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Andrés López-Rivera

**Blurring Global Epistemic  
Boundaries: The Emergence of  
Traditional Knowledge in  
Environmental Governance**



## Global Cooperation Research Papers 25

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doi: 10.14282/2198-0411-GCRP-25

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*Printed by UDZ, Duisburg*

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ISSN: 2198-1949 (Print)

ISSN: 2198-0411 (Online)

DOI: 10.14282/2198-0411-GCRP-25

# Blurring Global Epistemic Boundaries: The Emergence of Traditional Knowledge in Environmental Governance

Andrés López-Rivera

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## *Preface*

*Two decades ago, science studies scholars like Helga Nowotny, Sheila Jasanoff and Bruno Latour argued for considering all forms of knowledge to deal with the increasing complexity of global policy problems such as climate change. Thus, scientific knowledge needs to share its authoritative status with cognitive sources from ‘ordinary people’, which can be similarly, or even more, significant to better understanding how to govern such problems. Andrés López-Rivera, a PhD candidate and member of the research group ‘Global Cooperation and Polycentric Governance’ at the Centre for Global Cooperation Research, makes an important contribution to this debate on knowledge governance and environmental problems. In his research paper, ‘Blurring Global Epistemic Boundaries: The Emergence of Traditional Knowledge in Environmental Governance’, Andrés uses the concept of ‘boundary work’ by Thomas Gieryn, a pioneer in science studies, to show how traditional knowledge became recognized - in a contested process - as a relevant cognitive resource in governing processes of the global environment. His research perspective fills a clear gap in the literature as it is not clear how the notion of traditional knowledge relates to historical and contemporary developments revolving around science and politics. Such a perspective contributes to conceptual debates around pathways and polycentricity in global governance and provides fresh empirical insights about marginal nonstate actors from outside scientific communities who successfully established their knowledge claims.*

*Frank Gadinger (Editorial Board)*

# Blurring Global Epistemic Boundaries: The Emergence of Traditional Knowledge in Environmental Governance

## 1 Introduction

Governing the environment implies *knowing* the environment. The ways in which the environment is known lay the groundwork for environmental governance – not only in its current form but, perhaps more importantly, in its genesis. Our modern understanding of the environment was first brought into light by a global science that, in the context of postwar internationalism, took hold in international organizations with the United Nations (UN) at its core (Macekura 2015; Selcer 2018). This involved a form of ‘aggregated expertise’ bringing together a wide range of scientific networks clustering around the emerging environmental sciences, and ‘culminating in the multiauthored mega-reports of international bodies’ (Warde, Robin, and Sörlin 2018, 16). It is this aggregated and transnational expertise that produces the scientific representations of the environment as a global governance object, i.e. as a policy issue of global scope (Allan 2017; Jasanoff and Martello 2004a; Miller 2004).

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Given the pervasiveness of global science in environmental governance, it is striking that other forms of knowledge often labeled as ‘traditional’, ‘indigenous’ or ‘local’, have become established in global environmental discourses and institutions. Particularly since 1992, in the wake of the Earth Summit in Rio de Janeiro, ‘traditional knowledge’<sup>1</sup> became embedded as an official category in the language of global organizations, most prominently in the fields of environment and development. This has been described as ‘a shift from “science” as the primary cognitive resource for addressing global-scale social and ecological challenges to the broader category of “knowledge”’ (Jasanoff and Martello 2004b: 9). But how do we account for this shift? Jasanoff and Martello (2004b) argue in this respect that the shift towards other forms of knowledge responds to the increasing complexity and uncertainty of global environmental problems. However, this implicitly assumes that other knowledges were already available as a cognitive resource that policymakers could tap into.

What is left unexplained is how a particular set of intellectual activities, other than science, came to be perceived as a form of knowledge whose attributes are valuable for governing the global environment. Or, alternatively, how is it that traditional knowledge came to be perceived as a cognitive resource?

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<sup>1</sup> I use the term ‘traditional knowledge’ here to refer to a set of cognate terms, in specific ‘indigenous knowledge’ and ‘local knowledge’.

To address this question, a proper account of the emergence of these other knowledges in global governance is indispensable. This issue remains unaccounted for in current literature on the constitution of global governance problems, in which science and expertise come to the fore (e.g. Allan 2017; Miller 2004; Warde, Robin, and Sörlin 2018). It is not clear how the notion of traditional knowledge, which is now mainstream in global environmental governance, fits into these historical and contemporary accounts that revolve around ‘big science’ and interstate politics. The emergence and legitimation of traditional knowledge challenge these historical accounts by pointing to marginal nonstate actors from outside scientific communities.

The question of the emergence of traditional knowledge is further complicated by the fact that the authority of science is predicated upon the divide between science and nonscience. This point has been forcefully made by critical theory through discussions on, for example, ‘epistemic violence’ (Spivak 1994), the ‘coloniality of knowledge’ (Anibal Quijano 2000; Aníbal Quijano 2007) or the ‘abyssal line’ (Santos 2018). However, these approaches often lack a detailed analysis of the practices that produce and maintain this divide, i.e. the constitutive and pragmatic interventions whereby science is distinguished from what it is not (Gieryn 1983, 1999; Latour 1986; Turnbull 2003). The question, then, is how traditional knowledge became something that could be legitimately claimed in the science-based governance of the global environment.

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Here, I propose an initial approach to this issue by delving into the emergence of *traditional knowledge* as an official category<sup>2</sup> in global environmental governance. Emergence here designates the process of becoming an official category, that is, the process by which a loose category becomes enshrined in the official reports and agreements of global environmental organizations. More specifically, this paper seeks to understand how the emergence of traditional knowledge complicates the divide between science and nonscience, along with related assumptions of what constitutes a ‘knowledge actor’. Building on Gieryn’s concept of *boundary work* and global governance approaches to discursive practices, I argue that traditional knowledge was first signaled in environmental governance by public scientists and landmark environmental reports that blurred the boundaries between science and nonscience, thereby opening up a space for other actors to claim this knowledge. These other actors, most prominently indigenous peoples, came to occupy this space when they consolidated their presence in global institutions as transnational actors. In this sense, the legitimation of traditional knowledge points to the constitution of unconventional ‘knowledge actors’ (cf. Haas 1992; Stone 2013) in global governance.

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<sup>2</sup> Starr (1992: 263) defines official classifications as ‘categories officially adopted or approved by the state and incorporated into law and administration’. Building on this definition, the focus here is not on the state but on global organizations.

In this paper, I trace the category of traditional knowledge and its cognates in emblematic documents, in particular the mega-reports and agreements of international bodies that marked the initial phases of institutionalization of global environmental governance. The aim is not to reconstruct the complex history of environmental governance, nor the intricate intellectual origins of the concept of traditional knowledge in ethnoscience. Instead, what I propose is a chronological account of specific historical instances in which traditional knowledge appears in the institutionalization of global environmental governance. These instances occurring in different historical contexts might be understood as layers of discourse and practice that underwrite the emergence of the official category of traditional knowledge. This process of emergence revolves around a constellation of international bodies with the United Nations at its core; which is arguably the matrix of the contemporary complex architecture of environmental governance (Selcer 2018; Warde, Robin, and Sörlin 2018).

The paper proceeds as follows. In the first section, I put forth an analytical approach which specifies the blurring of boundaries between science and nonscience in order to understand the emergence and legitimation of traditional knowledge. In the second section, I briefly discuss some aspects of the intellectual origins of the concept of traditional knowledge, indicating that a prevalent theme in the literature points to its ‘glocal’ and utilitarian dimensions. The subsequent sections are structured in three phases or milestones that mark the emergence and consecration of traditional knowledge in global environmental governance. The first phase spans from the first postwar environmental conferences to the genesis of an environmental regime at the Stockholm conference in 1972. The second phase traces the main post-Stockholm reports that brought about the idea of sustainable development, namely the *World Conservation Strategy* and *Our Common Future*. Lastly, the third phase encompasses the Earth Summit itself.

