted, Libya was not considered to be at risk of mass atrocities or violent conflict by any of the various risk assessment mechanisms.³⁹ Despite Gaddafi's notorious record on human rights, the country was widely seen as relatively stable. The positive assessment that Libya received in its November 2010 Universal Periodic Review illustrates this point.⁴⁰ Indeed, on the day that the first protests erupted in Libya's eastern city of Benghazi, the EU welcomed a Libyan delegation to discuss immigration issues.⁴¹

The uprising quickly gathered momentum. Within days, protests spread from Benghazi to other cities in the East, such as al-Bayda, Darnah, Tobruk, and Ajdabiya. Within a week, anti-government demonstrations were also reported in western cities, such as Misrata and Tripoli.⁴²

By February 23 the Gaddafi regime had lost control over significant parts of eastern Libya, and protests intensified in the western cities of Misrata, Zawiyah, and Tripoli. The protests gained additional momentum through the defections of diplomats, regime members, and members of the armed forces.⁴³ On February 27, a National Transitional Council (NTC) was formed to act as the political face of the revolution, which contributed to the perception that the Gaddafi regime was crumbling. Already by February 26, the UN Security Council had unanimously passed resolution 1970 in an effort to prevent mass atrocities in Libya. UNSCR 1970 not only reminded the Libyan government of its responsibility to protect the people on its territory, but also demanded an immediate end to the violence, referred the situation in Libya to the International Criminal Court (ICC), imposed an arms embargo on Libya, and targeted sanctions (asset freeze and travel ban) on particular individuals.

Fearing that it could be the next domino to fall in the “Arab Spring,” the Gaddafi regime decided to ignore UNSCR 1970 and reverted to extreme violence to suppress the uprising, using live ammunition, machine guns, and snipers to target civilians participating in anti-government activities. Hospitals reported that many victims were brought in with bullet wounds to their heads, chests, and necks.⁴⁴ The Gaddafi regime also used military aircraft and helicopters against anti-government protestors.⁴⁵ Gaddafi allegedly began to recruit foreign mercenaries because some members of the armed forces refused to shoot fellow countrymen.⁴⁶ It is difficult to get an accurate and reliable death toll for the initial days of the protests, but according to Human Rights Watch at least 233 persons were killed within the four-day period from February 17 to 20.⁴⁷ The UN Human Rights Council reported that shooting led to the killing of five hundred to seven hundred persons in February.⁴⁸

In addition, the Gaddafi regime fuelled violence against anti-government protestors through inflammatory rhetoric and public incitement to mass atrocities. On February 21, Saif al-Islam (one of Gaddafi’s sons) appeared on television, warning that, “If we do not agree today on reforms, we will not be mourning 84 people, but thousands of deaths, and rivers of blood will run through Libya ... We will fight until the last man, the last woman, the last bullet.”⁴⁹ Muammar Gaddafi addressed the Libyan people in a televised speech on February 22, saying: “I am not going to leave this land. I will die here as a martyr.” He called the protestors “cockroaches” and “rats,” promised to “cleanse Libya house by house,” and referred to the 1989 Chinese massacre on Tiananmen Square as a warning. In a speech on February 24, Gaddafi claimed that the protestors were members of al-Qaida and under the influence of drugs. Once again, he urged supporters to crush the rebellion: “I call on the people

of Libya to get out of their houses and confront this bunch of people.”⁵⁰ These are textbook examples of incitement to mass atrocities. According to Simon Chesterman, the rhetoric of the Gaddafi regime contributed to the unusual clarity of the threat of mass atrocities: “State leaders are usually more circumspect in the threats they make against their populations than was Qaddafi; impending massacres are rarely so easy to foresee.”⁵¹ Bellamy agrees, arguing that, “Not since Rwanda has a regime so clearly signalled its intent to commit crimes against humanity.”⁵²

From early March onwards, the Gaddafi regime followed up on its inflammatory rhetoric with concrete actions. Using military aircraft and heavy artillery, the Gaddafi regime started to retake city after city, resulting in high civilian casualties. After retaking western cities such as Gharyan, Sabratha, and Zawija, Gaddafi’s forces made rapid progress in re-conquering the east of the country. They consecutively retook Misrata, Bin Jawad, and Ras Lanuf, reaching Brega on March 11. After days of intense fighting and aerial bombardment, Gaddafi’s troops retook Brega and turned towards Ajdabiya and Benghazi. They gained control of Ajdabiya after a heavy campaign of indiscriminate bombing and shelling, and started to push towards Benghazi to crush the rebellion once and for all. It was at that point that Saif al-Islam announced on Libyan television that the fighting would be over within 48 hours.⁵³ On March 17, Gaddafi started to bombard the airport in Benghazi. There was then a widely shared perception that the fall of Benghazi was only hours away, and that it was likely to result in a massacre of civilians.

In this context, the UN Security Council passed resolution 1973 (March 17) which imposed a no-fly zone over Libya and authorized the use of all necessary measures to protect civilians and civilian populated areas. The Gaddafi regime reacted to this threat of military intervention by announcing an immediate ceasefire, while continuing to close in on Benghazi. In response, an international coalition of states launched an air campaign to protect civilians in Libya. As US General Carter Ham explained:

Our goals are simple: We want to protect innocent civilians, prevent attacks against civilian communities, and deter mass atrocities ... our immediate military goals are to prevent further attacks by regime forces on Libyan citizens and opposition groups, especially in and around Benghazi, and to degrade the Qadhafi regime’s capability to resist an internationally patrolled no-fly zone.⁵⁴

Initially, the international coalition targeted objects that posed a threat to the civilian population, such as tanks, armoured vehicles and rocket launchers, and destroyed Libya’s air defence to enforce the no-fly zone. Moreover, naval vessels patrolled Libya’s Mediterranean coast in order to

implement the arms embargo. While none of this led to a resolution of the conflict, it did achieve the narrow objective of preventing mass atrocities in Benghazi and Eastern Libya more generally. It needs to be acknowledged, however, that atrocities still occurred in other parts of Libya; some committed by the NTC-led rebel movement.⁵⁵ Thus, it is probably best to describe the international community's preventive engagement in the Libya crisis as a moderately successful example of mass atrocity prevention. The next section studies the international community's preventive engagement in more detail in order to generate some lessons for the "responsibility to prevent".

The International Community's Preventive Engagement

In what follows, I will discuss in more detail the international community's efforts to prevent mass atrocities in the Libya crisis. In particular, I will identify the different tools that the international community employed and analyse how they were used. The subsequent section then elaborates on what this comprehensive discussion of the Libya case suggests for the prevention of mass atrocities more broadly.

General Threats and Warnings

Even though much of the discussion of the Libya crisis focuses on the military intervention, it is important to acknowledge that the international community adopted a range of prevention measures before reverting to the last resort of military intervention. The initial response of the international community to Gaddafi's violent crack-down on the anti-government protestors was a wave of condemnation. There is some evidence that those messages of warning were intended to deter and dissuade Gaddafi from committing large-scale atrocities by showing that the world was watching and prepared to take action if necessary. Moreover, the threats and warnings were designed to encourage defections from the regime. For instance, on February 20, the British Foreign Minister, William Hague, stated publicly:

We want to make clear to the Libyan government that just because there aren't television cameras present at the scenes that are going on in Libya that does not mean that the world is not watching, and that doesn't mean that the world is going to ignore the way in which protesters and demonstrators are treated.⁵⁶

The same day, US Secretary of State, Hilary Clinton, released a statement on the situation in Libya saying that,

The world is watching the situation in Libya with alarm ... The government

of Libya has a responsibility to respect the universal rights of the people, including the right to free expression and assembly. Now is the time to stop this unacceptable bloodshed. We are working urgently with friends and partners around the world to convey this message to the Libyan government.⁵⁷

The UN Security Council also issued a press statement condemning the violence against civilians and declaring its determination to closely follow the situation in Libya. The Security Council further stressed the importance of holding “to account those responsible for attacks, including by forces under their control, on civilians.”⁵⁸ The UN Office of the Special Advisers on the Prevention of Genocide and the Responsibility to Protect (OSAPG/R2P) added to this general threat of international criminal prosecution by explaining that,

Widespread and systematic attacks against civilian populations by military forces, mercenaries, and aircraft are egregious violations of international human rights and humanitarian law. If the reported nature and scale of such attacks are confirmed, they may well constitute crimes against humanity, for which national authorities should be held accountable.⁵⁹

Regional organizations, such as the League of Arab States (LAS), the Organisation of the Islamic Conference (OIC), and the African Union (AU) all denounced the Gaddafi regime for its violent crackdown on the protests, but stopped short of sending clear threats.⁶⁰

Suspension of Membership

A second tool that international actors employed to change the behaviour of the Gaddafi regime in the early stages of the crisis was to suspend Libya’s membership in certain international organizations. On February 22, 2011, the LAS decided to suspend Libya from all its sessions for as long as the regime continued to attack its population. On February 25, the UN Human Rights Council (HRC) convened a special session on the situation of human rights in Libya, the first time ever that the HRC held a special session on a member state, and recommended that the General Assembly suspend Libya’s membership in the HRC.⁶¹ On March 1, the General Assembly adopted the HRC’s recommendation, the first time that a sitting member was removed from the HRC.⁶²

International Commission of Inquiry

Another prevention tool that the HRC adopted in resolution S-15/I was the establishment of an International Commission of Inquiry. The HRC tasked the Commission

to investigate all alleged violations of international human rights law in the Libyan Arab Jamahiriya, to establish the facts and circumstances of such violations and of the crimes perpetrated and, where possible, to identify those responsible, to make recommendations, in particular, on accountability measures, all with a view to ensuring that those individuals responsible are held accountable.⁶³

On March 15, Cherif Bassiouni (Egypt/US), Asma Khadr (Jordan), and Philippe Kirsch (Canada) were appointed to the Commission. The Commission immediately started to gather first hand evidence of crimes committed in Libya, and released its final report on June 2.

The establishment of the Commission was intended to signal to those planning to commit or instigate mass atrocities that there was a real chance that they would be held accountable. By contributing to the credibility of the threat of international criminal prosecution, the work of the Commission needs to be seen in combination with initial condemnatory statements, and particularly the Security Council's referral of the situation in Libya to the International Criminal Court (ICC).

ICC Referral

On February 26, less than two weeks after the beginning of the Libya crisis, the UN Security Council unanimously adopted resolution 1970, which introduced the first comprehensive set of tools aimed at the prevention of mass atrocities in Libya. One core aspect of UNSCR 1970 was the referral of the situation in Libya after February 15 to the ICC. On March 3, the Prosecutor of the ICC, Louis Moreno Ocampo, opened an investigation into alleged crimes against humanity, stressing that there would be no impunity for those responsible for the most serious crimes. Interestingly, Ocampo put particular individuals on specific notice, signalling that they would be held legally responsible if forces under their command committed mass atrocities.⁶⁴

In the period from March to May, the Office of the Prosecutor collected evidence of mass atrocities committed in Libya. On May 4, Ocampo went to New York to brief the Security Council, revealing that he would submit applications for arrest warrants to the Pre-Trial Chamber I. Ocampo stressed that in the Libya case crimes were committed upon the instruction of a few individuals in control of key organizations that were in a position to execute the orders. According to Western diplomats, Ocampo's briefing was designed to ratchet up international pressure on Libya.⁶⁵ On May 16, after the fastest investigation ever completed by the ICC, Ocampo officially requested arrest warrants for Muammar Gaddafi, his son Saif al-Islam, and Abdullah al-Senussi, the head of the Libyan intelligence service. On June 27, the ICC's Pre-Trial Chamber I issued arrest warrants for

those three individuals. Ocampo explained that the arrest warrants would help to prevent them from committing crimes, and warned Gaddafi's "inner circle" that they could either be "part of the problem or part of the solution."⁶⁶ Overall, the tool of ICC referral can be seen as a move from more general threats to more targeted ones by identifying specific individuals and trying to deter them. One side-effect of this early referral strategy was to make political solutions to the crisis more complicated by making it, for example, much more difficult for Gaddafi to go into exile.

Targeted Sanctions: Asset Freeze and Travel Ban

Targeted sanctions against specifically named individuals were another targeted prevention tool that the international community adopted in UNSCR 1970. The targeted sanctions had two elements: a travel ban and an asset freeze. The travel ban demanded that all member states "take the necessary measures to prevent the entry into or transit through their territories of individuals listed in Annex I." Annex I listed 16 individuals, all of which belonged to the Gaddafi regime. The asset freeze called on all member states to freeze, without delay, all funds or financial assets and economic resources of six individuals belonging to the Gaddafi regime. On February 28, the Council of the European Union decided not only to implement those targeted sanctions, but to extend them to other individuals (ten more for the travel ban and twenty more for the asset freeze).⁶⁷ Finally, UN Security Council resolution 1973 (March 17) extended the travel ban to two further people, and the asset freeze to seven more people and five entities.⁶⁸ Like the ICC referral, the tool of targeted sanctions was specifically aimed at certain individuals in order to change their behaviour by altering their structure of incentives.

Arms Embargo

The final prevention tool adopted in UNSCR 1970 was an arms embargo on Libya. UNSCR 1970 instructed all member states to "immediately take the necessary measures to prevent the direct or indirect supply, sale or transfer to the Libyan Arab Jamahiriya ... of arms and related materiel of all types ... including the provision of armed mercenary personnel."⁶⁹ To this end, the Security Council called upon all states, particularly those neighbouring Libya, "to inspect ... all cargo to and from the Libyan Arab Jamahiriya, in their territory, including seaports and airports."⁷⁰ Unlike the ICC referral and the targeted sanctions, the arms embargo did not target specific individuals, but aimed more generally to reduce the availability of the means to commit mass atrocities.

On March 23, NATO took on the enforcement of the arms embargo, and twelve nations contributed assets to enforce the arms embargo.⁷¹ NATO ships and aircraft operated in the Central Mediterranean to make sure that the flow of weapons to Libya by sea was cut off, covering a maritime surveillance area of around sixty-one thousand nautical square miles. Up until October 31, NATO claims that it hailed over 3,100 vessels and boarded around 300 vessels. Eleven ships were denied transit to or from Libyan ports because the vessel or its cargo presented a risk to the civilian population.⁷² As will be discussed in more detail below, it is noteworthy that there was and still is intense debate about what could be called the one-sided nature of the arms embargo, as some states still supplied weapons and military equipment to the rebels.

UN and African Union Mediation

Despite the adoption of the aforementioned prevention tools, the Gaddafi regime intensified its violent crackdown on the rebellion from early March onwards, including the use of military aircraft and heavy artillery. In reaction to this, Secretary-General Ban Ki-Moon decided to appoint the former Foreign Minister of Jordan, Abdel-Elah Al-Khatib, as his Special Envoy on Libya. The role of Special Envoy Al-Khatib was to work with Libyan government officials, opposition leaders, regional governments, and the international community in order to find a political solution to the violent crisis, for example by brokering a cease-fire. In mid-March, Special Envoy Al-Khatib went on a mission to Libya, visiting Tripoli and Tobruk and talking to government and opposition leaders. It is widely acknowledged though that the rapid pace of developments on the ground made it difficult to pursue a political solution. Al-Khatib himself revealed that when he asked to visit Benghazi on his mid-March mission, the Gaddafi regime told him to wait two days as they believed that the fighting would be over by then.⁷³

A second effort at finding a mediated solution to the crisis in Libya was led by the African Union (AU).⁷⁴ On March 10, the Peace and Security Council of the AU set out the key elements of its Roadmap to peace in Libya, consisting of (i) an immediate cessation of all hostilities, (ii) timely delivery of humanitarian assistance, (iii) the protection of foreign nationals, and (iv) the implementation of the political reforms.⁷⁵ To this end, the AU established an Ad-Hoc High-Level Committee to engage with all parties and to facilitate an inclusive dialogue.⁷⁶ The Committee travelled to Libya on April 10 and 11,⁷⁷ and allegedly convinced Gaddafi to accept the AU Roadmap.⁷⁸ The Committee also met with the NTC (notably without Jacob Zuma) but no agreement was reached due to the political

conditions that the NTC put forward as a prerequisite for a ceasefire.⁷⁹ While the AU maintained its efforts at finding a political solution to the crisis, it never came close to succeeding. Part of the problem was that the NTC perceived the AU delegation as being sympathetic to the Gaddafi regime.⁸⁰ Moreover, some of the other prevention measures, particularly the ICC referral and the military intervention, made it more difficult to find a negotiated solution.