## 2 Blurring Boundaries

In his seminal work on the demarcation of science from nonscience, Thomas Gieryn (1983, 1999) argues that scientists engage in ‘boundary work’ to create a public image of science that underlines its superiority vis-à-vis other nonscientific intellectual endeavors (e.g., in Gieryn [1983], mechanics, religion, and politics). Boundary work is defined as the ‘attribution of selected characteristics to the institution of science (i.e., to its practitioners, methods, stock of knowledge, values and work organization) for purposes of constructing a social boundary that distinguishes some intellectual activities as ‘nonscience’ (1983: 782). The underlying assumption of boundary work is that the demarcation between science and nonscience is a construct. This non-

sentialist position is eloquently described by Latour as follows: ‘the divide between prescientific and scientific culture is merely a border —like that between Tijuana and San Diego. It is enforced arbitrarily by police and bureaucrats, but it does not represent any natural boundary’ (1986: 2). It is because boundaries are not natural that these are drawn with the purpose of gaining or preserving epistemic authority.

Boundary work, as a rhetorical style that underlies epistemic authority, echoes both discourse and practice-oriented approaches to the study of expertise in international relations and global governance studies (cf. Allan 2018; Bueger 2014). These approaches differ from prevalent actor-centered theories in that they do not assume predefined ‘knowledge actors’ that embody epistemic authority, as in the epistemic communities framework (Haas 1992). Instead, they emphasize ‘competing knowledgeable practices’ (Litfin 1995: 252) that underwrite the constitution of actors (Braun, Schindler, and Wille 2018; Quack 2016; Sending 2015). In this sense, boundary work might be understood within a wider framework of (discursive) practices, whereby competing claims to knowledge strive for authority over an object of governance. Within this framework, boundary work draws our attention to a specific dimension of knowledge-based claim making, as it focuses on the production of epistemic boundaries, particularly between science and nonscience. Under this perspective, the analysis shifts from ‘knowledge actors’ to the constitution of actorhood as epistemic boundaries are drawn and redrawn.

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In this paper, I set out to recast the concept of boundary work to grapple with the emergence of other forms of knowledge. While boundary work in its different forms or genres<sup>3</sup> describes a technique of demarcation, my focus here is on how discursive practices complicate the boundaries between science and nonscience. I refer to this as *boundary blurring*. This consists in assigning characteristics of the institution of science to intellectual activities that lie outside this very institution. In other words, boundary blurring might be described as an affinity-seeking endeavor as opposed to a technique of demarcation. It attenuates the divide between science and nonscience, thereby opening up a space for claims to other forms of knowledge.

Boundary blurring sheds light onto the conditions under which other knowledges gain legitimation, i.e. ‘recognition by oneself and others of the value of an entity (whether a person, an action, or a situation)’ (Lamont 2012: 206). In boundary blurring, legitimation is achieved by attributing those properties science claims for itself to other forms of knowledge. It follows that boundary blurring underwrites forms of epistemic authority. The blurring of boundaries, or the attenuation of the demarcation between science and nonscience, implies that the authority that is claimed by science is amenable to spill over

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<sup>3</sup> Gieryn distinguishes three genres of boundary work: expulsion, expansion, and protection of autonomy (1999: 15–17).

to other knowledges – and those who claim these. The underlying assumption, consistent with the boundary work perspective, is that epistemic authority is not a zero-sum game. As Gieryn puts it, ‘[e]pistemic authority does not exist as an omnipresent ether, but rather is enacted as people debate (and ultimately decide) where to locate the legitimate jurisdiction over natural facts’ (1999: 15). The iterative legitimations of traditional knowledge through boundary blurring, in that sense, are recurring instantiations of epistemic authority.

In the following, I argue that the category of traditional knowledge arose from boundary blurring interventions, i.e. attributions of scientific characteristics to a diffuse set of intellectual activities that are produced outside the scientific community. Forming this category of traditional knowledge served at the same time to legitimate this knowledge and those who claim it. By moving from the category of knowledge to the category of actors who claim it, we are well advised to take heed of the way in which symbolic boundaries interact with social boundaries (Lamont and Molnár 2002). Symbolic boundaries refer to ‘conceptual distinctions made by social actors to categorize objects’, whereas social boundaries are ‘objectified forms of social differences’ (Lamont and Molnár 2002: 168). In the case of traditional knowledge, symbolic boundaries of knowledge categories overlap with social boundaries of ethnic distinctions (cf. Wimmer 2013), most prominently with those that revolve around indigeneity. Building on this distinction, I consider how the category of traditional knowledge underpins novel forms of actorhood, in particular for indigenous peoples as ‘knowledge-holders’.

### 3 The Science *About* Traditional Knowledge

The intellectual origins of the scholarly concept of traditional knowledge are rooted in the scientific disciplines of anthropology and ecology (Berkes 2008: 49–50). I cannot do justice to this intricate and complex intellectual history here; however, some preliminary considerations are in order. Ethnoscience and human ecology, which arose in the second half of the twentieth century, were detrimental in producing an understanding of the intellectual endeavors of ‘non-Western’ peoples as traditional knowledge. The prefix ‘ethno-’, broadly understood, ‘refers to the system of knowledge and cognition typical of a given culture’ (Sturtevant 1964: 99). In its origins, ethnoscience was primarily concerned with folk taxonomies (H. C. Conklin 1972), and a number of these focused on classifications of the natural environment of specific cultures; e.g. ethnobotany, ethnozoology or ethnobiology among others (Berkes 2008). Hence, traditional knowledge was predominantly understood as knowledge about the natural milieu, as evidenced by the proliferation of more specific labels such as ‘traditional *ecological* knowledge’ or ‘local *environmental* knowledge’ (Horowitz 2015; Nakashima and Roué 2002).

Ultimately, the ethnosciences did not seek merely to reconstruct the knowledge systems of non-Western cultures but instead, drew parallels between Western science and other knowledges. One of its proponents, the anthropologist Stephen Brush (1993: 658), notes that cognitive anthropology has sought to demonstrate ‘historic affinity and structural similarity between non-Western (“non-literate”, “pre-scientific”) and Western (“literate”, “scientific”) knowledge systems’. This affinity-seeking theme can be understood as a form of boundary blurring in so far as it works against the demarcation of science from nonscience. It essentially does the exact opposite. That is, it blurs the boundaries that sustain clean demarcations between science and other forms of knowledge.

This affinity-seeking theme would acquire utilitarian undertones in the inter- and trans-disciplinary endeavors of anthropology and ecology. Under the premise that ‘cultural knowledge is adaptive’ (Hunn 1982: 844), ethnoscientific and ecological perspectives were brought together. As Brush remarks, ‘human ecology has focused on the adaptive nature of local knowledge in a fashion similar to a utilitarian theme in cognitive anthropology’ (1993: 659). This utilitarian theme is ultimately rooted in the functionalist premise that survival is the fundamental purpose of society – and species. A key figure in this field, the Canadian ecologist Fikret Berkes (2008: 71), notes that ‘[s]urvival is the ultimate criterion for verification of traditional ecological knowledge, and adaptation is key’. In a similar vein, anthropologist Eugene Hunn claims that ‘[t]raditions are the products of generations of intelligent reflection tested in the rigorous *laboratory of survival*’ (1993: 13; emphasis added)<sup>4</sup>.