No-Fly Zone

The imminent fall of Benghazi in mid-March and the widely anticipated massacre in that city and other parts of eastern Libya generated sufficient international consensus for the adoption of more coercive prevention tools in UNSCR 1973 (March 17).⁸¹ UNSCR 1973 imposed “a ban on all flights in the airspace of the Libyan Arab Jamahiriya in order to help protect civilians”, and authorized member states “to take all necessary measures to enforce compliance with the ban on flights”. Due to its intrusiveness, the no-fly zone idea was more controversial than previous prevention tools. What proved to be crucial for the adoption of UNSCR 1973 was support from the wider region as well as the exceptional clarity of the atrocity threat, both of which seem to have convinced Russia and China to abstain rather than veto the resolution. In particular, the endorsement of the no-fly zone proposal by the LAS seems to have been critical to their decision.⁸²

On March 25, NATO took command of enforcing the no-fly zone, which started with the destruction of the Libyan air defence systems and continued with the policing of the Libyan airspace. By ensuring that the Gaddafi regime could not use military aircraft to attack civilians, the no-fly zone contributed substantially to the protection of potential victims.

Protection of Civilians and Civilian Populated Areas

Besides establishing the no-fly zone, the other key prevention measure adopted in UNSCR 1973 was to authorize states

to take all necessary measures, notwithstanding paragraph 9 of resolution 1970 (2011), to protect civilians and civilian populated areas under threat of attack in the Libyan Arab Jamahiriya, including Benghazi, while excluding a foreign occupation force of any form on any part of Libyan territory.

The resolution was very clear to exclude the option of deploying ground troops, and therefore restricted civilian protection efforts to the air campaign.⁸³ Interestingly, by explicitly referring to the protection of “civilian

populated areas,” the international community aimed to prevent Gaddafi’s forces from targeting entire cities and town, even if the attacks were directed at military objects.⁸⁴ This can almost be interpreted as a new and very comprehensive form of safe area policy.⁸⁵

An international coalition of states started to implement this broad civilian protection mandate on March 19, targeting objects that presented an immediate threat to the civilian population in Benghazi and then elsewhere, such as tanks, armoured vehicles, rocket launchers, military aircraft, and other military equipment. The air campaign also included targeting the wider military infrastructure of the Gaddafi regime, such as command and control capabilities, communication facilities, and military training facilities. On March 31, NATO assumed sole command of the protection of civilians mission.⁸⁶ According to NATO, 18 nations contributed to this mission, namely Belgium, Bulgaria, Canada, Denmark, France, Greece, Italy, Jordan, Netherlands, Norway, Qatar, Romania, Spain, Sweden, Turkey, UAE, UK, and USA. As part of the so-called Operation Unified Protector, NATO and its partners conducted over 26,500 sorties, including over 9,700 strike sorties.⁸⁷ According to NATO information, 5,900 military targets were destroyed, including over 400 artillery or rocket launchers and over 600 tanks or armoured vehicles. Moreover, over 400 military command and control centres had been struck to halt the Gaddafi regime’s ability to give orders to its forces.⁸⁸

Like the no-fly zone, the air campaign to protect civilians and civilian populated areas seemed to have contributed in no insignificant way to the protection of potential victims. However, some legitimate questions have been raised about the perception that the protection of civilians was to some degree selective. Whilst it seems clear that the air campaign protected parts of the civilian population—particularly in and around Benghazi and Libya’s eastern regions—civilians in other areas did not receive the same amount of protection. Not only did Gaddafi troops commit atrocities in non-protected areas, but it has become increasingly clear that NTC troops and militias not directly controlled by the NTC committed atrocities too.⁸⁹ This suggests that civilian protection was partly selective, or at least that there were gaps in the protection provided, which might have been due to the air-based nature of the protection efforts.

Regime Change: Aiding the Rebels and Targeted Killings

It remains the subject of intense controversy to what extent regime change became a policy objective of the military intervention. The Security Council resolutions did not authorize a policy of regime change, and a resolution that did so would likely have been vetoed. Moreover, NATO

repeatedly explained publicly that its efforts were exclusively aimed at protecting civilians, not promoting regime change. However, as the rebels failed to make significant progress in the weeks and months following the international military intervention and a stalemate seemed almost inevitable, some observers argued that the protection of civilians in Libya ultimately required regime change.⁹⁰ To some, regime change was seen as the only tool to permanently prevent mass atrocities in Libya, to deal with the root cause of the threat. This seems to be the thrust of the argument put forward by British Prime Minister David Cameron, French President Nicolas Sarkozy, and US President Barack Obama in a joint statement on April 15. They wrote:

The people of Libya are still suffering terrible horrors at Gaddafi's hands each and every day ... Our duty and our mandate under UN Security Council Resolution 1973 is to protect civilians, and we are doing that. It is not to remove Gaddafi by force. But it is impossible to imagine a future for Libya with Gaddafi in power ... It is unthinkable that someone who has tried to massacre his own people can play a part in their future government ... So long as Gaddafi is in power, NATO must maintain its operations so that civilians remain protected and the pressure on the regime builds. Then a genuine transition from dictatorship to an inclusive constitutional process can really begin, led by a new generation of leaders. In order for that transition to succeed, Gaddafi must go and go for good.⁹¹

James Pattison thus observes that regime change became an important objective over the course of the military campaign, to the point where regime change seemed to define mission success.⁹² Two strategies for regime change formed the core of the controversy: (1) targeted killing of Muammar Gaddafi and his inner circle, and (2) aiding the rebels. First, a debate about whether Gaddafi himself was a legitimate military target erupted after coalition airstrikes hit Gaddafi's Bab al-Aziziya complex in Tripoli on March 21. Later, on May 1, Gaddafi's son Saif al-Arab and other members of the Gaddafi family were killed in Gaddafi's compound by another coalition airstrike.⁹³ Even though the international coalition and later NATO claimed that they were only attacking military targets (not individuals), the suspicion that Gaddafi was the target of those attacks lingered, not least because of ambivalent comments by Western politicians.⁹⁴ However, the international lawyer Dapo Akande argued that "Res 1973 does not prohibit the targeting of Gaddafi and authorises it where this is deemed necessary to protect civilians and civilian populated areas."⁹⁵ But this question has yet to be resolved.

Second, international actors actively supported the rebels by providing them with training, intelligence and equipment.⁹⁶ In mid-April, British Foreign Secretary William Hague revealed that the UK and France

had sent experienced military officers to advise the rebels on intelligence-gathering, logistics, and communications.⁹⁷ In late June, France admitted that it had supplied arms to rebel groups, claiming that it was “an operational decision taken at the time to help civilians who were in imminent danger. A group of civilians were about to be massacred so we took the decision to provide self-defensive weapons to protect those civilian populations under threat.”⁹⁸ Some UN member states have interpreted this as an explicit breach of the arms embargo, and accused NATO of pursuing a regime change agenda.⁹⁹ The Brazilian proposal on “Responsibility While Protecting” is a direct response to issues such as the perceived one-sided enforcement of the arms embargo and the regime change debate more generally.¹⁰⁰

Lessons for the Prevention of Mass Atrocities

Having described the tools that the international community employed to prevent mass atrocities in the Libya crisis, this section discusses the lessons that follow from this for the “responsibility to prevent.” I argue that Libya suggests three lessons that caution against some current elements of the emerging debate on the “responsibility to prevent.”

Structural vs. Immediate Prevention

The first lesson that can be learned from the Libya crisis stems from its unexpectedness. As discussed earlier, Libya was not included on any existing early warning list for genocide and mass atrocities, meaning that there were no early warnings that Libya was “at risk” of atrocities or even large-scale armed conflict.¹⁰¹ Despite the uprisings and riots that spread throughout the Arab world and toppled the long-term rulers of Libya’s neighbouring countries, the Libyan crisis was largely unexpected.¹⁰²

Due to this lack of early warning, the potential mass atrocity situation that the international community was confronted with from mid-February onwards did not leave much time for preventive action. This ruled out the utilization of more structural and long-term prevention measures. As Jennifer Welsh argues, “structural or root-cause prevention strategies would have had little to say about this particular country.”¹⁰³ Instead, the international community employed immediate/late-stage prevention measures that focused on changing the incentives of the potential perpetrators and on protecting the potential victims, with relative success. The swift engagement of the international community prevented what many feared would be a large-scale campaign of mass atrocities.

However, the criticism levelled at the way that some of the prevention tools were implemented indicates that there is still a lot of room for improvement in operationalizing immediate prevention strategies.

This finding has implications for the current debate on the R2P's prevention dimension, which puts much emphasis on long-term structural prevention, that is, capacity-building in at risk states.¹⁰⁴ The Libya case suggests that the conceptual prioritisation of structural prevention needs to be reconsidered. Libya raises doubts about the possibility to clearly foresee and identify potential mass atrocity situations on the basis of current structural indicators. While this does not mean that structural prevention is unimportant, it suggests two things. First, it shows that it is important to develop better structural indicators that are more clearly connected to mass atrocity risk. There needs to be much more empirical research on the structural risk factors of mass atrocities—not just armed conflict—to justify prioritizing certain aspects of structural prevention. Second, it suggests that in the absence of such structural indicators, it is an urgent priority to improve, refine, and study prevention strategies for more immediate mass atrocity situations.¹⁰⁵ Libya strongly suggests that developing elaborate strategies for immediate/late-stage prevention—where prevention strategies do no longer aim at a broad sector of the “population,” but more specifically at potential perpetrators and potential victims that can be identified with some clarity—needs to have just as much priority as developing strategies to tackle the root causes of mass atrocities.

The Preventive Dimension of Pillar Three

A second lesson from the Libya case follows from the identification of the tools that the international community employed to prevent mass atrocities. Gradually increasing the coerciveness and intrusiveness of tools, the international community employed the following prevention measures: general threats, suspension of membership, establishment of an international commission of inquiry, referral to the ICC, arms embargo, targeted sanctions, mediation, no-fly zone, protection of civilian and civilian populated areas, and, arguably, a strategy of regime change. Interestingly, most of those tools belong to the R2P's third pillar, which is usually conceptualized as dealing with responses to ongoing mass atrocities. The Libya case suggests, however, that pillar three can have an important preventive dimension as well, particularly in trying to prevent an escalation of events. It also indicates that there is a very fine line between prevention and response.

This is contrary to the conventional wisdom that the “responsibility to prevent” is primarily rooted in pillars one and two. As Secretary-

General Ban Ki-Moon writes, “prevention, building on Pillars one and two, is a key ingredient for a successful strategy for the responsibility to protect.”¹⁰⁶ Adopting this perspective, preventive tools involve the following: becoming party to human rights treaties and the ICC, ending impunity, strengthening civil society, ensuring the independence of the press, engaging in state-to-state learning processes, education programmes, building conflict-sensitive development analysis, and strengthening local dispute resolution capacity.¹⁰⁷ Pillar three measures are not directly linked to prevention. As Welsh has argued, “The current Secretary General, Ban Ki-moon, hopes that by focusing his implementation plan on so-called Pillars One and Two, and downplaying Pillar Three, he can build greater support for the principle among UN member states”.¹⁰⁸ Libya shows, however, that this diplomatic strategy comes at the expense of excluding a key set of tools that might be relevant to late-stage prevention. In immediate situations in which the identity of potential perpetrators and potential victims becomes increasingly clear, pillar three tools to change the behaviour of the potential perpetrators and protect the potential victims can be crucial for prevention. One consequence of emphasizing this preventive dimension of pillar three is that the line between prevention and response becomes more blurry and that prevention becomes more robust and coercive.

Abandoning Impartiality and Consent

A third lesson that can be learned from the Libya case concerns the operating principles of prevention. In the Libya crisis, the international community clearly abandoned both impartiality and consent—both key principles of the UN’s approach to managing conflict—as guiding principles of its preventive engagement.

With regards to the principle of consent, it is particularly noteworthy that Libya was the first case ever for which the UN Security Council authorized a military intervention for human protection purposes against a fully functioning state without the consent of that state.¹⁰⁹ With regards to impartiality, it is interesting to note that UNSCR 1970 and 1973 impose targeted sanctions (travel ban and asset freeze) on some specifically named individuals, all of whom belonged to the inner circle of the Gaddafi regime. Moreover, the Prosecutor of the ICC clearly identified Muammar Gaddafi, Saif al-Islam, and Abdullah al-Senussi as those most responsible for the crimes committed, leading the ICC to issue arrest warrants against them. Furthermore, Welsh has argued that the mandate to use all necessary measures to protect not only civilians but also civilian populated areas further pushed the international commu-

nity towards abandoning the principle of impartiality. She stresses that “though one can understand the logic behind the focus on civilian-populated areas, it nonetheless concretely moves the international community toward aiding one side in a conflict and restricting the movements of the other.”¹¹⁰ Finally, the debate about regime change unambiguously reveals the abandonment of impartiality as a guiding principle.

Thus the case of Libya suggests that prevention in an R2P context may have to relinquish the principles of consent, impartiality, and minimal coercion; principles that are still at the core of conventional accounts of the “responsibility to prevent,” such as those of Evans and the ICISS.¹¹¹ According to Welsh, an

important aspect of Resolution 1973, and the accompanying air campaign, is the degree to which it shifts the nature of the UN’s involvement from one of genuine (or at least professed) impartiality—a hallmark of the United Nations’ original approach to peacekeeping—to one of taking sides ... With the Libya case, the Council is reasserting its right to point fingers at the “wrongdoer.”¹¹²

At the end of the day, Libya suggests that preventing mass atrocities might require making moral judgements and choosing sides.

Conclusions

For many, prevention is the key constitutive element of the R2P. However, there is still a considerable lack of conceptual and empirical research on the “responsibility to prevent.” Libya provides a rare opportunity to empirically study and clarify aspects of the prevention of mass atrocities. Though one needs to be careful not to generalize too much from a single case—particularly as some suggest that Libya is exceptional¹¹³—it is interesting that the key lessons from Libya challenge central assumptions of conventional wisdom on the “responsibility to prevent.” As the Libya case suggests, potential mass atrocity situations cannot always be foreseen by early warning mechanisms that operate on the basis of structural indicators. Thus, more research needs to be conducted on how to prevent mass atrocities in immediate situations that do not allow for long-term structural changes, but that allow to identify potential perpetrators and potential victims with relative clarity. Furthermore, the Libya case suggests that immediate prevention strategies are likely to require more robust, non-consensual, and partial international engagement than is often admitted.¹¹⁴ As Welsh has put it, “As much as Ban Ki-moon wanted to talk about the ways of implementing R2P that do not involve coercion, it is now time to better understand those that do.”¹¹⁵ Finally, the Libya case

suggests that pillar three has a key preventive component, something that the General Assembly should further clarify during its 2012 debate on R2P and pillar three. Overall, the Libya crisis reveals that efforts to depict the “responsibility to prevent” as root-cause focused, non-coercive, and supportive rather than undermining of sovereignty—the key ingredients of Ban’s strategy¹¹⁶—might build political consensus around the R2P norm but are not necessarily in the interest of developing an operational strategy for the prevention of mass atrocities. ■

Notes

¹ The author would like to thank the three anonymous reviewers, Nina Hall, and Jennifer Welsh for excellent comments on earlier versions of this article.

² United Nations Human Rights Council, “Situation of human rights in the Libyan Arab Jamahiriya,” February 25, 2011, A/HRC/S-15/2 also refers to the responsibility to protect of the Libyan state.