Traditional knowledge, in this utilitarian sense, is a ‘science of the concrete’ (Nakashima and Roué 2002). In the words of one of its proponents, ‘[f]olk science is for the most part applied science, rarely truly theoretical’ (Hunn 1982: 831). The upshot of such an understanding is that, despite being specific to a culture, traditional knowledge is ‘usable knowledge’, that is, a ‘domain of science [or knowledge] that is likely to be adopted by decision makers’ (Haas and Stevens 2011: 128; see also Tuinstra, Turnhout, and Halfman 2019). Under this conception, traditional knowledge is amenable to be systematized for scientific or governing purposes, as has been already pointed out by some critical scholars (e.g. Agrawal 2002; Martello 2001; Nadasdy 1999). This makes it different from wisdom, which is, in essence, ‘unformalized and even unformalizable’ (Ezrahi 2004: 255). This distinction between knowledge, in a scientific sense, and wisdom allows for a counterfactual: had traditional

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<sup>4</sup> This argument harks back to the functionalist school of anthropology, and its founders Malinowski and Radcliffe-Brown, which emphasizes the utilitarian orientation of ‘primitive’ cultures given the imperative of natural needs. A major counterpoint to the utilitarian conception of traditional knowledge was formulated by Claude Lévi-Strauss, who in *The Savage Mind*, famously argued that ‘animals and plants are not known as a result of their usefulness; they are deemed to be useful or interesting because they are first of all known’ (Lévi-Strauss 1966: 9).

knowledge been recognized merely as ‘ancestral wisdom’, it would not have become ‘usable knowledge’ in environmental governance.

While a utilitarian understanding of traditional knowledge was being established in the works of ethnoscience, the environment was becoming a global entity in the workings of global science. In novel scientific representations, ‘the environment could appear on any level from the life-world of the microscopic organism to the entire world of humans, the Earth, and its atmosphere’ (Warde, Robin, and Sörlin 2018: 12). Ecology embraced ‘big science’ and was taken ‘beyond local and regional applications to planetary scales from the 1960s’ (Warde, Robin, and Sörlin 2018: 91). Linking traditional knowledge to big science was an intellectual project of postwar environmental governance premised upon the ‘view from everywhere’, which consisted in ‘[i]ntegrating more points of view [to produce] more useful knowledge— and new communities of knowers’ (Selcer 2018: 22). It was, in this sense, a view that sought to reconcile the local and the global. Under this premise, linkages were drawn between traditional (local) knowledge and global science and policy.

To a significant degree, these linkages were the work of public scientists straddling the worlds of science and politics. These scientists were working in a networked institutional setting with the United Nations at its center, one in which collective intellectual endeavors were politically mediated. The institutionalization of the global category of traditional knowledge bears the imprint of these political and public mediations. To this extent, the official *category* of traditional knowledge does not map neatly onto the anthropological and ecological *concept* of traditional knowledge. In its official form, traditional knowledge becomes increasingly detached from scholarly debates, some of which have long rejected the use of the concept (e.g. Agrawal 1995; Ellen 2004; Sillitoe 2007). Niezen refers to this detachment as a ‘process of institutional translation’ that is rooted in ‘the ethnological imaginations of international institutions’ (Niezen 2017: 13–14). This process of institutional translation becomes more decidedly detached when traditional knowledge enters international agreements and becomes embedded in policy interventions.

In sum, the intellectual origins of the concept of traditional knowledge point to both a utilitarian as well as a ‘glocal’ thread that run through the public and political interventions which brought it to global governance. On the one hand, the utilitarian thread speaks of a form of knowledge that is not only epistemically valid but also policy relevant for a specific domain of political intervention, namely the global environment. This utilitarian understanding turns a set of intellectual activities into ‘usable knowledge’. The glocal thread, on the other hand, constructs traditional knowledge as local while simultaneously embedding it into the global. This means that, despite having locality as one of its core features, traditional knowledge acquires relevance beyond its site of production – it becomes embedded in the global projects of science

and policy as they seek to know and govern the environment. In the sections to follow, I trace these utilitarian and glocal threads in the emergence of the category of traditional knowledge in global environmental governance.

## 4 Postwar Precursors: On ‘Backward People’ and the Facts of Nature

In 1949, the UN held two parallel conferences on natural resources and conservation, thereby laying the foundations of postwar environmental governance (Jundt 2014; Mahrane et al. 2012; Selcer 2018). These conferences were the UN Scientific Conference on the Conservation and Utilization of Resources (UNSCCUR), announced at the behest of US president Harry S. Truman, and the International Technical Conference on the Protection of Nature (ITCPN), sponsored by the United Nations Educational, Scientific and Cultural Organization (UNESCO). The UNSCCUR, on the one hand, responded to growing concerns about the scarcity of natural resources understood as a threat to peace and industry in the postwar international order. The ITCPN, on the other hand, put forth a concurrent vision of environmental governance in which the protection of nature took precedence over the utilization of natural resources. The economic focus of UNSCCUR, aiming at securing resources for private industry, was thus challenged by the ecology-centered approach of the ITCPN (Jundt 2014).

The ITCPN was intentionally held at the same time as the UNSCCUR to make sure that voices from UNESCO and its offspring organization, the International Union for the Protection (later Conservation) of Nature (IUPN/IUCN), were heard at the UNSCCUR. It is among the ranks of UNESCO and IUPN that the early thoughts on traditional knowledge began to take hold. Jean-Paul Harroy, the secretary-general of IUPN, was one of the key figures among the dissenting voices that went from one conference to the other to express a conservationist counterpoint in the discussions. Harroy took part in one of UNSCCUR’s plenary meetings in which the ‘education for conservation’ was considered. When prompted by the chairman to consider the ‘methods to be used with illiterate and *backward people*’, Harroy replied:

You wish to bring about a change in the habits of human beings in under-developed countries. You are dealing with *people who have traditional cultural habits which are adapted to the surroundings in which their ancestors lived, for the indigenous peoples have always used the empirical method*. During the centuries that method, by means of *a series of unsuccessful experiments*, has enabled them to develop certain cultural techniques which have been handed down from father to son, and which Europeans have sometimes found surprising and tried to change. (UN 1950: 269; emphasis added).

In a nutshell, this unnoticed statement foreshadows what was later to become the global discourse on traditional knowledge. It characterizes this knowledge as empirical, adaptive and experimental. Age-old cultural techniques are understood to be the outcomes of a series of experiments. In other words, traditional knowledge is here understood as a form of knowledge that is akin to science in its empirical and experimental facets, but at the same time forms part of traditional cultural habits. It follows that traditional knowledge cannot be dismissed as nonknowledge (e.g. ignorance, superstition or belief) and, by the same token, is not to be mended by Western education.