³ See Ban Ki-moon, “Briefing to the un Security Council,” s/pv.6490, February 25, 2011; Navi Pillay, “Statement at the Human Rights Council,” 25 February 2011; and Barack Obama, audio statement from Brazil, March 19, 2011, <http://www.youtube.com/watch?v=fskv-uaqbgo>.

⁴ Darfur probably comes closest in this regard. Whilst Kenya is often seen as a successful case of R2P at work, it was only after the crisis that R2P language was applied to the case.

⁵ On the need to clarify the R2P’s prevention dimension, see Alex J. Bellamy, “Conflict Prevention and the Responsibility to Protect,” *Global Governance* 14, no. 2 (2008): 135-156; International Peace Institute, “Conflict Prevention and the Responsibility to Protect,” *IPi Blue Paper*, no. 7, New York, 2009; and Don Hubert and Ariela Blätter, “The Responsibility to Protect as International Crimes Prevention,” paper presented at workshop on the responsibility to prevent, Oxford Institute for Ethics, Law and Armed Conflict, September 17, 2010.

⁶ On the importance of prevention see for example Ban Ki-moon, *Implementing the Responsibility to Protect: Report of the Secretary-General*, A/63/667, January 12, 2009; Alex J. Bellamy, *Global Politics and the Responsibility to Protect: From Words to Deeds* (London: Routledge, 2011); Alex J. Bellamy, “Mass Atrocities and Armed Conflict: Links, Distinctions, and Implications for the Responsibility to Prevent,” Policy Analysis Brief: The Stanley Foundation, February 2011; Sheri Rosenberg, “Responsibility to Protect: A Framework for Prevention,” *Global Responsibility to Protect* 1, no. 4 (2009): 442-477; and Lawrence Wocher, “The Responsibility to Prevent: Toward a Strategy,” in *Handbook of the Responsibility to Protect*, eds. A. Knight and F. Egerton (London: Routledge, forthcoming).

⁷ For reasons of readability I will henceforth use the term “mass atrocities” instead of “mass atrocity crimes.”

⁸ See note 3.

⁹ See, for example, the provisional verbatim records of the Security Council meetings S/PV.6491 and S/PV.6498 that led to the adoption of resolutions 1970 (February 26) and 1973 (March 17) respectively.

¹⁰ For example, Barbara Harff's 2009 list of 22 states at risk of mass atrocities does not include Libya (her top five are Sudan, Burma, Somalia, Iran, and China). See Barbara Harff, "How to Use Risk Assessment and Early Warning in the Prevention and De-Escalation of Genocide and other Mass Atrocities," *Global Responsibility to Protect* 1, no. 4 (2009): 506-531. Equally, Minority Rights Group International's early warning list "Peoples Under Threat" identified 68 countries at risk of mass killing, not including Libya, <http://www.minorityrights.org/9885/peoples-under-threat/peoples-under-threat-2010.html>. More qualitative early warning mechanisms such as the International Crisis Group's monthly Crisis Watch update did not identify Libya as a country at risk either. See Crisis Watch No. 90 (February 1, 2011), <http://www.crisisgroup.org/en/publication-type/crisiswatch/2011/crisiswatch-90.aspx>. More generally, see Alex J. Bellamy, "Libya and the Responsibility to Protect: The Exception and the Norm," *Ethics & International Affairs* 25, no. 3 (2011): 266.

¹¹ See Deborah Mayersen, "Current and Potential Capacity for the Prevention of Genocide and Mass Atrocities Within the UN System," *Global Responsibility to Protect* 3, no. 2 (2011): 221; Asia-Pacific Centre for the Responsibility to Protect, *Preventing Genocide and Mass Atrocities: Causes and Paths of Escalation*, University of Queensland, June 8, 2009, 20-34; Alex Bellamy, *Global Politics and the Responsibility to Protect*, 119; or Gareth Evans, *The Responsibility to Protect: Ending Mass Atrocity Crimes Once and For All* (Washington, D.C.: Brookings Institution Press, 2008), 91-97.

¹² See, for example, Ban Ki-moon, *Implementing the Responsibility to Protect*.

¹³ See Jennifer M. Welsh, "Civilian Protection in Libya: Putting Coercion and Controversy Back Into RtoP," *Ethics & International Affairs* 25, no. 3 (2011): 255-263.

¹⁴ See Welsh, "Civilian Protection in Libya."

¹⁵ United Nations General Assembly, 2005 World Summit Outcome, A/60/L.1, September 20, 2005, paragraphs 138 and 139.

¹⁶ See Ban Ki-moon, *Implementing the Responsibility to Protect*; Ban Ki-moon, *On Responsible Sovereignty: International Cooperation for a Changed World*, SG/SM.11701, Berlin, July 15, 2008; and Edward C. Luck, "The United Nations and the Responsibility to Protect," Policy Analysis Brief: The Stanley Foundation, August 2008. Those three pillars are non-sequential and therefore do not need to follow any chronological order. However, it is interesting to note that the recent Brazilian proposal on "Responsibility While Protecting" advocates a sequenced and chronological application of the three pillars.

¹⁷ See, Ban Ki-moon, *Implementing the Responsibility to Protect*; and Alex Bellamy, *Global Politics and the Responsibility to Protect*.

¹⁸ Evans, *The Responsibility to Protect*, 79.

¹⁹ Edward C. Luck, Statement made at Informal Interactive Dialogue on Early Warning, Assessment and the Responsibility to Protect, August 9, 2010, <http://www.un.org/ga/president/64/thematic/responsibility/Luck.pdf>.

²⁰ See Hubert and Blätter, "The Responsibility to Protect as International Crimes Prevention"; IPI, "Conflict Prevention and the Responsibility to Protect," IPI Blue Paper, no. 7, New York, 2009.

²¹ See International Commission on Intervention and State Sovereignty, *The Responsibility to Protect* (Ottawa: International Development Research Centre, 2001), 19-27; Evans, *The Responsibility to Protect*, 79-104; and Kofi Annan, "Action Plan to Prevent Genocide; also UN Human Rights Council, "Report of the Secretary-General on the implementation of the Five-Point Action Plan and the Activities of the Special Adviser of the Secretary-General on the Prevention of Genocide," A/HRC/7/37, March 18, 2008.

²² See Evans, *The Responsibility to Protect*, 88-97; ICISS, *The Responsibility to Protect*, 22; Kofi Annan, *Prevention of Armed Conflict: Report of the Secretary-General* (New York: Department of Public Information, 2002), 90; and Edward C. Luck, "Prevention: Theory and Practice," in *From Reaction to Conflict Prevention: Opportunities for the UN System*, eds. F. O. Hampson and D. Malone (London: Lynne Rienner Publishers, 2002), 253.

²³ For a critique of this point, see Jennifer M. Welsh, "Implementing the Responsibility to Protect," Policy Brief, No.1, Oxford Institute for Ethics, Law and Armed Conflict, 2009, 7.

²⁴ See Evans, *The Responsibility to Protect*, 86; ICISS, *The Responsibility to Protect*, 24-25.

²⁵ Evans, *The Responsibility to Protect*, 102; ICISS, *The Responsibility to Protect*, 57-58.

²⁶ Evans, *The Responsibility to Protect*, 86.

²⁷ See, for example, Ban Ki-moon, *Implementing the Responsibility to Protect*, 4; and Welsh, "Implementing the Responsibility to Protect," 2.

²⁸ The four R2P crimes are relatively well defined in international law. See, for example, Antonio Cassese, *International Criminal Law*, 2nd edn. (Oxford: Oxford University Press, 2008); and David Scheffer, "Atrocity Crimes Framing the Responsibility to Protect" in *Responsibility to Protect: The Global Moral Compact for the 21st Century*, eds. R. Cooper and J. Voinov Kohler (New York: Palgrave Macmillan, 2009).

²⁹ See Edward C. Luck, "Sovereignty, Choice, and the Responsibility to Protect," *Global Responsibility to Protect* 1, no.1 (2009): 13; and Alex J. Bellamy, *Responsibility to Protect: The Global Effort to End Mass Atrocities* (Cambridge: Polity Press, 2009), 66-97 and 105.

³⁰ See, for example, Bellamy, "Mass Atrocities and Armed Conflict," 1-2; IPI, "Conflict Prevention and the Responsibility to Protect," 9-10.

³¹ This data comes from, Bellamy, "Mass Atrocities and Armed Conflict," 2. For more information on Bellamy's dataset see Appendix 1 in the aforementioned paper, available at: <http://www.stanleyfoundation.org/publications/pab/BellmayAppendices22011.pdf>. It is noteworthy that Bellamy's data also shows that since the end of the Cold War only 15 per cent of all atrocities occur outside a context of war.

³² IPI, "Conflict Prevention and the Responsibility to Protect," 9.

³³ Ibid., 8.

³⁴ Ibid., 9.

³⁵ One notable exception is Alex Bellamy's research on mass atrocity prevention, see Bellamy, "Mass Atrocities and Armed Conflict"; Bellamy, *Global Politics and the Responsibility to Protect*.

³⁶ See Scott Straus, "Second-Generation Comparative Research on Genocide," *World Politics* 59, no. 3 (2007): 479.

³⁷ "Zine al-Abidine Ben Ali Forced to Flee Tunisia as Protesters Claim Victory," *The Guardian*, January 15, 2011.

³⁸ "Mubarak Resigns—Friday 11 February" *The Guardian*, February 11, 2011.

³⁹ Bellamy, "Libya and the Responsibility to Protect," 4. See also footnote 9.

⁴⁰ On Libya's Universal Periodic Review (UPR) see UN Human Rights Council, Report of the Working Group of the Universal Periodic Review: Libya's Arab Jamahiriya, January 4, 2011, <http://www2.ohchr.org/english/bodies/hrcouncil/docs/16session/a-hrc-16-15.pdf>. The UPR process is one feature of the Human Rights Council and involves a review of the human rights records of all 192 UN Member States once every four years. For more information, see, <http://www.ohchr.org/en/hrbodies/upr/pages/uprmain.aspx>.

⁴¹ Interview with staff member of the EU Commission's Directorate General for Development and Cooperation (Europeaid), Oxford, December 2, 2011.

⁴² "Libya Protests Spread and Intensify," *Al-Jazeera*, February 21, 2011.

⁴³ See, "Factbox: Defections from Gaddafi's Libya," Reuters, August 25, 2011; and "Libyan Pilots and Diplomats Defect," *Al-Jazeera*, February 22, 2011.

⁴⁴ "Death Toll Mounts as Libyan Security Forces Target Protestors," Amnesty International, February 18, 2011.

⁴⁵ "Libya Protests Spread and Intensify," *Al-Jazeera*, February 21, 2011.

⁴⁶ See for instance Ban Ki-moon, "Briefing to the UN Security Council," S/PV.6490, February 25, 2011.

⁴⁷ "Libya: Governments Should Demand End to Unlawful Killings," Human Rights Watch, February 20, 2011, <http://www.hrw.org/en/news/2011/02/20/libya-governments-should-demand-end-unlawful-killings>.

⁴⁸ UN Human Rights Council, A/HRC/17/45, June 7, 2011.

⁴⁹ See, "Libya on Brink as Protests Hit Tripoli," *The Guardian*, February 21, 2011, <http://www.guardian.co.uk/world/2011/feb/20/libya-defiant-protesters-feared-dead>; "Gaddafi's Son Warns of 'Rivers of Blood,'" *Al Arabiya News*, February 21, 2011, <http://www.alarabiya.net/articles/2011/02/21/138515.html>.

⁵⁰ "Gaddafi Speech and Libya Turmoil," *The Guardian*, February 24, 2011, <http://www.guardian.co.uk/global/blog/2011/feb/24/gaddafi-speech-libya-turmoil-live-reaction>.

⁵¹ Simon Chesterman, "Leading From Behind: The Responsibility to Protect, the Obama Doctrine, and Humanitarian Intervention in Libya," *Ethics & International Affairs* 25, no. 3 (2011): 282.

⁵² Bellamy, "Libya and the Responsibility to Protect," 265.

⁵³ "Timeline: Uprising Against Libya's Muammar Gaddafi," Reuters, August 23, 2011, <http://www.reuters.com/article/2011/08/23/us-libya-events-idus-tre77M56220110823>. In this context, it is interesting that UN Special Envoy Abdel-Elah Al-Khatib also reported that when he asked to visit Benghazi March 14-15, the Libyan authorities told him to wait for two days as the fighting would be over by then.

⁵⁴ General Carter Ham, "Statement: AFRICOM Commander on Commencement of Military Strikes in Libya," Stuttgart, Germany, March 19, 2011, <http://www.afri-com.mil/getArticle.asp?art=6222&>.

⁵⁵ See in particular the reports of human rights and civil society groups, e.g. Amnesty International, *The Battle for Libya: Killings, Disappearances and Torture*, MDE 19/025/2011; Amnesty International, Detention Abuses Staining the New Libya, MDE 19/036/2011; Human Rights Watch, *Libya: Militias Terrorizing Residents of "Loyalist" Towns*, Press Release, October 30, 2011; Medecins Sans Frontières, *Libya: Detainees Tortured and Denied Medical Care*, Press Release, January 26, 2012.

⁵⁶ See, "Live Blog Libya—February 20," *Al-Jazeera*, February 20, 2011, <http://blogs.aljazeera.net/middle-east/2011/02/17/live-blog-libya#feb20>.

⁵⁷ Hilary Rodham Clinton, "Situation in Libya," Press Statement, PRN: 2011/249, Washington D.C., February 21, 2011, <http://www.state.gov/secretary/rm/2011/02/156836.htm>.

⁵⁸ UN Security Council, "Press Statement on Libya," SC/10180 AFR/2120, February 22, 2011.

⁵⁹ OSAPG/R2P, "On the Situation in Libya," Press Release, February 22, 2011. It has also been reported that UNSG Ban Ki-moon personally intervened to convince Gaddafi not to revert to atrocity crimes.

⁶⁰ See Organisation for Islamic Cooperation, "OIC General Secretariat Condemns Strongly the Excessive Use of Force against Civilians in the Libyan Jamahiriya," February 22, 2011, <http://www.oic-oci.org/topic—detail.asp?t—id=4947&x—key=libya>; African Union, Peace and Security Council Communiqué RSC/PR/COMM (CCLXI), 261st Meeting, February 23 2011.

⁶¹ UN Human Rights Council, Resolution A.HRC/S-15/1, February 25, 2011.

⁶² UN General Assembly, "Suspension of the Rights of Membership of the Libyan Arab Jamahiriya in the Human Rights Council," A/RES/65/265, March 1, 2011. For the plenary debate see, General Assembly, 76th Meeting, GA/11050, March 1, 2011.

⁶³ UN Human Rights Council, Resolution A/HRC/S-15/1, February 25, 2011.

⁶⁴ Besides Gaddafi and his inner circle, those individuals were the Minister of Foreign Affairs, the Head of Regime Security and Military Intelligence, the Head of

Gaddafi's Personal Security, and the Head of the Libyan External Security Organization. See, Luis Moreno-Ocampo, "Statement of the Prosecutor on the opening of the investigation into the situation in Libya," March 3, 2011, The Hague.

⁶⁵ See "Libyan Leaders May Face UN Arrest Warrants for War Crimes," *The Guardian*, May 4, 2011, <http://www.guardian.co.uk/world/2011/may/04/libya-war-crimes-icc-un>.

⁶⁶ Sands claims that the "ICC intervention helped to transform the outcome in Libya by contributing to the de-legitimisation of the Gaddafi regime."

⁶⁷ Council of the European Union, Council Decision 2011/137/CFSP of February 28, 2011 Concerning Restrictive Measures in View of the Situation in Libya.

⁶⁸ See UN Security Council, Resolution 1973 (2011), S/RES/1973, March 17, 2011.

⁶⁹ See UN Security Council, Resolution 1970 (2011), operational paragraph 9.

⁷⁰ *Ibid.*, 11.