Before becoming IUPN's secretary-general, Harroy managed the Institute of National Parks of the Belgian Congo between 1935 and 1948. In 1944, he published the book *Afrique, terre qui meurt: La dégradation des sols africains sous l'influence de la colonisation*, which was the outcome of his doctoral degree in 'colonial sciences' at the Université Libre de Bruxelles (Van de Walle 2015). In it, Harroy holds colonization responsible for environmental degradation in Africa<sup>5</sup>. The book would influence postwar ecology and reach a wide audience, not the least because a summarized version of it was reproduced by William Vogt in his classic 1948 book *Road to Survival*. Somewhat paraphrasing Harroy, Vogt writes:

Before the arrival of the European, primitive populations apparently had some *empirical understandings of the laws controlling the African landscape*. In Madagascar, for example, excessive lumbering was punished by decapitation of the criminal upon the stump of one of the trees he had felled. (Vogt 1949: 249; emphasis added)

However, the claim that 'backward people' did not need to be educated in the scientific method to conserve nature because they held an 'empirical understanding' of their landscape was still a distant call in the early postwar period and its enduring colonial rule. Colonial ideology was pervasive in conservation, notably in the national parks of the Belgian Congo that Harroy once administered. Julian Huxley, the first director-general of UNESCO and one of the key figures behind the ITCPN, once praised the Belgian conservation model for treating 'pygmies, quite properly, as fauna rather than as tribes to be civilized' (quoted in De Bont 2015: 225). Harroy himself was a colonial administrator, serving as vice governor-general of the Belgian Congo and governor of Ruanda-Urundi (Van de Walle 2015). In retrospect, the continuation

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<sup>5</sup> Harroy's considerations of traditional knowledge rely to a significant extent on the work of British ecologist Edgar Barton Worthington, who in his volume *Science in Africa from 1938*, explains that 'In the past, the enforcement of radical changes in native methods has been advocated, but in recent years native agricultural practice has been regarded as worthy of respect. It is now coming to be realized that drastic methods rarely achieve their object, and that improvements are more likely to be attained by gradual development from existing methods.' (Worthington 1938: 302–3)

of colonial conservationism<sup>6</sup> was evident in the first years of the IUPN and the World Wildlife Fund (Macekura 2015: 61–63).

Following the parallel UN conferences of 1949, colonial ideas would resurface under the guise of ‘modernization’, much to the detriment of ‘traditional societies’, their culture and knowledge (Escobar 2011). Rostow’s (2008) relentless plea for the modernization of ‘pre-Newtonian societies’ serves as a telling example of how other knowledges were meant to be left behind in the pursuit of economic growth. The imperative of modernization coincides with the emergence of an incipient international normative framework for ‘indigenous and tribal populations’ that were up until then referred to as ‘primitive’ or ‘backward’. In 1957, the International Labor Organization (ILO) adopted Convention 107 ‘Concerning the Protection and Integration of Indigenous and Other Tribal and Semi-Tribal Populations in Independent Countries’. The convention set out a normative framework for the ‘integration’ of indigenous and tribal populations into national communities, with a focus on their labor and working conditions (Niezen 2003: 38).

In spite of modernization ideology, notions of traditional knowledge cling to UNESCO’s subsequent environmental initiatives. These initiatives were being introduced against the backdrop of the Cold War and decolonization, on one side, and the formation of an environmental movement beckoning cultural transformations in the 1960s, on the other (Fischer and Hajer 1999; Jamison 2001). By this time, ecology was taking its first steps towards ‘big science’ with the launch of the International Biological Program in 1964 and UNESCO’s Conference on the Rational Use and Conservation of the Resources of the Biosphere, also known as the ‘Biosphere Conference’, in 1968 (Warde, Robin, and Sörlin 2018: 136).

UNESCO’s Biosphere Conference brought new ecological ideas to the fore, highlighting the role of ‘man’ (i.e. humans) in the use and conservation of the biosphere. During the conference proceedings, one specific paper on the management of natural vegetation, drafted by Heinz Ellenberg and Jean Lebrun, underscored the importance of traditional knowledge, albeit not using the specific term. The paper states that,

In widely differing forms, with countless local or traditional variations, nomadic agriculture reflects an undeniable *sum total of pragmatic knowledge* and a *true philosophical approach to the facts of nature*.  
(UNESCO 1970: 107; emphasis added)

Jean Lebrun, the presumable author of this passage, was a colonial agronomist and botanist who had worked in the Belgian Congo under the auspices

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<sup>6</sup> This line of argument is also present in historical accounts of traditional knowledge that point to its description and co-optation by colonial scientists (Grove 1996: 480; Tilley 2011: 11).

of the Institute of the National Parks of Belgian Congo led by Jean-Paul Harroy (De Sloover 1986: 6). Not surprisingly, Lebrun's characterization of traditional nomadic knowledge as pragmatic and philosophical echoes Harroy's description of an age-old empirical and adaptive knowledge. The utilitarian theme is identifiable by the use of the term 'pragmatic knowledge'. The analogy with science is further specified by the reference to the 'facts of nature' which suggests that traditional knowledge is, very much like science, capable of establishing facts. The follow-up of the Biosphere Conference was the launch of the Man and the Biosphere Program in 1971, which was at first conceived as a successor of the International Biological Program. The program focusses on the establishment of biosphere reserves across the globe and includes a component of indigenous knowledge in its work (Hadley and Schreckenber 1995).

## 5 The Stockholm Conference or the Conspicuous Absence of Traditional Knowledge

The UN Conference on the Human Environment (UNCHE), also known as the 'Stockholm Conference', was a turning point in the nascent international environmental regime not least because it led to the creation of the UN Environment Program (UNEP). In its quest to reconcile environment and development, Stockholm became a crucible of novel ideas under the banner of 'ecodevelopment' (Macekura 2015: 223–26). The guiding ideology of the conference is found in the background report *Only One Earth: The Care and Maintenance of a Small Planet* (Ward and Dubos 1972), which was commissioned by UNCHE's secretary general Maurice Strong. The report, which has been described as the 'conference bible' (Selcer 2018: 201), was officially prepared with the assistance of a committee of 152 corresponding consultants in 58 countries. However, *Only One Earth* largely reflects the positions of its two masterminds: the prominent American biologist René Dubos, one of the key figures of UNESCO's Biosphere Conference, and the political economist and public intellectual Barbara Ward (Baroness Jackson).

*Only One Earth* makes reference to traditional knowledge when it discusses modern science and technology. In a section that concerns itself with 'the problems of high technology', the report discusses traditional farming in the following terms:

*Traditional farming methods were not unscientific. Indeed, they were based upon one of science's most powerful tools – experimentation, which, in this case is simply called experience. But there is a limit to productivity by traditional farming... Just as the Neolithic farmer very greatly increased the soil's productivity by moving from the gathering*

of wild grain to the growing of cultivated seed, so today, the scientific revolution is making possible another leap upward in output. (Ward and Dubos 1972: 65; emphasis added)

In this excerpt, traditional knowledge, in the form of ‘traditional farming methods’, is understood as akin to science because it relies on science’s ‘most powerful tool’, namely experimentation. To make this claim, the authors equate experimentation with experience. However, this blurring of epistemic boundaries is immediately followed by a caveat that introduces an abrupt distinction between traditional knowledge and science. Scientific – as opposed to traditional – farming guarantees more productivity. By an analogy to the transition from hunting and gathering to agriculture, this passage situates traditional knowledge in the past. This seems to leave no space for traditional knowledge in modern societies. However, another passage in the report refutes this point as it considers the importance of traditional knowledge – here variously referred to as ‘traditional wisdom’, ‘practical farming’ and ‘local inventiveness’:

... this framework of expertise needs to be profoundly rooted in the environmental realities of local soils, climates, and plant varieties and take into account all the *traditional wisdom* that *practical farming* has developed over the millennia... It is the combination of modern science with *local inventiveness* and local responsibility that is ultimately at the core of the only really effective and sustainable ecological balance. (Ward and Dubos 1972: 169)

Here, the ancient and local properties of traditional knowledge are understood as its epistemological and policy assets. Traditional and local forms of knowledge cannot be excluded from the governing of a highly technological world facing the threat of environmental crisis. In another instantiation of the utilitarian theme, the term ‘wisdom’ is immediately followed by the term ‘practical’, which recalls Lebrun’s juxtaposition of a ‘pragmatic knowledge’ and a ‘philosophical approach’. Understood in this way, knowledge cuts through the dichotomies of not only the traditional and modern but also the local and global. It achieves this by virtue of its affinities to science, which endow it with epistemic validity, and its distance from it, which makes it context-sensitive. It is in this affinity but not equivalence to science that traditional knowledge carves out its space in environmental governance. This is why the report advocates for the combination of ‘modern science’ and ‘local inventiveness’, presaging contemporary ideas of the co-production of knowledge (Bremer and Meisch 2017).

However, the insights of *Only One Earth* with regard to traditional knowledge did not materialize in the Stockholm Declaration on the Human Environment. The declaration does not contain a single reference to traditional knowledge. It condemns colonial and other forms of oppression in Principle

1 and reaffirms state control over natural resources in Principle 17. When it comes to science and technology, the declaration emphasizes its application to environmental issues, as part of their role in social and economic development (Principle 18). In this line, the declaration calls for technology transfer in favor of developing countries (Principle 20). Only one vague allusion to traditional knowledge is found in one of the outcome documents of Stockholm, namely the Action Plan for the Human Environment that collects 109 recommendations for environmental action. Recommendation 43 reproduces colonial and modernization discourses, as it refers to the conservation of ‘primitive varieties of traditional *pre-scientific* agriculture’ in genetic crop resources<sup>7</sup> (UN 1973: 14; emphasis added).

Third Worldism and decolonization figured prominently throughout the conference and led to the establishment of UNEP’s headquarters in Nairobi among other things. However, Third Worldism did not imply an alignment with the plight of what ILO Convention 107 called indigenous and tribal populations – those who would eventually claim traditional knowledge. A telling illustration of this is found in the closing plenary speech of one of the key figures of the Stockholm Conference, Indian Prime Minister Indira Gandhi, in which she famously decried the ‘pollution of poverty’. In her speech, Gandhi recalls:

The vociferous demand of elder tribal chiefs that their customs should be left undisturbed found support from noted anthropologists... I was amongst those who entirely approved. However, a visit to a remote part of our north-east frontier brought me in touch with a different point of view – the protest of the younger elements that while the rest of India was on the way to modernization, they were being preserved as museum pieces. Could we not say the same to the affluent nations? (Gandhi 1992: 11–12).

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Gandhi draws an analogy between the modernization of tribal groups and the modernization of the Third World. Indigenous and tribal peoples, precisely those who were celebrated by Ward and Dubos for their traditional wisdom and local inventiveness, found themselves relegated to the sidelines of economic and national modernization.

However, outside of the Stockholm Conference, a plethora of environmental idea(l)s were being aired in parallel forums and alternative events attended by prominent public intellectuals, including Margaret Mead, Barbara Ward, Barry Commoner, Paul Ehrlich, Samir Amin, and Josué de Castro. While the UN-sponsored Environment Forum was the official parallel NGO conference, other alternative civil society initiatives had sprung up: the Dai Dong, an ad

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<sup>7</sup> The allusion, nevertheless, anticipates an upsurge of global interests in plant genetic resources and traditional knowledge in the ensuing years (cf. Raustiala and Victor 2004).

hoc group of scientists convened through the Christian International Fellowship for Reconciliation; the People's (Folkets) Forum, an event organized by the Swedish environmental group Pow Wow; and the Hog Farm, a counter-culture 'festival of life' spearheaded by the hippie icon Stewart Brand. These parallel conferences brought to light the cleavage between 'insider' and 'outsider' NGOs. On the one hand, insider NGOs, such as the IUCN and the International Council of Scientific Unions (ICSU), took part in preparatory committees and provided advice on agenda items. On the other hand, outsider NGOs, the newcomers, took a more assertive political stance, often in opposition to UNCHE. As Feraru (1974: 49) recounts, the mediation of Margaret Mead and Barbara Ward was detrimental to avoid a breach between these factions and facilitated the production of a joint statement on behalf of 170 NGOs.

Other alternative NGO statements were adopted by the Dai Dong and the Oi International Committee. The latter was an international group of young scientists and scholars coming mostly from developing countries and advancing a critical version of Third Worldism. The name reflects the group's inspiration in non-Western cultures, as it was taken from the initial letters of a Swahili proverb, 'Ote iwappo', meaning 'all that is, must be considered' (UNESCO 1973: 3). One of the key figures of the Oi committee was Taghi Farvar, an Iranian doctoral student of Barry Commoner, who was engaged in the critique of development and 'the careless technology' (Farvar and Milton 1972). As a member of an indigenous tribe of nomadic pastoralists, Farvar would later become an indigenous leader and a relentless advocate of traditional knowledge. The Oi declaration reflects some of these positions in an incipient manner.

A humane technology for the Third World must necessarily come out of the incentives of the people themselves. This can only happen after a far-reaching social revolution has achieved the goal of total participation by the masses. The new technology must also reinforce many already existing ones such as traditional farming and medical techniques; it must direct innovation in accordance with human needs and environmental imperatives.

We reject the concept of 'neutrality of science and education'. They can be used to enslave man or to liberate him.  
(Oi Committee International 1972)

The Oi committee puts forth a radical way of defending what Ward and Dubos call 'local inventiveness'. Once again, there is recognition of the importance of traditional farming. What makes this statement more radical is its link to social revolution and straightforward critique of the neutrality of science. The Oi committee was not alone in its critique of top-down technologies. This would be part of a movement in the 1970s, variously called 'intermedi-

ate technology', 'alternative technology', or 'appropriate technology', which had been successful in entering international policy but was diverted from its original intentions in the process (Macekura 2015: 138).

The Oi declaration aligns itself with the incipient indigenous movement as it condemns the 'double oppression' of those who suffer not only from economic, but also ethnic, cultural and racial exploitation. It references the Declaration of Barbados from 1971, which was the outcome document of the Symposium on Interethnic Friction in South America, organized by the World Council of Churches and an international group of secular anthropologists, who were among the first to advocate for the 'liberation of the Indians' (The Declaration of Barbados 1973). The Oi committee further expresses its solidarity with 'the Indians of North and South America' in their 'struggles to retain their cultural identity and to defend their right to exist' (Oi Committee International 1972).

Beyond the Oi committee, another group sympathizing with the struggles of Indians came from the counter-culture movement and its alliance with the Red Power movement in the United States (Smith 2012). In Stockholm, this group gathered in the so-called Hog Farm, a tent city that was put up in an abandoned airport on the outskirts of the city. The counter-culture icon, Stewart Brand, founder of the Whole Earth Catalog, was one of its key figures. In this space, indigenous issues were brought to the world mainly through the Black Mesa Defense Fund, which was a campaign against coal mining in the Black Mesa plateau in Arizona, an area that overlapped with the Indian reservations of Navajo and Hopi tribes. This issue was brought to the fore by Jack Loeffler, an acolyte of Stewart Brand and Black Mesa activist, who attended the conference 'along with four Hopis and two Navajos' (Smith 2012: 142). However, the Black Mesa Defense campaign did not use traditional knowledge as a form of vindication. The issue was put in terms of spirituality and not of (usable) knowledge. In the announcement of the event, it is said that 'Peabody Coal Company dismisses the sacredness of Black Mesa as the superstition of a few old people – for who could prefer a mountain to money?' and it adds: 'It is hoped that the examination of cultures based on religious rather than economic imperatives may prove interesting and thought-provoking to those concerned with the root causes of environmental destruction' (Black Mesa Defense, 1972).