⁷¹ NATO, "Operation Unified Protector: NATO-led Arms Embargo Against Libya," October 2011, <http://www.nato.int/nato-static/assets/pdf/pdf-2011-10/20111005-111005-factsheet-arms-embargo.pdf>. The states that contributed assets to enforce the arms embargo were Belgium, Bulgaria, Canada, France, Greece, Italy, Netherlands, Spain, Romania, Turkey, the UK, and the US.

⁷² NATO, "Operation Unified Protector: Final Mission Statistics," November 2011, available at: <http://www.nato.int/nato-static/assets/pdf/pdf-2011-11/20111108-111107-factsheet-up-factsfigures-en.pdf>.

⁷³ See, for instance, Mr. Al-Khatib's remarks at the Stanley Foundation conference on R2p: The Next Decade, January 18, 2012, <http://fora.tv/2012/01/18/Panel-2-R2p-in-Practice-Policy-Approaches-Since-2005#fullprogram>.

⁷⁴ Already on February 23, Jean Ping, the Chairperson of the Commission of the AU, had expressed the view that "only dialogue and consultation will enable the Libyans to find appropriate solutions to the challenges facing their country and to embark upon the necessary reforms to fulfil the aspirations of their people." See, Jean Ping, Chairperson of the Commission of the African Union, Press Release, "The African Union Deeply Concerned About the Situation in Libya," February 23, 2011.

⁷⁵ Peace and Security Council of the AU, 265th Meeting, Communiqué PSC/PR/COMM.2(CCLXR), March 10, 2011, Paragraph 7.

⁷⁶ *Ibid.*, Paragraph 8. On March 14, the heads of states of the Mauritania (Mohamed Ould Abdel Aziz), Republic of Congo (Denis Sassou Nguesso), Mali (Amadou Toumani Toure), South Africa (Jacob Zuma), and Uganda (Yoweri Museveni), as well as the Chairperson of the AU Commission (Jean Ping) were appointed to make up the committee. See, "The African Union Announces the Composition of the Ad-Hoc High Level Committee on Libya," African Union, Press Release, March 14, 2011.

⁷⁷ The Committee was planning to travel to Libya on March 20, but was denied entry by the Security Council because an international coalition of states had just started to enforce militarily the no-fly zone and the protection of civilians mandate.

⁷⁸ As Jacob Zuma, who is known to have had a close relationship to Gaddafi, announced: “the brother leader delegation has accepted the roadmap as presented by us. We have to give ceasefire a chance.” See “Libya: Gaddafi Accepts African Union Peace Plan,” Channel 4 News, April, 11, 2011, <http://www.channel4.com/news/libya-gaddafi-accepts-african-union-peace-plan>.

⁷⁹ For example, the removal from power of Gaddafi and his family and the withdrawal of the Libyan army from cities forcibly occupied after the breakout of hostilities, see, Peace and Security Council of the AU, 275th Meeting, PSC/PR/2(CCLXXV), ‘Report of the Chairperson of the Commission on the Activities of the AU High level Ad Hoc Committee on the Situation in Libya’, April 26, 2011.

⁸⁰ “Libya: Gaddafi Government Accepts Truce Plan, says Zuma,” BBC News, April, 11, 2011, <http://www.bbc.co.uk/news/world-africa-13029165>.

⁸¹ Importantly, though, UNSCR 1973 was passed with five abstentions (China, Russia, India, Brazil, and Germany). Moreover, some would probably argue—not unreasonably—that the tools in UNSCR 1973 were reactive rather than preventive. In my view, the tools in that resolution constitute very late-stage prevention measures.

⁸² Council of the League of Arab States, “The Implications of the Current Events in Libya and the Arab Position,” Extraordinary Session, March 12, 2011. See also, the statement of Professor Ekmeleddin Ihsanoglu, OIC Secretary General to the Meeting of the Permanent Representatives on the Situation in the Libyan Jamahiriya, Organisation of Islamic Cooperation, March 8, 2011, <http://www.oic-oci.org/top-ic-detail.asp?t-id=5023&x-key=libya>.

⁸³ This led to debate about how much and what kind of protection can be provided the air.

⁸⁴ See Dapo Akande, “What Does UN Security Council Resolution 1973 Permit?” EJIL:Talk! March 23, 2011, <http://www.ejiltalk.org/what-does-un-security-council-resolution-1973-permit/>.

⁸⁵ It also led to the impression that the international community was taking sides in a civil war.

⁸⁶ NATO, <http://www.nato.int/nato-static/assets/pdf/pdf-2011-09/20110901-110901-oup-update.pdf>.

⁸⁷ Not all of them for the protection of civilians mission, some of them also for the enforcement of the no-fly zone and the arms embargo.

⁸⁸ NATO, “Operation Unified Protector: Protection of Civilians and Civilian-Populated Areas & Enforcement of the No-Fly Zone,” October 2011.

⁸⁹ “Gaddafi Speech and Libya Turmoil,” *The Guardian*, February 24, 2011.

⁹⁰ “Libya Regime Change is West’s Goal, but Doubts Remain over How to Achieve it,” *The Guardian*, April 15, 2011, <http://www.guardian.co.uk/world/2011/apr/15/libya-regime-change-analysis>.

⁹¹ Barack Obama, David Cameron, and Nicolas Sarkozy, op-ed, “Libya’s Pathway to Peace,” *New York Times*, April 15, 2011.

⁹² James Pattison, "The Ethics of Humanitarian Intervention in Libya," *Ethics & International Affairs* 25, no. 3 (2011): 273-274.

⁹³ "NATO Strike Kills Saif Al-Arab Gaddafi, Libya Says," BBC, May 1, 2011, <http://www.bbc.co.uk/news/world-africa-13251570>.

⁹⁴ See, for example, "Gaddafi May Become Target of Air Strikes, Liam Fox Admits," *The Guardian*, March 20, 2011, <http://www.guardian.co.uk/world/2011/mar/20/coalition-criticism-arab-league-libya>.

⁹⁵ Akande, "What Does UN Security Council Resolution 1973 Permit?" Akande mentions that other prominent international lawyers such as Philippe Sands, Malcolm Shaw and Ryszard Piotrowicz agree on this point. See also, "Libya: The Legal Case for Deployment," *The Guardian*, March 21, 2011, <http://www.guardian.co.uk/world/2011/mar/21/libya-arab-and-middle-east-protests>.

⁹⁶ On the legal aspects of arming the rebels, see Dapo Akande, "Does SC Resolution 1973 Permit Coalition Military Support for the Libyan Rebels?" *EJIL:Talk!*, March 31, 2011, <http://www.ejiltalk.org/does-sc-resolution-1973-permit-coalition-military-support-for-the-libyan-rebels/>.

⁹⁷ See "Libya: Mission Creep Claims as the UK Sends In Military Advisers," *The Guardian*, April 19, 2011, <http://www.guardian.co.uk/world/2011/apr/19/libya-mission-creep-uk-advisers?intcmp=ilcnetxt3487>.

⁹⁸ "France Won't Rule Out More Libyan Weapon Drops," Channel 4 News, June 30, 2011, <http://www.channel4.com/news/france-wont-rule-out-more-libyan-weapon-drops>. See also "French Military Airdropped Arms to Libya Rebels," France 24, June 29, 2011, <http://www.france24.com/en/20110629-french-military-confirms-airdropping-arms-libya-kadhafi-rebel#>. For a legal assessment, see Dapo Akande, "France Admits to Arming Libyan Rebels: Was this Lawful?" *EJIL:Talk!*, July 1, 2011, <http://www.ejiltalk.org/france-admits-to-arming-libyan-rebels-was-this-lawful/>.

⁹⁹ India and South Africa are amongst the key critics, see "Zuma Lashes NATO for 'abusing' UN Resolutions on Libya," *Mail & Guardian Online*, June 14, 2011, <http://mg.co.za/article/2011-06-14-zuma-lashes-nato-for-abusing-un-resolutions-on-libya>; also "R2P Selectively Used For Regime Change: India," *ZeeNews*, February 22, 2011, <http://zeenews.india.com/news/nation/r2p-selectively-used-for-regime-change-india-759913.html>

¹⁰⁰ On the Brazilian proposal, see "Responsibility While Protecting: Elements for the Development and Promotion of a Concept," General Assembly/Security Council, A/66/551-S/2011/701, November 11, 2011.

¹⁰¹ See Bellamy, "Libya and the Responsibility to Protect," 266.

¹⁰² Interview with Edward C. Luck, UN Special Adviser on the Responsibility to Protect, Oxford, December 13, 2011.

¹⁰³ Welsh, "Civilian Protection in Libya," 262.

¹⁰⁴ See, for example, Mayersen, "Current and Potential Capacity for the Prevention of Genocide and Mass Atrocities within the United Nations System," 221; and Bellamy, *Global Politics and the Responsibility to Protect*, 119.

¹⁰⁵ See Bellamy, "Libya and the Responsibility to Protect," 266.

¹⁰⁶ Ban Ki-moon, *Implementing the Responsibility to Protect*, 9.

¹⁰⁷ *Ibid.*, 21.

¹⁰⁸ Jennifer M. Welsh, "A Normative Case for Pluralism: Reassessing Vincent's Views on Humanitarian Intervention," *International Affairs* 87, no. 5 (2011): 1201.

¹⁰⁹ Bellamy, "Libya and the Responsibility to Protect," 263. It seems needless to say that the Libyan authorities did not consent to the other measures either. Consent is not a legal requirement as long as the Security Council acts under Chapter VII of the UN Charter, but in the past some sort of host state consent has always been sought; though sometimes coerced.

¹¹⁰ Welsh, "Civilian Protection in Libya," 259.

¹¹¹ This is also argued by some other authors, for example, Bellamy, "Mass Atrocities and Armed Conflict," 7.

¹¹² Welsh, "Civilian Protection in Libya," 258

¹¹³ Bellamy, "Libya and the Responsibility to Protect."

¹¹⁴ Welsh, "Civilian Protection in Libya," 261.

¹¹⁵ *Ibid.*

¹¹⁶ Ban Ki-moon, *Implementing the Responsibility to Protect*.

An International Expectation: Emotion and Australia's Intervention in the Solomon Islands

ISAAC HOLLISS¹

ABSTRACT

When Australia intervened in the Solomon Islands in July 2003, it did so having publicly ruled out any chance of intervention only six months prior to the first troops landing in Honiara. This presents an apparent puzzle—what happened between January and July 2003 that changed the minds of Australian policymakers? Current academic explanations for this turnaround are inadequate. I turn to emotions, therefore, to help explain the change in Australia's attitude toward intervention. The role of emotion in global politics has begun to receive greater attention from international relations scholars. This article builds on recent advances in psychological research which suggest that emotion plays an important role in constituting rationality. It argues that humiliation, confidence, and pride—conferred on Australia's leaders by their involvement in the invasion of Iraq—played a significant part in Australia's decision to intervene in the Solomon Islands.

Introduction

Beginning in 1998, the Solomon Islands found itself in a deepening political crisis, which culminated in an Australian-led intervention in 2003. Armed factions formed along ethnic lines, assaulted and killed with impunity, and forcibly evicted more than 20,000 people from their homes on the main island of Guadalcanal.² The government—when it was not directly collaborating with one or another of the factions—was powerless to halt the violence. Indeed, the government frequently found itself intimidated and at the mercy of whichever faction was in control of the capital, Honiara. The Solomon Islands are one of the largest Pacific Island states, with a population of more than half a million people spread over nearly 1,000 islands.³ Despite the Solomon's relative size, the violence went largely unnoticed by many in Australia and around the

Isaac Holliss, "An International Expectation: Emotion and Australia's Intervention in the Solomon Islands," *St Antony's International Review* 8, no. 1 (2012): 150-166.

world, resulting in its labelling as “the forgotten conflict” by Amnesty International.⁴ On three occasions, the Solomon Islands requested assistance from Australia. At the first instance in April 2000, Australia declined the request. Two months later, the Prime Minister of the Solomon Islands was placed under house arrest and his government overthrown in a bloodless coup.⁵ The signing of the Townsville Peace Agreement (TPA) between the principal factions in September 2000 and the presence of a small international team of unarmed observers prevented the situation from descending into civil war.⁶ Between 2000 and late 2002, however, violence continued to destabilize the country. Murder, rape, and arson continued as a demoralized police force was unable to control the situation. By late 2002, the security situation was characterized by continuing tension, with an on-going, low-level insurgency in large parts of the country.⁷ It was only following the third request for assistance in 2003 that the Regional Assistance Mission to the Solomon Islands (RAMSI) was created, deploying 2,000 Australian-led troops and police from a variety of Pacific Islands Forum member-states to restore law and order. This article examines the role played by emotion in changing the way Australia perceived intervention, culminating in the deployment of RAMSI in July 2003.

The Solomons Puzzle

The 2003 Australian intervention in the Solomon Islands presents an apparent puzzle: Australia was willing to invest personnel and money in the RAMSI intervention in 2003, but not in a similar mission in 2000. Following the coup in June 2000, Australian Prime Minister John Howard stated that it was not in their interest to use Australia’s police to restore order and refused to consider the option, despite having intervened in East Timor only a year earlier.⁸ Australia declined a similar request in 2001.⁹ The matter is further complicated when considered in light of the fact that the RAMSI intervention occurred only months after a very public rejection of intervention. In a January 2003 op-ed in *The Australian*, Australia’s largest newspaper, Australian Foreign Minister Alexander Downer made clear his government’s opposition towards intervention in the Solomon Islands, concluding that such a move would be “folly in the extreme.”¹⁰ Nevertheless, only six months later, Australian troops and police began landing in Honiara. In this article, I apply an emotions-centric analysis to two distinct periods of Australian foreign policy: June 2000 to late 2002, and January to July 2003. I seek to highlight the role played by emotion in Australia’s policy

shift toward intervention in the Solomon Islands between January and July 2003. This analysis considers emotion to be an important component of a person's rational decision-making process. Consequently, an emotions-centric approach seeks to identify not only which emotions are important, but also the way in which emotions help to constitute beliefs. Where an emotion has been shown to help constitute a particular belief, this offers an explanation that goes beyond the standard rationalistic approach.

I argue that while existing accounts of the change in Australia's decision to intervene between 2000 and 2003 are valid, they fail to fully explain the reversal that occurred between Downer's public dismissal of intervention in January 2000, and the decision to intervene in June 2003. The principal explanation in the existing literature is that changes in the international strategic environment resulted in Australia becoming more interested in enhancing security and stability in the South Pacific region.¹¹ In particular, two terror attacks served to sharpen Australia's interest in weak states between 2000 and late 2002: 9/11 and the October 2002 bombings in Bali, Indonesia, which killed fifteen and eighty-eight Australians, respectively.¹² A subsequent rethinking of Australia's security situation resulted in "Beyond Bali," a report by a prominent think-tank, the Australian Strategic Policy Institute (ASPI), which highlighted terrorism in the Asia-Pacific as a key security challenge for Australia.¹³ The report concluded that states such as the Solomon Islands may be incapable of ensuring their own "salvation," and called for an end to Australia's hands-off approach to the region.¹⁴ However, little explanation is provided by the literature for Downer's policy reversal: why did he embrace intervention after rejecting it only six months prior? The role of emotion in affecting Australia's willingness to intervene militarily in humanitarian crises has been largely overlooked by existing scholarship. In fact, I am unaware of any other study applying emotion as an analytical tool to this period of Australia's foreign policy.

This article has three main components: In Section One, I conduct a brief survey of the emerging literature on emotion and locate this within an international relations context. In Section Two, I examine public statements by Australia's leaders to determine the extent to which the avoidance of humiliation had emerged as a motivating factor within Australia's foreign policy between 2000 and late 2002. Thus this section provides the emotional context for Australia's decision to intervene in the Solomon Islands. In Section Three, I examine the period between January and July 2003 in closer detail and apply an emotions-centric analysis in order to explain Australia's policy turnaround.