Black Mesa was just a small part of a transnational indigenous movement in the making. The 1970s were marked by an NGO explosion with a focus on social transformation (Sikkink and Smith 2002: 26). Some of these international NGOs were pro-indigenous organizations. Survival International was founded in 1969 as the Primitive People's Fund and became one of the first pro-indigenous NGOs along with the International Work Group on Indigenous Affairs (1968) and Cultural Survival (1972). For their part, indigenous peoples were moving towards self-organization in an ever-expanding trans-

national network. The World Council of Indigenous Peoples was created in 1974 under the leadership of the historical indigenous leader George Manuel. In the same year, the International Indian Treaty Council was founded. This organization was pivotal in the preparation of the 1977 International NGO Conference on Discrimination against Indigenous Populations in the Americas, which was attended by more than 100 indigenous delegates and participants (International Indian Treaty Council 1977: 1). A second International NGO Conference on Indigenous Peoples and the Land was held in 1981<sup>8</sup>. In the following year, these conferences led to the creation of the UN Working Group on Indigenous Populations, the first milestone of indigenous governance within the UN (see Annex, page 29).

The transnational rights-based indigenous movement would eventually forge a global identity (Bennani 2017; Niezen 2003). In this move, indigenous peoples turn away from Third Worldism and national liberation to denounce internal colonization and vindicate themselves as the Fourth World (Manuel 2019). It is telling that the key documents of Third Worldism, the Charter of Economic Rights and Duties of States and the Declaration on the Establishment of a New International Economic Order, both from 1974, speak of ‘indigenous technology’. However, the term indigenous is used in the sense of national or domestic and appears as an imperative of transfer of technology from developed to developing states. In the course of the 1980s and the 1990s, the term indigenous would be stripped from these national connotations to become the self-identification marker of those who were previously known as primitive or backward. It is from this global identity that indigenous peoples would later claim traditional knowledge at the Rio Earth Summit in 1992.

## 6 Paving the Way for Rio: Sustainable Development Encounters Traditional Knowledge

IUCN’s *World Conservation Strategy* from 1980 (henceforth the Strategy) was the first systematic report on global environmental degradation and, more importantly for our purposes, the first to feature a specific section on traditional knowledge and link it to sustainable development. It is no coincidence that the IUCN spearheaded the recognition of traditional knowledge in international bodies. In the period following Stockholm, IUCN’s somewhat inchoate ideas about traditional knowledge, as expressed by its first secre-

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<sup>8</sup> The conference received the input of five international indigenous groups: the International Indian Treaty Council; World Council of Indigenous Peoples; South American Indian Council; the Australian National Conference of Aborigines; the Indian Law Resource Center; and the Inuit Circumpolar Conference.

tary general Jean-Paul Harroy, took a concrete form and were linked to an emerging transnational indigenous movement under the leadership of prominent American ecologist Raymond Dasmann. As senior ecologist and head of research, Dasmann drew attention to indigenous peoples in IUCN's agenda from the mid-1970s. He referred to these as 'ecosystem people', that is, people who are attuned to their ecosystem, as opposed to what he called the 'biosphere people' or modern societies inflicting damage to the biosphere<sup>9</sup>. In 1975, the IUCN general assembly in Kinshasa adopted a resolution stressing the role of indigenous peoples and their traditional knowledge in 'conservation for development', the new guiding principle of the organization (Holdgate 1999; McCormick 1986).

The Strategy was, in the words of one of IUCN former secretary-generals, 'not only IUCN's most important product in the late 1970s, but possibly its most important single contribution in the whole of its history' (Holdgate 1999: 149). The document was prepared by IUCN senior policy advisor Robert Prescott-Allen under the auspices of the then secretary-general David Munro. Its preparation counted with the sponsorship of the World Wildlife Fund (WWF) and UNEP, as well as the collaboration of the Food and Agriculture Organization (FAO) and UNESCO. The main thrust of the report foregrounds the reconciliation between development and conservation through 'sustainable development' – a novel term to designate what was up until then called 'ecodevelopment'. The final report was the outcome of a series of workshops and committees, as well as several reviewing rounds in which IUCN drafts were commented on by members of WWF, UNEP, FAO and UNESCO (Holdgate 1999: 149–55). It was, in this sense, an interinstitutional endeavor of a network of international bodies to solve tensions between conservation and development agendas.

In addressing sustainable development, the strategy introduces the term 'traditional knowledge' in a subsection on 'conservation-based rural development'. The following excerpts grasp its main contentions:

Rural communities often have profound and detailed knowledge of the ecosystems and species with which they are in contact and effective ways of ensuring they are used sustainably.

Many traditional methods of living resource management are worth retaining or reviving, either in their original or in modified forms. For example, field experiments with traditional cropping systems in various parts of the world have demonstrated that many of these systems bring high yields, conserve nutrients and moisture, and suppress pests. (IUCN 1980, section 14.11)

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<sup>9</sup> These ideas were first presented at a Cambridge symposium organized by the renowned British anthropologist Sir Edmund Leach 'in the hope of bringing ecological and anthropological viewpoints together' (De Bont, 2015: 232).

The knowledge described here is linked to a particular object (ecosystems and species) and endowed with a specific utilitarian purpose, namely the sustainable use or management of natural resources. In this sense, it recalls earlier descriptions of traditional knowledge, in particular Harroy's 'adaptive knowledge' and Lebrun's 'pragmatic knowledge'. In assigning a utilitarian value to traditional knowledge, the description turns it into a form of usable knowledge that is amenable to interventions (either 'retaining' or 'reviving' it) that do not preclude its modification. This means that it might be used for governing purposes and, with that in mind, manipulated in such a way that it fits the functions that it has been assigned to. What the example of traditional cropping systems shows is that the boundaries of science and nonscience are blurred only when the accuracy of traditional knowledge is confirmed by scientific evidence.

It is as well worth noting that traditional knowledge is understood here as an attribute of rural communities and not of indigenous peoples. This omission contrasts with IUCN's previous commitment with indigenous issues. One plausible explanation is that Raymond Dasmann left the organization before the main drafting of the report began. The utilitarian approach to traditional knowledge also contrasts with Dasmann's notion of ecological people. Irrespective of this, IUCN would continue to forge a field of research on traditional knowledge through the establishment of a working group on Traditional Ecological Knowledge in 1984. One of the research outputs of the working group was a collection of essays published in 1989, which intended to 'encourage dialogue between ecologists and anthropologists, and broaden the realization among researchers that traditional knowledge has a major contribution to make to the development of modern environmental science' (Briand 1989: 3).

IUCN's *World Conservation Strategy* and its notion of 'sustainable development' were widely diffused and influenced future developments in conservation policy (Macekura 2015: 243–44). However, it was not until 1987 when a new report commissioned by the UN General Assembly came out, that 'sustainable development' would gain the global significance that it maintains to the present day. The report *Our Common Future*, also known as the 'Brundtland Report', was prepared by the World Commission on Environment and Development under the chairwomanship of Gro Harlem Brundtland. The commissioners behind the report came from twenty-two different countries and all of them had either political or academic backgrounds (Borowy 2013: 59). Beyond the expertise of the commissioners, a prominent feature of the Brundtland report was that its preparation included a series of public hearings that collected testimonies from civil society around the world. As Borowy (2013: 69) notes, in the preparation of the report '[t]he visits to selected sites tied theoretical considerations of economic and scientific issues to the physical world, to real trees, real water, real pollution, real deserts and real people. The public hearing focused on those people'.

Excerpts of the public hearings are interspersed in the main text of the Brundtland report. Two public hearings, one in Sao Paulo in 1985 and one in Ottawa in 1986, enabled the voices of indigenous peoples to be heard. These public hearings reveal in which countries the indigenous movement was gaining ground, not least because the list of participants to the hearings reflects, to some degree, a compromise between the Brundtland commission and local authorities (Borowy 2013: 69). The indigenous peoples that spoke in Ottawa and Sao Paulo were part of a wider indigenous movement that was in the process of becoming transnational. In an incipient manner, indigenous peoples were already articulating claims to knowledge that both drew upon and challenged extant notions of traditional knowledge that were centered on emphasizing its affinities with science. At the public hearing in Ottawa in May 1986, Louis ‘Smokey’ Bruyère, president of the Native Council of Canada, claimed the following:

Indigenous peoples are the base of what I guess could be called the environmental security system. We are the gate-keepers of success or failure to husband our resources. For many of us, however, the last few centuries have meant a major loss of control over our lands and waters. *We are still the first to know about changes in the environment, but we are now the last to be asked or consulted.* (WCED 1987: 69)

Bruyère’s claim to knowledge is different from previous boundary-blurring accounts of traditional knowledge in so far as it foregrounds the political demands of indigenous peoples. The plea of Bruyère stresses the role of indigenous peoples in governing environmental systems, in a way that echoes functionalist ecological ideas. More importantly, this statement is followed by the claim that indigenous peoples know about environmental changes before others but are not consulted. Thus, knowledge claims are thought of as inseparable from indigenous rights, the right to land and the right to be consulted. The statement connects the narrative on traditional knowledge with the ongoing struggles of the indigenous movement. These grievances stand out in two additional testimonies from indigenous peoples that were included in the main text of the Brundtland Report. In Ottawa, the Inuit Indian Rhoda Inuksu condemned animal rights laws that impinge indigenous livelihoods in the Arctic (WCED, 1987: 278); whereas in Sao Paulo the coordinator of the Brazilian Union of Indian Nations, Ailton Krenak, denounced the forced displacement of the Krenak people from their traditional lands (WCED 1987: 118).

The Brundtland report draws on these public hearings and establishes the connection between the plight of indigenous peoples and the knowledge of their environments in these terms:

Tribal and indigenous peoples will need special attention as the forces of economic development disrupt their traditional life-styles – life-

styles that can offer modern societies many lessons in the management of resources in complex forest, mountain, and dryland ecosystems. (WCED 1987: 27–28)

These communities are the repositories of vast accumulations of traditional knowledge and experience that links humanity with its ancient origins. Their disappearance is a loss for the larger society, which could learn a great deal from their traditional skills in sustainably managing very complex ecological systems. (WCED 1987: 119)

In these lines, the Brundtland report puts forth an understanding of traditional knowledge that takes into consideration what the people who are deemed to possess that knowledge have to say. Each statement on the use of traditional knowledge for managing the environment is preceded by a statement that draws on the grievances of indigenous peoples in the face of ‘economic development’. In other words, these passages link the plight of indigenous peoples, facing the effects of development policies, to the utilitarian theme of traditional knowledge as usable for managing resources in ‘complex ecosystems’. The symbolic boundary of knowledge interferes with the ethnic boundary of indigenous peoples with all its political implications.

The World Conservation Strategy and the Brundtland report embraced the concept of traditional knowledge and brought it to sustainable development. However, the way in which each of them approaches the issue is different because of the way in which they engage with those who may legitimately claim to be the holders of that knowledge. In the case of the IUCN report, the process of elaboration was confined to the expertise of the international bodies that took part in it. This resulted in a highly utilitarian approach to traditional knowledge that left no space for the voices of indigenous peoples, peasants or other local communities. In so doing, the Strategy maintained a strict distinction between the symbolic boundary of traditional knowledge and other social or symbolic boundaries. By contrast, the Brundtland report opened up a space for indigenous peoples to claim that knowledge for themselves, drawing on their own experiences of struggle against development and even environmental policies. Thus, the Brundtland commission extends the boundaries of knowledge towards the ethnic boundaries of indigenous politics.

## 7 The Rio Earth Summit and the Global Legitimation of Traditional Knowledge

The 1992 UN Conference on Environment and Development, or ‘Earth Summit’, marked a watershed in the international recognition of traditional

knowledge. In one sense, the Earth Summit succeeded in turning the Brundtland report into international environmental accords post-Stockholm. The conference resulted in the adoption of three intergovernmental agreements – the Rio Declaration, Agenda 21 and the Forest Principles – along with two international conventions that were negotiated in separate processes, namely the UN Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD). All of these, except for the UNFCCC, reference traditional knowledge or, alternatively, local and indigenous knowledge. While the Rio Declaration and Agenda 21 link traditional knowledge to a broad sustainable development agenda, the Forest Principles and the biodiversity convention include it in issue-specific regimes. More importantly, the biodiversity convention became the first international legal instrument to enshrine traditional knowledge.

Agenda 21, a lengthy action plan for sustainable development, mentions traditional knowledge in several subsections, where this is linked to specific policy areas including biotechnology, human health, and conservation and management of fragile ecosystems. The agenda devotes chapter 26 to indigenous peoples and stresses the significance of their knowledge. Its point 26(1) reads as follows:

Indigenous people and their communities represent a significant percentage of the global population. They have developed over many generations a *holistic traditional scientific knowledge* of their lands, natural resources and environment. (UN 1993: 385; emphasis added)

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This is the only document in which traditional knowledge is also labelled as scientific. The lengthy and cumbersome formula ‘holistic traditional scientific knowledge’ signals a political will to integrate all relevant descriptions of traditional knowledge as claimed by indigenous peoples and pro-indigenous activists before and during the Earth Summit. At the same time, the formula hints at the blurring of boundaries between science and nonscience. It strikes as being self-contradictory by characterizing knowledge as both traditional and scientific, a constitutive opposition of modernization ideology. However, this apparent oxymoron actually builds upon the boundary blurring interventions of previous environmental discourses about traditional knowledge, whereby key attributions of science were assigned to traditional knowledge.

In the Earth Summit accords, as in the Brundtland report, the recognition of traditional knowledge as usable knowledge is linked to the protection of indigenous rights. Principle 22 of the Rio Declaration acknowledges the importance of traditional knowledge in environmental and development policies, and links it to the states’ responsibility to protect the rights of indigenous peoples and local communities. In a similar vein, the Forest principles, which were adopted following the failed negotiations for a treaty on global forests, state in Principle 12(d) that:

Appropriate indigenous capacity and local knowledge regarding the conservation and sustainable development of forests should [...] be recognized, respected, recorded, developed and, as appropriate, introduced in the implementation of programmes. (UN 1993: 485)

These nonbinding declarations had the effect of mainstreaming the notion of traditional knowledge in development and environment agendas. In this process, traditional knowledge became a global category set out to diffuse across other institutional and policy settings both at the international and national levels. Beyond the principles and declarations of the Earth Summit, legally binding provisions relating to traditional knowledge were also adopted. The failure in adopting an international treaty on global forests and the indifference of climate change negotiations towards traditional knowledge issues left the biodiversity convention process as the main arena to negotiate legal provisions for traditional knowledge and its 'knowledge-holders'.

The CBD built upon the work on biodiversity (and traditional knowledge) that had been developed within the IUCN and other international bodies including WWF and the World Resources Institute. The IUCN, in specific, produced the first drafts of a biodiversity convention that would at a later stage feed into the CBD negotiations, which were organized by UNEP. In analyzing the input of IUCN, Raustiala (1997: 496) discerns this to be an epistemic community, albeit only with moderate influence. The negotiations revolved around thorny issues including not only the conservation of biological diversity and its use, but also the equitable sharing of the benefits obtained from its genetic resources. This latter issue bore upon the economic interests of states and exacerbated North-South disputes. As Raustiala and Victor (2004: 282) note, '[b]y the 1990s, governments viewed raw PGR [plant genetic resources] as a sovereign resource rather than as common heritage'. Manuela Carneiro da Cunha (2009: 30) further remarks, from a regional perspective, that this led to an ideological move intended to realign 'indigenous societies with Latin-American nationalisms'. However, these tensions did not avert the successful completion of negotiations in the lead-up to the Earth Summit.