Although emotions have long been present in international relations literature—whether it be fear in deterrence theory, or trust and friendship in liberal theories—only recently have emotions been problematized and investigated in and of themselves. The earliest scholars of politics, such as Aristotle, Thucydides, Hobbes, Clausewitz, and Morgenthau, studied the role of emotion. For instance, in *History of the Peloponnesian War*, Thucydides assessed the use of appeals to insolence, pride, ambition, honour, and fear as justifications for Athens' actions throughout the conflict.¹⁵ However, the study of emotions largely “dropped from the radar” of the discipline by the mid-twentieth century.¹⁶ Modern-day scholars of deterrence and balance of power theories who have examined emotions—namely fear and credibility—all too frequently left these concepts under-examined.

The constructivist turn in the 1980s brought a renewed interest in emotions and has sparked renewed efforts to understand their role in world politics.¹⁷ The constructivist influence shifted the dominant paradigm of international relations from rational, structuralist explanations, such as neo-liberal institutionalism and neo-realism, to analyses which problematize key concepts such as the national interest. For constructivists, national interests exist, and states still seek to pursue them, but these interests vary between states, are not fixed over time, and need not be centred around security.¹⁸ In other words, shared beliefs and norms resulting from social interaction aid states in developing an understanding of what is valuable to them and how they should pursue it.¹⁹ Furthermore, constructivism has renewed interest in the individual as an agent. As a result, the role of emotions in foreign policy decision-making has become a focus for constructivist international relations theory. Works by Mercer, Crawford, Saurette, and Ross, for instance, draw on insights from social psychology to illustrate the relationship between emotions and rationality and have established emotions as an important component of international relations discourse.²⁰

This article builds on scholarship in political psychology and asserts that emotion is an inseparable component of rationality. While international relations literature has traditionally viewed emotion as “compromising rationality,” in psychology emotion is widely recognized as a constituent aspect of rationality.²¹ If the current preference for a separation of rationality and emotion is, indeed, “descriptively inaccurate” then surely any interests-based, rationalist analysis that neglects emotion is likely to be incomplete.²² For the purposes of this study, I use Crawford's definition of emotions as, “the inner states that individuals describe to others as feelings, and those feelings may be associated with biological, cognitive, and behavioural states and changes.”²³

Advances in psychology have allowed greater rigour to be applied to the study of emotions in global politics, yielding two significant insights.²⁴ I rely in large part on Mercer's work which applies recent psychological research on emotions in an international relations context. First, it has recently been demonstrated that an individual is incapable of being rational if they are unable to feel emotion.²⁵ Emotion is not only part of rationality, it is indispensable to it: a person incapable of feeling emotion finds it difficult to act rationally because they are unable to predict emotion in others.²⁶ Emotions, then, should not be considered temporary interferences with rationality, but rather an important and inseparable component of it.

Second, emotions play a vital role in the selection and interpretation of information, the process otherwise known as cognition.²⁷ Emotion is itself frequently used as a form of evidence: feelings of trust toward another person are evidence that one should co-operate.²⁸ While information confirming our beliefs and feelings is likely to be accepted and provoke no further challenge, "disconfirming evidence," in contrast, is more likely to be disbelieved, and further searching will be conducted until confirming information is found.²⁹ Similarly, emotion is an assimilation mechanism, in that it affects how we process the information we have gathered. Aristotle captures this succinctly when he argues that "things do not seem the same to those who love and those who hate, nor to those who are angry and those who are calm, but either altogether different or different in magnitude."³⁰ I argue later in this article that pride can cause a similar effect.

The Western political model is one that privileges rationality, and attempts to de-emphasize the role of emotions such as honour, shame, and humiliation in decision-making.³¹ Recent works on emotions demonstrate that analysing political decisions without assessing their emotional component(s) limits analytical accuracy.³² Simply put, "policy-makers do not eliminate emotion from their decision making because they cannot," and to attempt to analytically separate them is "descriptively inaccurate."³³ Whereas rationalism has traditionally argued that individuals update their beliefs based on changing facts, meaning that beliefs "will converge towards reality," recent research has instead shown that emotion is an assimilation mechanism, affecting which facts one accepts or rejects, and how those facts are incorporated into and change our beliefs.³⁴

From Emotions to Emotional Beliefs

Emotional beliefs are the way in which emotions influence international relations. An emotional belief can be defined as "one where emotion constitutes and strengthens a belief and which makes possible a generaliza-

tion ... that involves certainty beyond evidence.”³⁵ An emotional belief, then, is one whose meaning would change in the absence of emotion. Nationalism, the belief that one’s nation is superior to others, is undeniably emotional, as without pride its meaning would change substantially. The belief that one ought to mount an intervention into a neighbouring country is also an emotional one, wherein, as this article contends, its meaning would have changed if it were separated from emotions such as pride and responsibility. Of course, beliefs can always be contrasted with knowledge; there are undoubtedly objective facts about the world that exist regardless of what one believes. For example, the Cascade Mountains exist regardless of one’s belief and two plus two will always equal four.³⁶ It is interesting to note, however, that psychological research indicates that there is no difference, in physiological terms, “between believing that $2 + 2 = 4$ or that torture is evil.”³⁷ Even though we recognize that the latter is a subjective belief, the brain intertwines the objective and the subjective to such an extent that it treats them alike.

Having identified emotional beliefs as a useful method for determining the impact of emotion on foreign policy, the next section analyses one emotion in particular—humiliation—and its role in constituting a belief among Australia’s leaders that they ought to intervene in the Solomon Islands.

The Risk of Humiliation

A desire to avoid humiliation, developed between 2000 and late 2002, underpinned Australia’s eventual belief that it had to intervene in the Solomon Islands. This “humiliation” consisted of three components: Australia’s perception of responsibility toward the South Pacific, Howard’s personal relationship with President George W. Bush, and the Howard government’s self-perception. Humiliation can be defined as, “the sensation of having one’s dignity or self-respect lowered and depressed,” and is a sensation felt more keenly when it is made public to a large audience.³⁸

A Perception of Responsibility for the Pacific

The weight of responsibility can have a significant impact on one’s behaviour, and was an important driving force behind Australia’s intervention in the Solomon Islands. Australia sees itself as having a unique responsibility for the South Pacific region, reflected in the common turn of phrase describing the South Pacific region as “Australia’s backyard.”³⁹ Howard in particular tended to view Australia’s guardian-

ship over the South Pacific as a responsibility delegated to it by the international community:

The international community understandably *looks to Australia* to play a leading role in the South Pacific. Our leadership of the regional assistance mission to the Solomon Islands reflects both a national interest and *an international expectation*.⁴⁰

Australia is the Pacific's *long-term guardian*.⁴¹

We're not throwing our weight around ... but we're willing to do our fair share of the heavy lifting *in an area the rest of the world sees as very much Australia's responsibility*.⁴²

If we do nothing and the country slides into further anarchy ... we will rightly be condemned, not only by the Australian people, *but also by countries around the world*.⁴³

I contend that Australian policymakers believed that the dismal situation in the Solomon Islands threatened to reveal Australia as failing to live up to its responsibilities in the region. Such a failure could have meant humiliation in front of both its domestic audience and other states. Furthermore, in order to meet these perceived responsibilities, Australia required more than a token act of assistance to the Solomons. After all, years of financial assistance had failed to bring substantive change. Rather, Australia believed it needed to reverse the Solomons' decline, which may go some way to explaining the "all or nothing" approach eventually taken by Downer and Howard.⁴⁴

Success can lead to expectations by others that you will achieve further feats. An inability to replicate success may lead observers to consider your earlier achievements the result of chance or luck, rather than talent or skill. Australia felt growing pressure to intervene in the Solomon Islands in part because it felt it needed to match its accomplishments in East Timor, an intervention widely viewed as successful. Downer stated this bluntly when he said: "We did a great job in East Timor, we did a great job in Afghanistan and in Iraq, we couldn't have people saying: How come you did absolutely nothing in Solomons?"⁴⁵ The continuing instability in the Solomon Islands threatened to expose Australia to humiliation by revealing that it was failing to shoulder its responsibilities in the South Pacific.

Prime Minister Howard's Friendship with President Bush

Prime Minister John Howard's close relationship with President George W. Bush, beginning in September 2001, created a personal element of

responsibility towards the Pacific region that facilitated Howard's eventual decision to intervene in the Solomon Islands. Howard and Bush met face-to-face for the first time on September 10, 2001, and the events of the following day proved to be a catalyst for a "close personal rapport" which lasted until both leaders left office.⁴⁶ Both leaders praised each other following the war in Iraq, with Howard lauding Bush for the "leadership that [he] gave to the world," and Bush referring to Howard as a "man of courage."⁴⁷

On a number of occasions Bush charged Howard with guardianship of the Pacific region in the context of the "War on Terror."⁴⁸ In 2003, however, an ASPI report clearly identified terrorism as a likely consequence of the Solomon Islands' potential collapse.⁴⁹ One can surmise that this triggered an emotional response from Howard with reference to his perceived obligations towards Bush in the "War on Terror." If the Solomon Islands were to collapse, and thereby provide a potential foothold for extremists in the region, he would have let down a valued friend, and someone he admired. Howard would be an unusual individual indeed if he did not feel as though he were "letting down" Bush by failing to address security issues in the South Pacific, a region Bush publicly indicated was Howard's responsibility.

The Howard Administration's "Strong-Man" Self-Perception

By mid-2003, Howard had created a public persona as a strong, decisive leader who was willing to do whatever necessary to protect Australia's security. During the years preceding the intervention into the Solomon Islands, Howard addressed a number of security concerns, with his reactions to such events gradually bolstering that persona. One of the earliest security situations the Howard government responded to originated in East Timor. In August 1999, a referendum in favour of independence provoked widespread conflict. Responding to the ensuing violence, perpetrated primarily by pro-Indonesian paramilitaries, the Australian government quickly deployed 5,500 soldiers as part of an Australian-led peacekeeping force.

Then in August 2001, Australia refused entry into its waters for the Norwegian freighter *Tampa* carrying 430 Afghan refugees who had been rescued from the sea.⁵⁰ Howard's decision to refuse entry to the refugees proved popular, and in subsequent elections his government further increased its parliamentary majority. Immediately after the 9/11 terrorist attacks, moreover, Howard declared that Australia would "provide all support that might be requested" in assisting the United States in retaliation.⁵¹ Similarly, the Bali bombings in late 2002 were quickly followed by a

promise from Howard to intensify Australia's efforts in the "War on Terror," and in December 2002, Howard stated his willingness to use pre-emptive strikes against conventional or terrorist threats in the region.⁵²

This series of events shaped the Australian public perception of Howard as a strong, decisive, and security-oriented leader. It is, of course, impossible to know whether this was Howard's self-perception of his leadership. What we do know is that his stance was popular with the voting public, and even if this did not form Howard's self-image, it was one he cultivated in order to win the support of the public. It was not only the voters that accepted Howard's security stance—Bush described him as "a man of steel"—nor was it merely Howard that began to view issues through a security lens. In the lead up to the intervention, Downer's references to a regional "coalition of the willing" similarly recalled terminology prevalent prior to the invasion of Iraq.⁵³ I argued earlier that Howard's friendship with Bush resulted in Howard's perception of an expectation to promote security in the South Pacific region. A similar expectation developed between Howard and the voting public. Having developed this "strong-man" political persona over his five years as Prime Minister, the ongoing instability in the Solomon Islands increasingly posed a threat to this image. When understood in this light, it is perhaps not difficult to see why Howard in particular viewed intervention as an effective policy.

An Emerging Belief

While existing explanations in the literature may adequately explain Australia's change in attitude toward intervention, it remains worthwhile applying an emotions-centric analysis to the 2000-2002 period in order to establish an emotional "context" within which the January to July turnaround can be placed. I contend that by late 2002 a number of factors were placing pressure on Australia to intervene in the Solomon Islands, while a nascent belief in the necessity of intervention was slowly forming amongst its leaders. Why, then, was intervention ruled out?

It is possible that Australia simply did not know how to proceed with addressing the Solomon Islands' problems. Although its intervention in East Timor had been remarkably successful, the differing sources of insecurity in East Timor when compared with the Solomon Islands made a repeat of successful intervention unlikely. Furthermore, Australia had little experience intervening in Pacific issues outside of its relationship with Papua New Guinea. Its policy toward the South Pacific prior to 2003 had been one of supporting indigenous solutions to problems, guided by a desire to avoid charges of neo-colonialism.⁵⁴ Australia had successfully warded off the risk of complete civil war in the Solomons by facilitating a

peace agreement between the warring parties, but even its hefty financial assistance had been unsuccessful in reversing the instability. By January 2003, despite growing pressure to intervene through its perceived responsibility toward the region, Howard's personal relationship with Bush, and his administration's self-perception, Australia's leaders remained publicly opposed to leading an intervention in the Solomon Islands.

Explaining the Turnaround

The factors outlined in the previous section indicate growing pressure on Australia to intervene, and one possible source of Australia's reluctance to do so. However, the puzzle remains: why did Australia's policy toward intervention in the Solomon Islands change so rapidly in the first half of 2003? In January 2003, Downer thoroughly rejected the notion that Australia should intervene in the Solomon Islands:

Sending in Australian troops to occupy Solomon Islands would be folly in the extreme ... [t]he real show-stopper, however, is that it would not work—no matter how it was dressed up, whether as an Australian or a Commonwealth, or a Pacific Islands Forum initiative. The fundamental problem is that foreigners do not have answers for the deep-seated problems afflicting Solomon Islands.⁵⁵

This rejection is strident and unequivocal. Nonetheless, by the beginning of June, Australia's leaders had decided to mount an ambitious intervention into the Solomon Islands.

Adding Emotion: January to July 2003

International politics during the first half of 2003 became preoccupied by one main act: the invasion of Iraq, its prelude, and its immediate aftermath. Australia's contribution to this conflict was significant in its own right, involving roughly 2,000 personnel at its peak—though a large portion of its contingent departed shortly after the official end of hostilities on May 1.⁵⁶ Beyond Australia's participation in Iraq, there is little else to recommend a standard rationalist account of the sharp turnaround in Australia's attitude toward intervention after January 2003. The strategic situation in the South Pacific is unlikely to have been altered by a conflict in the Middle East, and the humanitarian situation on the ground in the Solomon Islands, although dismal, remained relatively stable during this period. Fullilove, a prominent contributor to the Australian think-tank the Lowy Institute, admits that "it is impossible for anyone who was not

in the Cabinet Room in Canberra ... to say definitively what led to this important policy shift.”⁵⁷

I argued in Section One that emotions play a significant role in the constitution of our beliefs. In particular, emotional beliefs are those whose meaning would change if emotion were removed from them. By late 2002, an emotional belief that Australia should intervene in the Solomon Islands was forming, although Downer’s dismissal of interventionism suggests that this belief was not strongly held at that time. Humiliation was an important background variable between 2000 and late 2002, and it became particularly important when triggered by other emotions in early 2003.

In Section One, I argued that emotion affects a person’s cognition—how they select and interpret information. Information that confirms existing beliefs is likely to be accepted, provoking no further investigation, while “disconfirming evidence” is more likely to be disbelieved. Emotion, then, can help to explain how two parties may draw different conclusions while viewing the same fact scenario—a situation illustrated in its simplest form by the classic “glass half-full, glass half-empty” idiom. It is reasonable to argue, then, that emotion played an important part in Australia’s rapid change of policy towards intervention in the Solomon Islands. A visible result of Australia’s participation in Iraq was a sense of pride, and greater confidence, among its security policymakers.

This sense of pride and confidence is demonstrated by Howard’s declaration, made shortly after the end of hostilities in Iraq, that Australia was enjoying “unparalleled world respect.”⁵⁸ The US Secretary of State announced that Australia was now “a critical player on the world stage.”⁵⁹ One such source of this pride was demonstrated in a public radio address shortly after the end of hostilities, wherein Bush praised the Australian contribution to the war, saying Australians should “be justly proud of the superb performance of [its forces].”⁶⁰ Further adding to this sense of pride was the fact that Australia’s participation in the toppling of Saddam’s regime was done without Australian casualties.⁶¹ In May 2003, Howard and his wife were even given an award of sorts, and invited to Bush’s Texas ranch where Bush lauded Howard’s “courage” for participating in Iraq.⁶²

The boost to Australian policymakers’ confidence from the reaction to its participation in Iraq led to a new perspective on the Solomon Islands scenario, even absent any substantive change “on the ground” since Downer’s rejection of intervention. Australia initially held back from intervening in January 2003 due to a lack of certainty of success, illustrated by Downer’s statement above. I posit that it was pride and confidence that constituted the belief that Australia should intervene in the Solomon Islands. A newfound confidence made them more willing to

take risks, and it is from such a sentiment that the Regional Assistance Mission to Solomon Islands (RAMSI) was created. Once this belief was in place, Australia's leaders began to view the available evidence differently. Downer's assertion in January that "foreigners do not have answers for the deep-seated problems afflicting Solomon Islands" gave way to a declaration in June that "we should not stand by and allow this state of affairs to continue."⁶³ Concern over the lack of an exit strategy quickly transformed into "let's [re-engineer the Solomons,] even if it takes more than a decade."⁶⁴

The presence of RAMSI's large military contingent suggests another link between the intervention and Australia's participation in Iraq. Having succeeded, to varying degrees, in East Timor, Afghanistan, and Iraq, in large part due to military capabilities, it is perhaps unsurprising that the RAMSI intervention adopted a military-heavy composition. Despite the low-level nature of the Solomon Islands conflict, Australia deployed 1,700 troops, a sharp departure from the military component of the force comprising only 100 personnel on standby in Australia recommended by an influential think tank.⁶⁵ Although operational concerns may have been important, it appears unlikely that this was the principal driver of Australia's choice to deploy such a large number of troops. Such an assertion would presuppose that the contributors to the think tank's report were mistaken about the operational concerns of the Australian military, a situation unlikely for a publication whose mandate includes military matters.

Howard's relationship with Bush provides another angle from which the confidence argument may be made. In the wake of the invasion of Iraq, Bush lavished praise on Howard, praising his courage and calling him a "man of steel."⁶⁶ This served as a boost to Howard's confidence, as the leader of the world's superpower publicly praised attributes that Howard held to be important. Without this, Howard may not have played the central role in the policy turnaround that he did, a role highlighted by Downer in a recent interview: it was only after he and Howard discussed the possibility of intervention that the policy reversal took shape.⁶⁷ Indeed, Howard himself later argued that strategic considerations stemming from the "War on Terror" had no part in his decision to intervene in the Solomon Islands, giving greater credence to the responsibility argument put forward in Section Two.⁶⁸ The central role played by Australia's senior leaders in this decision appears to be a decisive factor, especially in light of the fact that the Department of Foreign Affairs and Trade had hitherto been opposed to intervention.⁶⁹

This policy turnaround helps to illustrate the powerful effect that emotion can have on information assimilation. Australia's leaders changed their perception of the situation in a way that aligned with their already

partially-formed belief that they should intervene in the Solomon Islands. A Prime Minister who was not a specialist in foreign policy, and who had not previously taken an active interest in the South Pacific, overcame the reluctance of a specialist body of foreign policy actors to drive an interventionist policy. If confidence and a desire to avoid humiliation were to be removed from the belief that Australia should intervene in the Solomon Islands, its meaning would change considerably. Without incorporating emotion, current academic explanations that focus on the international strategic environment struggle to explain this policy reversal.

Conclusion

Studying the effect of emotions on beliefs can yield useful results. In this case, an emotions-centric analysis helped to explain an otherwise puzzling Australian foreign policy action: despite rejecting interventionism in January 2003, by June Australia's leaders had decided to mount RAMSI—an ambitious intervention into the Solomon Islands whose objective was to rescue the country from the brink of state failure.

Throughout this article, I focused on the possible effects of two emotions—pride and humiliation—on Australia's political leaders, whose roles in this decision loom particularly large. The pride and confidence these leaders gained following their participation in the Iraq War resulted in a change in their perception of the Solomon Islands, even in the absence of significant changes in the fact situation. The analysis illustrates the important role that emotion plays in how individuals both assimilate and process information, which then contributes to the decision-making process. The utility of emotions-centric analyses should not be understated, particularly with respect to their ability to better inform the rationalistic approach to international relations. ■

Notes

¹ The author wishes to thank Maria Rublee, Rosemary Judd, and the three anonymous reviewers whose helpful comments improved the quality of this article immeasurably. This article represents the author's personal views and not those of the New Zealand Government.

² Clive Moore, *Happy Isles in Crisis: The historical causes for a failing state in Solomon Islands, 1998–2004* (Canberra: Asia Pacific Press, 2004), 110.

³ *Ibid.*, 1, 26.

⁴ Amnesty International, "Solomon Islands: A Forgotten Conflict," <http://www.amnesty.org/en/library/info/ASA43/005/2000/en> (accessed February 17, 2012).

⁵ Moore, *Happy Isles*, 4. For an overview of the conflict in the Solomon Islands, see Tarcisius Tara Kabutaulaka, "Solomon Islands," *Contemporary Pacific* 16, no. 2 (2004): 393–401 and Tarcisius Tara Kabutaulaka, "Australian Foreign Policy and the RAMSI Intervention in Solomon Islands," *Contemporary Pacific* 17, no. 2 (2005): 283–308. For a more in-depth analysis see Jon Fraenkel, *Manipulation of Custom: From Uprising to Intervention in the Solomon Islands* (Wellington: Victoria University Press, 2004).

⁶ Russell W. Glenn, *Counterinsurgency in a Test Tube: Analyzing the Success of the Regional Assistance Mission to Solomon Islands (RAMSI)* (Santa Monica: RAND Corporation, 2007), 17–18.

⁷ Moore, *Happy Isles*, 188–191.

⁸ *Ibid.*, 8.

⁹ Kabutaulaka, "Australian Foreign Policy," 286.

¹⁰ Alexander Downer, "Neighbours Cannot Be Re-colonised," op-ed in *The Australian*, January 8, 2003.

¹¹ For instance, see Kabutaulaka, "Australian Foreign Policy," 288–290; Elsin Wainwright, "Responding to state failure—the case of Australia and the Solomon Islands," *Australian Journal of International Affairs* 57, no. 3 (2003): 485–498; Michael Fullilove, *The Testament of Solomons: RAMSI and International State-building* (Sydney: Lowy Institute for International Policy, 2006), 6–8.

¹² AAP, "Fed: DFAT revises Aust death toll from Sept 11 down to 15," March 8, 2002; and BBC, "Bali death toll set at 202," February 19, 2003.

¹³ ASPI, *Beyond Bali: ASPI's Strategic Assessment 2002* (Barton, ACT: ASPI, 2002), 3–5; the other policy report was ASPI, *Our Failing Neighbour: Australia and the Future of Solomon Islands* (Barton, ACT: ASPI, 2003).

¹⁴ ASPI, *Beyond Bali*, 29.

¹⁵ Thucydides, in Richard Crawley, trans., *History of the Peloponnesian War* (London: JM Dent, 1910), 1.75.3, 3.45.4 and 5.89.1.

¹⁶ Crawford, "Passion," 120–122; see also Saurette, "You Dissin Me? Humiliation and Post 9/11 Global Politics," *Review of International Studies* 32 (2008): 499. For an in-depth discussion of emotions, international relations, and Thucydides, see Richard Ned Lebow, "Constructive Realism," *International Studies Review* 6, no. 2 (2004): 346–348.

¹⁷ Ross, "Coming in," 197–198.

¹⁸ Martha Finnemore, *National Interests in International Society*, (Ithaca: Cornell University Press, 1996), 1–33.

¹⁹ *Ibid.*, 15.

²⁰ Neta Crawford, "The Passion of World Politics: Propositions on Emotions and Emotional Relations," *International Security* 24, no.4 (2000): 116–156; and Paul Sau-

rette, "You Dissin Me?"; Jonathan Mercer, "Emotional Beliefs," *International Organization* 64, no.1 (2010): 1–31; and Andrew A. G. Ross, "Coming in from the Cold: Constructivism and Emotions," *European Journal of International Relations* 12, no.2 (2006): 197–222.

²¹ Mercer, "Emotional Beliefs," 2.

²² *Ibid.*, 5.

²³ Crawford, "Passion," 125.

²⁴ Mercer, "Emotional Beliefs," 2.

²⁵ *Ibid.*, 5–6.

²⁶ *Ibid.*, 10.

²⁷ *Ibid.*, 4–5 and 9–10.

²⁸ *Ibid.*, 7.

²⁹ *Ibid.*, 9–10.

³⁰ Aristotle, *The Art of Rhetoric*, as quoted in Mercer, "Emotional Beliefs," 9.

³¹ Saurette, "You Dissin Me?" 499.

³² See Crawford, "Passion"; Saurette, "You Dissin Me?"; Mercer, "Emotional Beliefs,"; and Ross, "Coming in."

³³ Mercer, "Emotional Beliefs," 5–6.

³⁴ Andrew H. Kydd, 2005, as quoted in Mercer, "Emotional Beliefs," 8–9.

³⁵ Mercer, "Emotional Beliefs," 2.

³⁶ *Ibid.*, 9.

³⁷ *Ibid.*, 5.

³⁸ I make extensive use of Saurette's theorisation of humiliation in Saurette, "You Dissin Me?" 505. Quote taken from pp.506–7.

³⁹ For several examples of this, see Jenny Hayward-Jones, "World eyeing Australia's backyard," *The Australian*, November 4, 2010; *Illawarra Mercury*, "Australia 'could have prevented uprising,'" June 6, 2000; and *The Australian*, "Solomons MP Canberra Bound," June 4, 2003; Tom Allard and Mark Baker, "PM's vow: we'll get the bastards," *Sydney Morning Herald*, October 21, 2002.

⁴⁰ John Howard, "House of Representatives Official Hansard," August 12, 2003, available at <http://www.aph.gov.au/hansard/rep/dailys/dr120803.pdf>, 18198, (accessed February 17, 2012). My emphasis.

⁴¹ Alex Spillius, "Bush entrusts 'deputy sheriff' Howard with Pacific policing role," *The Telegraph*, August 15, 2003. My emphasis.

⁴² Spillius, "Bush entrusts 'Deputy Sheriff.'" My emphasis.

⁴³ *Sydney Morning Herald*, "Howard: Solomons could have become haven for terrorists," July 23, 2003. My emphasis.

⁴⁴ John Braithwaite and others, *Pillars and Shadows: Statebuilding as Peacebuilding in Solomon Islands* (Canberra: ANU Press, 2010), 50–51.

⁴⁵ Alexander Downer, as quoted in Mary-Louise O'Callaghan, "Pacific Policeman," *The Australian*, June 14, 2003.

⁴⁶ Donald A. Debats, Tim McDonald, and Margaret-Ann Williams, "Mr Howard Goes to Washington: September 11, the Australian-American Relationship and Attributes of Leadership," *Australian Journal of Political Science* 42, no.2 (2007): 238.

⁴⁷ BBC, "Bush praises Australian PM 'courage,'" May 3, 2003.

⁴⁸ See, for instance Spillius, "Bush entrusts 'Deputy sheriff'"; BBC, "Bush hails 'sheriff' Australia," October 16, 2003; BBC, "Bush thanks Australian allies," October 23, 2003.

⁴⁹ ASPI, *Our Failing Neighbour: Australia and the Future of Solomon Islands* (Barton, ACT: ASPI, 2003).

⁵⁰ Jason Burke, Matthew Brace, and Sandra Jordan, "All Australia can offer is guano island," *The Guardian*, September 2, 2001.

⁵¹ Anne Summers, "The day that shook Howard's world," *The Sydney Morning Herald*, February 17, 2007.

⁵² John Howard, "Speech on Bali Bombing," October 14, 2002, available at <http://www.scoop.co.nz/stories/W00210/S00109.htm> (accessed February 15, 2012); John Shovelan, "Bush backs Howard's pre-emptive strike approach," ABC, December 3, 2002; Tarcisius Tara Kabutaulaka, "'Failed State' and the War on Terror: Intervention in Solomon Islands," Analysis from the East-West Center No. 72, March 2004, available at <http://www.eastwestcenter.org/fileadmin/stored/pdfs/apio72.pdf> (accessed February 15, 2012).

⁵³ *Sydney Morning Herald*, "Bush lauds Howard as 'man of steel,'" May 4, 2003; Tom Al-lard, "UN Slated as Solomons Action Nears," *Sydney Morning Herald*, June 27, 2003.

⁵⁴ Elsinia Wainwright, "Responding to state failure—the case of Australia and the Solomon Islands," *Australian Journal of International Affairs* 57, no. 3 (2003): 490; Commonwealth of Australia, *Advancing the National Interest: Australia's Foreign and Trade Policy White Paper*, 2003, report available at: <http://australianpolitics.com/foreign/elements/2003—whitepaper.pdf>, (accessed February 15, 2012), 93.

⁵⁵ Downer, "Neighbours."

⁵⁶ Department of Defence, *The War In Iraq: ADF Operations in the Middle East in 2003*, available at <http://www.defence.gov.au/publications/lessons.pdf> (accessed February 15, 2012), 12, 35.

⁵⁷ Fullilove, *The Testament of Solomons*, 7.

⁵⁸ John Howard, as quoted in Kabutaulaka, "Australian Foreign Policy," 291.

⁵⁹ Daniel Flitton, "Issues in Australian Foreign Policy: July to December 2003," *Australian Journal of Politics and History* 50, no.2 (2004): 229–246, 230.

⁶⁰ George W. Bush, "America Deeply Grateful for Australian Contribution Says Bush," transcript of the President's weekly radio address to the nation, May 3,

2003, available at <http://australianpolitics.com/news/2003/05/03-05-03a.shtml> (accessed February 17, 2012).

⁶¹ Richard Ponzio, "The Solomon Islands: The UN and Intervention by Coalitions of the Willing," *International Peacekeeping* 12, no.2 (2005): 177.

⁶² Transcript of a press conference held by President Bush and Prime Minister Howard, May 3, available at <http://australianpolitics.com/news/2003/05/03-05-03.shtml> (accessed February 17, 2012).

⁶³ Alexander Downer, "Our Failing Neighbour: Australia and the future of the Solomon Islands," speech at the launch of the ASPI report of the same name, June 10, 2003, available at <http://www.foreignminister.gov.au/speeches/2003/030610-solomonislands.html> (accessed February 17, 2012).

⁶⁴ Braithwaite and others, *Pillars and Shadows*, 50–51.

⁶⁵ ASPI, *Our Failing Neighbour*, 42.

⁶⁶ BBC, "Bush praises Australian PM's 'courage'"; *Sydney Morning Herald*, "Bush lauds Howard as 'man of steel.'"

⁶⁷ Braithwaite, et al., *Pillars and Shadows*, 50–51.

⁶⁸ *Ibid.*, 50.

⁶⁹ *Ibid.*, 50–51.

What is “Illicit?”: A Response to Carol Jean Gallo, “The Informal Economy and Resource Exploitation in the Democratic Republic of Congo”

LAURA SEAY

ABSTRACT

Carol Jean Gallo’s research on conceptualizing the nature of the Democratic Republic of Congo’s (DRC) informal economies is an important contribution to the literature on the DRC and illicit economies worldwide. In this response, I situate Gallo’s article within the policy debate about ending the trade in conflict minerals in eastern Congo. I argue that her work in part explains the disastrous unintended consequences of section 1502 of the Dodd-Frank financial reform bill for Congolese mining communities. In particular it raises questions about the nature of legality and corruption in the fragile state context. I conclude by recommending that she strengthen her argument through deeper engagement with the conflict minerals literature and by offering specific policy prescriptions on how to build the rule of law in a state in which almost no one has experienced anything but highly personalized and ineffective governance.

Since the July 2010 passage of the Dodd-Frank Wall Street Reform and Consumer Protection Act by the United States Congress, Congo advocates, industry leaders, and scholars have engaged in a furious policy debate over one of the act’s more obscure provisions. Section 1502 of the act requires the US Securities and Exchange Commission (SEC) to require companies using minerals from the Democratic Republic of the Congo (DRC) to disclose whether any of the minerals used can be shown not to finance the activities of armed groups. This legislation is complemented by a set of 2011 Office for Economic Co-operation and Development (OECD) recommendations on due diligence procedures for ensuring minerals are conflict-free,¹ as well as numerous other efforts to get the Congolese conflict mineral trade under control.

While the law required the SEC to promulgate rules based on section 1502’s requirements by April 2011, as of March 2012, those rules have

“What is “Illicit?”, A Response to Carol Jean Gallo, “The Informal Economy and Resource Exploitation in the Democratic Republic of Congo”, *St Antony’s International Review* 8, no. 1 (2012): 167-173.

yet to be announced. Regardless, the law has already had consequences for the DRC mining sector. The Congolese government responded initially by enacting a six-month ban on mineral sales from three provinces. When that ban expired, an almost worldwide *de facto* boycott of Congolese minerals developed in response to a decision by the Malaysia Smelting Corporation (MSC) to stop buying from the DRC, since it could not verify that any of those minerals would be conflict-free. As the MSC was by far the largest purchaser of Congolese conflict minerals, their decision to stop purchasing from the DRC halted almost all sales. The effects of this *de facto* boycott of Congolese minerals on miners and civilians involved in the mineral trade have been disastrous. Tens of thousands, if not millions, are out of work, smuggling is a major problem,² and many miners have shifted their activities into the completely unregulated artisanal gold mining sector, in which smuggling is easy and into which no successful traceability schemes have yet been introduced.

As the debate over conflict minerals has progressed, a growing body of scholarly literature presents a very critical perspective on section 1502 and its effects. Autesserre contends that advocates' overwhelming focus on conflict minerals as a cause of violence in the DRC has had the adverse effect of pulling attention away from efforts to address the root causes of conflict in Congo, thereby allowing more human rights violations to occur in the interim.³ Seay argues that advocates' poor understanding of the Congolese conflict, especially with respect to the lack of rule of law and governing institutions, means that efforts to create effective traceability schemes are highly unlikely to stop the trade in conflict minerals.⁴ Examining the regulatory issues surrounding section 1502's implementation, Taylor argues that while disclosure regulations can be a useful tool for improving corporate social responsibility, the law's requirements "go far beyond disclosure and may impede issuers' ability to conduct business in the DRC region."⁵ The advocacy community, meanwhile, has largely dismissed these criticisms, insisting that their approach is one piece of the puzzle to ending violence in the DRC. On few issues relating to policy toward African states is there such a wide gulf between the academic and advocacy communities.

Carol Jean Gallo wades into these hazardous waters with an important contribution: "The Informal Economy and Resource Exploitation in the Democratic Republic of Congo." Gallo provides a useful summary of the controversy over section 1502, but focuses her analysis on a broader conceptual issue: how do we understand the nature of resource extraction by informal actors in the DRC? As Gallo observes, there is no broad agreement among scholars as to how the Congolese economy—particularly its illicit sectors—should be conceptualized and analyzed.

MacGaffey, author of the seminal work on the Congo's informal economy, refers to activities that are illegal (because they are unregulated), but not criminal as the country's "second economy."⁶ Marysse refers to the country's "informal" economy and sets his analysis in the context of Bayart's classic conception of the criminalization of the state, viewing illicit mineral extraction as "plunder." The United Nations, meanwhile, defines illicit mineral extraction as "illegal," while Andreas, Castelles, and Portes emphasize context over strict typologies which may obscure more than they illuminate.

Gallo engages with all of these definitions and others, noting the strengths and weaknesses of each approach. She ultimately concludes that Marysse's conception of plunder in an informal economy is the most useful for examining the conflict minerals trade, though she cautions that more room is needed to understand how "the boundaries of the official and informal economies shift with time and changing political struggles."⁷ She concludes that the most useful way to understand the Congolese mineral economy is a hybrid of those models already proposed:

A synthesis of the models described by the authors reviewed in this paper would include two tiers of interacting economic activity: illicit and official. The illicit economy may be divided into criminal and non-criminal activities, and the official economy may include the criminalized state. The non-criminal sphere of the illicit economy would be referred to as the informal economy. In the case of the DRC, it is easy to see how Marysse's concept of plunder—which could take place in any of those spheres—is more useful than the concept of illegality.⁸

This is a useful conceptualization of the DRC's mineral extraction sector, particularly in that it takes into account plunder by official agents of the state—such as the Congolese national army. But what does it really mean to speak of an "official" or "formal" economy in the Congolese context? As Gallo notes, "the historical context of the DRC, the criminalization of the state, and the changing structure of its informal economy demonstrate the problem with relying on rigid notions of illicit, formal, and informal economies without examining the social and political struggles that shape their boundaries."⁹

Terms like "formal economy" or "official economy" are almost meaningless categories in a fragile state like the DRC, where up to 90 per cent or more of the population is employed in the informal sector. Understanding "legality" in such a context is also problematic. As Gallo notes, the United Nations conception of conflict minerals extraction defines it as "illegal," and under formal Congolese law, it certainly is, but does the idea of "legal" resource extraction have meaning in a context largely missing regulatory authorities with sufficient capacity to enforce laws?

This is precisely the issue that Gallo raises with respect to descriptions of Congo's mineral economy. But the need for specification of concepts goes beyond simply understanding the boundaries of Congo's informal, formal, and criminal economies to a deeper range of questions about the very nature of the Congolese state, legality, and the rule of law. What constitutes "legal" mineral extraction when revenue from state mining contracts goes to officials who use very little of that money for the public good? Does it even make sense to engage in questions of legality and illegality when most agents of "state" authority are autonomous actors, earning their own salaries through revenues obtained by holding the reins of what Englebert appropriately terms "legal command?"¹⁰ Related conceptualizations such as "corruption" mean less in the Congolese context. If the state does not collect taxes and therefore does not pay the salaries of its employees, is the employee who then uses his position to collect revenue to replace his salary "corrupt" in the traditional sense? If doing so is the only way he or she can afford to send children to school, feed the family, and buy necessities, is it really corruption? Is there an alternative to corruption in such a situation?

As Gallo notes, the nature of the informal and illicit economies in the DRC is constantly shifting, making it even more difficult to specify what exactly we are trying to explain. What is clear is that tens of millions of ordinary, non-armed Congolese civilians—as well as a wide variety of international actors—have stakes in all of the DRC's economies. Gallo's recommended conceptualization relies on a definition that is essentially dependent on the actors involved in resource extraction. Under her framework, we must base our evaluations on who is engaging in the mineral trade. Thus, a militant non-state armed group extracting resources is engaged in criminal, illicit plunder, while an artisanal miner working in a non-militarized, unregulated mine is simply part of the informal economy. What is less clear is how we would categorize a civilian artisanal miner who works in a militarized mine and whose activities are largely controlled by armed actors. Is this miner, who almost certainly has no choice whether or not to participate, engaged in illicit criminal activity? Or is he or she simply an informal actor whose profits have been co-opted by a plundering militia?

That status of such a miner demonstrates why Gallo's warning of the need to be flexible in our conceptualizations and to account for shifting realities is important beyond theoretical, scholarly debates. As she notes, the unintended effects of section 1502 have had an enormous impact on Congolese artisanal miners, such as a 90 per cent decline in exports of some minerals that occurred when the Congolese government instituted its own mining ban. Rather than engaging in a nu-

anced discussion of who is affected by and involved in mining through all of Congo's economies, those who pushed for 1502 conceived of it as primarily being about international consumers and the electronics corporations who use Congolese minerals in their products. This demand-based approach reasoned that all Congolese in mining areas would be better off if demand for conflict minerals fell, thus incentivizing armed groups from participating in the mineral extraction sector. Setting aside the fact that there is little evidence for the claim that targeting one source of revenue for some armed groups will lead to a reduction in violence,¹¹ this idea did not fully account for the effect that section 1502 could have on livelihoods in mining communities, as well as the broader economy of the eastern Kivu in which traders, merchants, and small-scale entrepreneurs depend on the purchases of those involved in mining to stay in business. Section 1502 directly and indirectly impacted the income-generating abilities of millions of Congolese, leading to the many negative reactions to what is now known as "Obama's Law" in the region.¹²

The disastrous effect of the bans and de facto boycott resulting from section 1502 might have been mitigated by a more specific understanding of the complex relationships between those involved in all of Congo's economies rather than a simplistic understanding of criminal, illicit extraction and its relationship to violence. Indeed, although an artisanal miner working under a militia in horrific conditions has a terrible job and an extraordinarily difficult life, compared to the alternative of working in subsistence agriculture, participation in Congo's illicit economy is for many the slightly more lucrative of two very bad options. A stronger recognition that, as Gallo puts it, recognizes "the official and informal sectors intersect with each other rather than existing in isolation"¹³ might have resulted in policies that would have better anticipated and managed the effects of section 1502 on mining communities and the broader Congolese economies in which non-militant actors participate and rely upon for their well-being.

Gallo's piece would benefit from broader engagement with the literature on resource extraction in the DRC. She does situate her research in the significant literatures on illegal and informal economies. There is important new literature on the effects of conflict minerals advocacy that came out after her article¹⁴ but there is a deeper literature on the DRC mineral question with which Gallo does not engage that would strengthen her overall argument. In particular, Jackson's work on the DRC mineral economy shows that mining tantalum—a metal used in many electronic appliances including computers and cell phones—is a critical survival strategy for many miners. Jackson anticipated possible

policy failures from the confusion around the nature of the DRC's informal economy, noting that "international action against the 'war economy' in the Congo must therefore be careful to punish the real villains."¹⁵ Jackson also contextualizes the Congo's "war economy" in the need to understand it as a borderlands phenomenon, further supporting Gallo's point that the boundaries and nature of the DRC informal economy are constantly in motion.¹⁶

Vlassenroot and his many co-authors have also engaged extensively, writing on the micro-dynamics of the DRC minerals and war economies during the wars and since. They conclude that the country's war economies were "byproducts rather than ... causes of conflict";¹⁷ economic security had to be part of peace deals if they were to be sustainable;¹⁸ and that a modicum of security in mineral-rich areas can be achieved through "a negotiated, mutual accommodation of economic and political interests linked with security provision."¹⁹ All of these conclusions are supportive of Gallo's point regarding the interaction and interlinking of DRC's economies and point to the fact that the only solutions to the conflict minerals problem will necessarily be complex.

Gallo's analysis would also have benefitted from some policy prescriptions as well as an outline for a future research agenda. Given that the DRC's economy defies easy categorization, what does this mean for international donors and policy makers trying to effect positive change in the region? Moreover, what does it mean for efforts to combat the trade in conflict minerals, which both advocates and academics agree leads to horrific human rights abuses against innocent civilians? While Gallo notes that it will continue to be difficult to do business in and attract foreign investment to the DRC, she does not provide readers with suggestions as to how to overcome these barriers or what lines of inquiry might make it possible to explore the possibilities. How, for example, will the rule of law be built in a state in which almost no one has ever experienced anything but highly personalized, ineffective governance? How should the DRC government begin to secure contract and property rights, re-establish functioning justice systems, and convince the public to pay taxes? These questions are unasked, and the reader is left wondering about the full implications of Gallo's argument.

That said, Gallo's research is an important contribution to a growing body of literature on the post-war effects of the Congo's conflict mineral trade and efforts to combat it. It should be widely read by those with an interest in illicit economies, the DRC, and understanding fragile states. ■

¹ OECD, "OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas," <http://www.oecd.org/document/36/0,3746,en-2649-34889-44307940-1-1-1-1,00.html> (accessed April 10, 2012).

² United Nations Group of Experts on the Democratic Republic of Congo, "Final Report 2011" <http://www.un.org/ga/search/view-doc.asp?symbol=S/2011/738>, (accessed March 27, 2012).

³ Severine Autesserre, "Dangerous Tales: Dominant Narratives on the Congo and Their Unintended Consequences," *African Affairs* 111, no. 442 (2012): 1-21.

⁴ Laura E. Seay, "What's Wrong with Dodd-Frank 1502? Conflict Minerals, Civilian Livelihoods, and the Unintended Consequences of Western Advocacy," *Center for Global Development Working Paper* 284 (2012), <http://www.cgdev.org/files/1425843-file-Seay-Dodd-Frank-final.pdf> (accessed March 27, 2012).

⁵ Celia Taylor, "Conflict Minerals and SEC Disclosure Regulation," *Harvard Business Law Review Online* 2 (2012): 105-120.

⁶ Janet MacGaffrey, ed. *The Real Economy of Zaire: the Contribution of Smuggling and Other Unofficial Activities to National Wealth* (Philadelphia, University of Pennsylvania Press, 1991): 8.

⁷ Carol Jean Gallo, "The Informal Economy and Resource Exploitation in the Democratic Republic of Congo," *St. Antony's International Review* 7, no. 2 (2012): 24.

⁸ *Ibid.*, 21.

⁹ *Ibid.*, 23.

¹⁰ Pierre Englebert, *Africa: Unity, Sovereignty, Sorrow* (Boulder: Lynne Rienner, 2009).

¹¹ Seay, "What's Wrong," 18-19.

¹² David Aronson, "How Congress Devastated Congo," *New York Times*, August 7, 2011.

¹³ Gallo, "The Informal Economy," 10.

¹⁴ Autesserre, "Dangerous Tales"; Seay, "What's Wrong"; Taylor, "Conflict Minerals."

¹⁵ Stephen Jackson, "Making a killing: criminality and coping in the Kivu war economy," *Review of African Political Economy* 29, no. 93-94 (2002): 517-536.

¹⁶ *Ibid.*

¹⁷ Koen Vlassenroot and Hans Romkema, "The Emergence of a New Order? Resources and War in Eastern Congo," *Journal of Humanitarian Assistance* (2002).

¹⁸ *Ibid.*

¹⁹ Nicholas Garrett, Sylvia Sergiou, and Koen Vlassenroot, "Negotiated peace for extortion: the case of Walikale territory in eastern DR Congo," *Journal of Eastern African Studies* 3, no. 1 (2009): 1-21.

Peter Drahos. *The Global Governance of Knowledge*

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Peter Drahos is admittedly bored by his own research topic. "Patent of-fice administration," he claims in the opening lines of his comprehensive and meticulous study, "would strike many a person as a dull topic. In fact this is wrong, for it is an excruciatingly dull topic" (p.xiv). Yet Drahos' work, while dealing with the unremarkable complexities of not just patent law administration in general, but also the particularities of the patent administrations of over forty-five offices around the world, manages to create a fascinating framework through which those administrations create monopolies over the knowledge commons.

In *The Global Governance of Knowledge*, Drahos begins his study of patent law "with the hypothesis that patent offices around the world are co-operating to integrate their administrative procedures and technical systems, thereby building a system for the global governance of knowledge" (p. 3). Public knowledge, he argues, is regulated by a series of intellectual property rights and patents that simultaneously commodifies public knowledge and establishes a system of governance over that public knowledge.

Patents were originally created to provide an incentive for the production of social value. You, the inventor, provide us, society, with something of social value in exchange for a monopoly on that product. Theoretically, this practice is a mutually beneficial process of creating social advantage and incentivizing progress. The purpose of patenting in the first instance involves a contract with a specific government in order to produce social value for that specific territory. But Drahos sees patenting differently: as taxation on knowledge. While Macaulay's 1841 suggestion of copyright as a "tax on readers" is credible, Drahos' attempt to extend this logic to arguing that copyrights and patents are analogously taxes on

innovators (because they are also consumers), is stretched a little thinly. It is, however, helpful to quantify the often ambiguous and abstract patenting effects by comparing the system in general to a monetary cost-benefit scheme that taxation generates. And like any system of taxation, a bureaucracy is required to administer the regulations.

But Drahos notices how the “bureaucracy” of the global governance of knowledge is somewhat unexamined. He astutely recognizes how strange it is that all but five countries in the world have patent offices. If the evolution of patent law is linked to technological affluence, as he claims, then what is the explanation for the abundance of these patent offices in developing countries? He traces the evolution of patent office developments over time and notes that the patent offices in developing countries were largely established either during colonialism or under the authority of multinational corporations that had a positive incentive to cheapen and simplify the process of getting a patent in several countries at one time. These multinational corporations sought to minimize state control over technology in order to bolster their monopoly on the knowledge tax.

The study of patent offices around the world provides Drahos with enough investigative evidence to conclude that multinational corporations are seeking harmonization and hegemony in the patent office administration in order to advance their own ends. What this amounts to is a hierarchy amongst various national patent offices. Specifically, Drahos found that the “global patent governance system is emerging as a hierarchical network that is automating the process of decision-making about patent applications. The network of patent offices is not a flat structure of equals. Rather it is a tiered structure dominated by a core of large offices made up of the EPO, JPO and the USPTO with KIPO and SIPO now also forming part of this networked core” (p. 46).¹

With members of the “core” at the forefront of the patent office global bureaucracy, Drahos taps into how large multinational corporations control the governance of the knowledge commons through soft power. But this can be at the expense of the interests of developing countries. The process of patent administration in a developing country is different from that of a developed country, and rightly so. By harmonizing the procedures of patent-granting globally, there is a risk for developing countries where the culture of patenting is dissimilar to countries such as the United States that received 417,000 patent applications in 2006. The “core” patent offices have streamlined their patenting procedures, made them cheaper and easier, and they are increasingly responsible for training personnel in countries around the world. Drahos argues that this can be risky for development in the developing countries that might benefit from a more structured and less automated patenting system.

Further, patent offices work like private businesses. Every patent that is approved has revenues and every application that requests a patent extension provides revenues. Large multinational organizations are responsible for a majority of the patent applications and extensions, and they therefore provide the biggest source of revenue for the patent offices. Drahos shows how the patent offices tend to serve the interests of their top “clients” by heeding their administrative requests. Furthermore, so long as the patent standards are created through multilateral, regional and bilateral trade agreements, which are led by the core, “many states, most of them developing countries, have moved up to “international standards that really are the standards of the US and EU”” (p. 318).

All in all, Drahos’ book is a well-researched and thought-provoking look into what factors influence the governance of knowledge and who really propels policies forward. Drahos’ investigations highlights exactly how multinational corporations and powerful countries gain monopolies and use a certain type of soft power to guide the future through personal gain. What we find is that the current way patent administration is organized does not necessarily benefit developing countries. But while many would argue that the patent administration is damaged beyond repair, Drahos sees a future for it so long as it adopts the several practical reforms he suggests in the concluding chapters of his investigation. ■

Notes

¹ Acronyms refer to the European Patent Office, the Japan Patent Office, the United States Patent and Trademark Office, the Korean Intellectual Property Office, and the (Chinese) State Intellectual Property Office.

Xiaolan Fu and Luc Soete, eds. *The Rise of Technological Power in the South.*

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The fast growth occurring in the BRICS countries (Brazil, Russia, India, China and South Africa) is reshaping the global economic environment in an unprecedented fashion. At the core of this rapid transformation lies the impressive building of technological capabilities in the South. From an initial strategy of assimilation of foreign knowledge, the BRICS have now moved on to constructing domestic innovation dynamics to sustain their economic growth. As a result, the global geography of innovation is evolving: it is no longer exclusive to developed countries. This powerful process of change is raising multiple questions: what role does technology play in the catch-up strategies of the BRICS? Do the BRICS make use of specific public policies to build their technological capabilities? Most importantly, can we draw transferable lessons for other developing countries from the experiences of the BRICS?

This collection of papers, selected by Xiaolan Fu and Luc Soete, addresses those interrogations brilliantly. The sixteen chapters of the book highlight the mechanisms of technological upgrading and economic catch-up in the BRICS, suggest relevant lessons for other latecomers to industrialisation and present emerging research concepts in the field of science and technology for development. The main strength of the book lies in the mix of cross-country analysis and country case studies, as well as the use of both quantitative and qualitative research methods. These different approaches bring valuable insights for understanding a complex phenomenon that will determine the development prospects of many emerging economies.

The book is divided into five sections. The first and second sections seek to analyze the different innovation policies and strategies pursued by the BRICS in their attempt to catch-up with the North. While the first section carries a comparative element in relation to three cross-country analyses, the second delves deeper into national strategies, with three independent case studies (China, South Africa, and Latin America). The third section looks at innovation systems and technological capabilities,

exploring the sources of finance for innovation in emerging economies, the mechanics of technological learning, and the role played by small and medium enterprises (SMEs) in the building of technological capabilities. The fourth section revisits the long-standing academic debate on technological transfer through foreign direct investments (FDI) and transnational corporations (TNCs), offering new perspectives on the determinants of positive spillovers from FDI and shedding light on the increasingly important TNCs from the South. Finally, the last section explores the role of technology in tackling the environmental (climate change), social (growing inequalities), and economic challenges of sustainable development. This section makes an essential connection between the domestic processes of industrialisation and economic development, and more global issues faced by all developing countries.

Dahlman's chapter is of particular interest. It offers a new definition of innovation for developing countries, "which should be considered ... in terms of products, services or forms of organisation that are new to local practice, rather than just to global practice" (p. 16). Following this redefinition, Dahlman identifies three sources of innovation: the acquisition of foreign technology, the domestic creation of new knowledge, and the diffusion of this new knowledge within the country. This expands widely the usual notion of innovation and is crucial for understanding the catch-up processes at work in the BRICS. Dahlman's comparative analysis of Brazilian, Chinese, and Indian innovation strategies also highlights how these three countries have used different policies based on their respective economic advantages. It also underlines the need to adapt technology strategies to the level of development of the country. The implications of these observations for other developing countries are in tune with those of Nayyar's chapter: learning from the BRICS "should seek to contextualize rather than replicate" (p. 65).

Fu and Li's chapter is another notable contribution. This work explores the relationship between human capital and the technology spillover effects of FDI. The spillover effects of FDI have been extremely contested in the academic debate—some authors have argued that they are insignificant, while others have maintained that they are positive. Fu and Li use a threshold approach to suggest a middle way: technology spillover effects of FDI do occur, but only if there is sufficient human capital in the receiving country to absorb these new technologies. These findings could have a major impact on policy-making, as they provide a clear target that will allow these countries to benefit from the positive effects of FDI.

The book does not, however, address the consequences of the rise of technological power in the South for developed countries, and leaves

the reader wondering about the political implications of the growing capabilities of these emerging economies. Nevertheless, it provides an exciting introduction to the issues of technology and innovation in developing countries, and makes a remarkable contribution to research efforts in this field. ■

Tony Judt and Timothy Snyder. *Thinking the Twentieth Century*.

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ISBN: 978-0-434-01742-3.

RYAN BERG (Brasenose College, University of Oxford)

After publishing *Postwar* in 2005, an award-winning tour de force of European history since World War II, Tony Judt prepared to write an ambitious intellectual and cultural history of twentieth century social thought. A professor of European history at New York University, founder and director of the Erich Maria Remarque Institute at New York University (NYU), frequent contributor to *The New York Review of Books*, and public intellectual, Judt's plan for his next book mothballed when personal history intervened in the form of Amyotrophic Lateral Sclerosis (ALS), otherwise known as Lou Gehrig's disease. By late 2008, Judt no longer had use of his hands; two years later, he passed away.

In this paucity of time, Judt produced a trove of scholarship—four books, the last of which, *Thinking the Twentieth Century*, is a conversational history that serves as a marvelous homage to his life's work, his style of thinking, and an insider's look at an incandescent mind. Written with the help of a friend—Yale historian Timothy Snyder, who visited Judt at his home in New York City—the book is a dialogue between the two men, documenting the story Judt hoped to tell in his planned book on the intellectual and cultural history of the twentieth century. By its very dialogical nature, however, it sometimes wanders afield of this story—often to the great benefit of the reader.

Thinking the Twentieth Century is a dense but invigorating tome, redolent, at times, of a college academic bowl, replete with references to picayune events, facts, statistics, and thinkers off the historical map of even the most profound intellectuals. It contains nine chapters, each beginning with a brief autobiographical account of formative moments in Judt's intellectual or personal development. Among other things, the chapters cover Judt's genealogy, his English upbringing, his fascination with Israeli kibbutzim and Zionism, his early adherence to Marxism, his sustained interest in French political and intellectual history, and his increasing interest in Eastern Europe (never realized fully by the time of his passing). In many cases, the autobiographical details run

deeper and more personal than in Judt's other posthumous work, *The Memory Chalet*.¹

Thinking the Twentieth Century affords the reader a consummate image of Judt: uncompromising, critical, and unabashedly opinionated. Judt criticizes American foreign policy, free markets, fellow academics, Israel,² journalists, and trends within the academic study of history (e.g., cultural studies are "jejune and callow" (p. 145)). Judt even attacks mainstream public intellectuals in America: he dismisses unapologetically David Brooks as ignorant—"he knows nothing" (p. 313)—and Thomas Friedman as nothing but a social networker—Friedman's idea of expertise is merely "the notion of access to something special." (p. 314)

Judt has his heroes, however—Albert Camus, Hannah Arendt, Arthur Koestler, Leszek Kolakowski, Eric Hobsbawm, John Maynard Keynes, Primo Levi, Léon Blum, and Czeslaw Milosz, inter alia. His commendation of these twentieth century thinkers became the fodder for *Reappraisals*, published in 2008, a series of essays that positioned him soundly as a polymath.³ After all, not many historians have the intellectual range to produce erudite essays on Primo Levi's novels, yet also turn their attention to, for example, US diplomatic history or a profound analysis of current events for *The New York Review of Books*.

The book benefits from its dialogic nature and the spontaneity produced inevitably by conversation. The conversation "reflects the spontaneity, unpredictability, and sometimes playfulness of two minds purposefully engaged through speech." (p. xii) The book's many tangents do not detract from its quality or readability; rather, they enhance it and ensure against a formulaic, interview-style feel. In fact, although the book aims at "small truths" and focuses often on topics or several topics within each chapter, it avoids the rigid feeling of a Socratic dialogue, laser-focused on discovering one, universal truth. Moreover, Judt's mind and his mental library, an "improbably capacious and well-catalogued one" of thousands of books, commands respect even whilst Lou Gehrig's disease rendered his body impotent. Yet, his is not the only mind worthy of note in this story; Snyder proves himself a brilliant and worthy interlocutor on topics of philosophy, politics, and economics. Indeed, the reader walks away with the impression that very few people in the world shared the requisite reading list or were equipped to handle an intellectual conversation of this depth with Tony Judt.

Thinking is a passionate indictment of simple explanations—"the urge to insist that the complex is just a disguise for the simple was one of the plagues of the twentieth century"—whilst simultaneously broadening and complicating the terms of many of these debates. (p. xiii) The book's intellectual range is, tout court, stunning, if occasionally over-

whelming: fascism and communism, Zionism and nationalism, identity politics and cultural studies, psychoanalysis, current affairs, the role of the historian and public intellectual. What is more, the book benefits from a delicate handling of subject matter, i.e., the twentieth century, the squalid, best forgotten, malevolent, and turbulent period, on the one hand, and the remarkably innovative, thriving, and scientific one, if only in retrospect, on the other.

Of great interest to many readers will be the chapter on Judt's transformation into a public intellectual shortly after his arrival in New York. He and Snyder tackle some of the most vexing questions pressing on any aspiring public intellectual: what are appropriate *métiers*, or professions, for intellectuals to affiliate with, and how do these change over time? On what grounds may an intellectual criticize, say, the Israeli-Palestinian conflict or the Iraq war if his or her written oeuvre hitherto consists of novels or histories of a different character or subject? Which types of media contribute appropriately to a broader public conversation? Judt proffers the public intellectual as a creature of the nation, operating most effectively within a middle register of action, facing great difficulty sparking anything resembling a global conversation.

It was Robert Silvers, the well-respected editor of *The New York Review of Books*, who urged Judt to expand his intellectual horizons: he "taught me in spite of myself that I really could do this sort of writing; that I could think and comment upon subjects far removed from my formal scholarly concerns. Silvers offered the occasion to write about things I would have thought beyond me." (p. 284) This is a particularly sobering and enlightening chapter in the book for any intellectually-inclined reader. At a time when many scholars, especially in the field of history, are overly provincial, according to Judt, he sees it as the "responsibility of the intellectual" to do more than excel in his or her (narrowly) defined field—a notion lost often on contemporary scholars.⁴ The latter, in Judt's view, envisage their scholarship in primarily vertical terms, i.e., they move from undergraduate majors and specialty programs to even more refined graduate specialty programs, and finally on to (hopefully) tenured professorship as one of the leading voices on some parochial subject. Whilst these scholars may indulge in areas outside of their field, such as theatre, the arts, or politics, they likely consume it rather than create it. In other words, Judt excoriates—implicitly and explicitly—those historians who fail to escape the vertical conception of an intellectual career, "building a career path among historians alone." (p. 285)

When asked pointedly about the best way to remain critical and insightful on one's topic, imperative to the function of a public intellectual,

Judt offers a characteristic response: remain an outsider. Judt's thoughts are those of the *spectateur engagé*—the simultaneously engaged yet independent intellectual.⁵ Ironically, this is an apt metaphor for Judt's entire life: the son of eastern European Jews who never felt completely at home in England; an autodidact at Cambridge who never learned historiography or became part of a dedicated "school;"⁶ an expert by training in French social thought with serious and evolving interests in eastern European history; and an American denizen and critic without the faintest bond to the United States. In all his various identities, historical topics, and methods, Judt remains an outsider. What makes him so trenchant is his ability to find himself on the inside of variegated debates, to pass through them with "eyes and ears wide open," and to return "to the outside to think and write." (p. xv)⁶

In sum, on a panoply of issues, Judt leaves little ambiguity where he stands; such was his wont. With the help of Snyder, he challenges comfortable historical narratives and explicates why such discomfort is part of the truth with which we must live; after all, the worst we can do is spin dulcet lies about ourselves. Mirroring the intellectuals Judt commemorates in *Reappraisals* and *Thinking the Twentieth Century*, he brims with original thought and has the courage of his convictions—both undervalued traits in his beloved twentieth century, and increasingly rare in our own. ■

Notes

¹ Tony Judt, *The Memory Chalet* (London: Vintage, 2011).

² Cf. Tony Judt, "Israel: the Alternative," *The New York Review of Books* 50, no. 16 (2003) wherein he argues that Israel is a "belligerently intolerant, faith-driven ethno state." Judt called for the conversion of "Israel from a Jewish state to a bi-national one," including all of what is now Israel, Gaza, East Jerusalem, and the West Bank. Critics flooded the *New York Review of Books* with comments like "anti-Semite" and "self-hating Jew," and the article ultimately led to Judt's removal from the editorial board of *The New Republic*.

³ Tony Judt, *Reappraisals: Reflections on the Forgotten Twentieth Century* (London: Vintage, 2009).

⁴ Cf. Tony Judt, *The Burden of Responsibility: Blum, Camus, Aron, and the French Twentieth Century* (Chicago: University of Chicago Press, 2007).

⁵ Timothy Garton Ash, "Tony Judt (1948-2010)," *The New York Review of Books* 57, no. 14 (2010).

⁶ Indeed, Judt eschews the proliferation of "theory" or "frameworks" within history because it indicates a sense of inferiority and insecurity: "These tools, such

as they are, offer the reassuring illusion of intellectual structure: a discipline with rules and procedures. When people ask what you do, you can confidently reply that you work in 'subaltern studies,' or in 'the new Cultural History,' or whatever it might be—much as a chemist might describe himself as specializing in Inorganic Chemistry or Biochemistry...these labels are utterly present-minded" (p. 262). Not only does strong identification with a sub-discipline reflect a lack of intellectual self-confidence, for Judt, but it also produces books that are unappealing to read.