The Convention on Biological Diversity (1992) was adopted at the Earth Summit and became the first international treaty to recognize traditional knowledge and its holders in a rights-based approach that favors benefit-sharing. In Article 8(j), provisions for traditional knowledge are made in the following terms:

Each contracting Party shall, as far as possible and as appropriate:

Subject to national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application

with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge innovations and practices.

The CBD establishes a legal framework in which traditional knowledge is defined by the collective actors who hold it. These are defined as ‘indigenous and local communities embodying traditional lifestyles’. On the one hand, the term indigenous ‘peoples’ is omitted to avert claims that would impinge on the states’ sovereign rights over their biological resources. On the other hand, local communities are included to encompass those groups that are not recognized or do not identify themselves as indigenous peoples. Also noteworthy is the fact that article 8(j) ‘speaks about “holders”, not “proprietors”, of traditional knowledge’ (da Cunha 2009: 9). This led to the formation of the category of ‘traditional knowledge-holders’ which assigns a knowledge-based role to indigenous and local communities in biodiversity governance and beyond. Some authors have suggested, in this line of argument, that at this time indigenous identity became a knowledge-based identity (Brysk 2000; B. A. Conklin 2002; Muehlebach 2008).

The CBD negotiations and their outcome at the Earth Summit took place amid an increasing transnational mobilization on the part of indigenous peoples and pro-indigenous activists and advocacy groups. Indigenous demands in the field of biodiversity were supported and substantiated by the International Society of Ethnobiology (ISE) which was created in 1988 under the auspices of the ethnobiologist and pro-indigenous advocate Darrell Posey. The ISE, in turn, established the Global Coalition for Bio-Cultural Diversity in 1990, based on the idea that biological and cultural diversity are inextricably linked. Its main mission was to ‘unite indigenous peoples, scientific organizations, and environmental groups to implement a forceful strategy for the use of traditional knowledge’ (Posey and Dutfield 1996: xi). Posey was a key figure in fulfilling this mission bridging northern and southern academic circles and NGOs (Dumoulin 2003). During the Earth Summit, Darell Posey, as head of ISE and its global coalition, was the main organizer of the Earth Parliament – the main parallel forum bringing together indigenous peoples and local communities. The event was successful in linking NGOs and scientific networks working on cultural biodiversity to indigenous peoples.

Beyond the Earth Parliament, the main output of indigenous people’s organizations was the product of a preceding event, the World Conference of Indigenous Peoples on Territory, Environment and Development held in May 1992 at Kari’Oca, a village in the outskirts of Rio de Janeiro. The outcomes of this intertribal meeting were the Kari’Oca Declaration (1992) and the Indigenous Peoples Earth Charter (1992), perhaps the first global indigenous declarations focusing on the environment. The main claims to traditional knowledge are to be found in the Indigenous Peoples Earth Charter, which is divided into

five sections: human rights; land and territories; biodiversity and conservation; development strategy; and culture; science and intellectual property. The charter asserts that ‘traditional knowledge has enabled Indigenous Peoples to survive’ (Point 98), echoing a fundamental argument in the utilitarian approach to traditional knowledge.

With regard to biodiversity conservation, one of the central concerns for indigenous peoples, the charter puts forth a caveat: ‘We value the efforts of protection of the biodiversity but we reject to be included as part of an inert diversity which pretends to be maintained for scientific and folkloric purposes’ (Point 59). This caveat is further elaborated by the claim that ‘[t]raditions cannot be separated from land, territory or science’ (Point 97). What indigenous peoples were demanding was a holistic approach to biodiversity, or biocultural diversity, in light of their traditional practices and ‘knowledge’. In the last section, indigenous peoples call on the UN to further the inclusion of traditional knowledge: ‘The United Nations should promote research into Indigenous knowledge and develop a network of *Indigenous sciences*’ (Point 109). The term ‘science’ is more or less consistently used to describe traditional knowledge.

What the Kari’Oca Declaration and the Indigenous Peoples Earth Charter show is how the indigenous movement set out to (re)appropriate a discourse on traditional knowledge that, up until then, was mainly claimed on their behalf without them being present in the global fora of environmental governance. In doing this, indigenous peoples began to occupy a discursive space that was opened up by the boundary blurring interventions of public scientists and mega reports on global environment. This re-appropriation itself was a collective endeavor involving the participation of scientists and pro-indigenous activists. In contrast to purely academic notions of traditional ecological knowledge, indigenous claims link this back to the context in which this knowledge was produced, stressing its political and ethical dimensions. This runs counter to utilitarian approaches which tend to disjoin traditional knowledge from its social context, transforming it into usable knowledge or even a commodity, as the genetic resources debate illustrates. These contentious issues are still present in contemporary global politics, particularly in biodiversity and climate change governance.

## 8 The Loose Ends of Traditional Knowledge

The irruption of traditional knowledge at the 1992 Earth Summit was brought about by a process of emergence reaching back to the first postwar UN conferences on environment. It is within the confines of a small constellation of international bodies, including most notably UNESCO, IUCN, and

the Brundtland Commission, that traditional ecological knowledge was recognized and envisioned as an intellectual resource for governing the global environment. In this process, the idea of traditional knowledge went through a series of phases of environment-development thought and practice, including modernization and sustainable development. Thus, when the environment began to take form as a global governance issue, traditional knowledge was brought to light by landmark environmental reports and public scientists from the environmental sciences. The interventions of these public scientists were held against the backdrop of intellectual developments in the fields of human ecology and ethnoscience. These approaches stressed the utilitarian significance of traditional ecological knowledge, most notably by seeking affinities between Western science and traditional knowledge.

In order to analyze these public interventions and reports, I have proposed the concept of boundary blurring, which emphasizes the way in which aspects of science are attributed to other knowledges, thereby opening a discursive space for other actors to claim that knowledge. This analytical approach sheds light on the issue that guides the present analysis: how is it that a set of intellectual activities other than science came to be perceived as a cognitive resource for governing the global environment. Here, I analyzed this as a process of successive iterations in different historical contexts. These iterations are marked, first, by the absence of the ‘knowledge-holders’, and then, by the progressive constitution of transnational actors who would claim traditional knowledge.

The trajectory of traditional knowledge in global environmental governance shows that indigenous peoples were the main transnational actors to claim their own knowledge when they were allowed to speak in the global bodies that were engaged in producing this category. This might be understood, in the words of Ian Hacking, as a ‘resistance by the known to the knowers’ (2007: 306). In doing this, indigenous peoples broadened the understanding of traditional knowledge by re-embedding it into the context of social and ecological struggles that lie at the roots of their political organization. The boundaries of knowledge became embedded in ethnic boundaries, or more precisely in the politics of indigeneity. However, indigenous peoples were not the only actors that came to occupy the discursive space around traditional knowledge. Driven by increasing economic interests on biodiversity resources, states began to claim their sovereign rights on genetic resources and realign indigenous peoples with nationalist agendas. Beyond the biodiversity regime, these lines of contention are being reproduced in other global governance fields, most notably climate change.

As traditional knowledge becomes embedded in policy and law, it is worth analyzing how its current iterations hark back to its long process of legitimation in environmental governance. In this process, the claims of marginal actors in global politics acquire an epistemic dimension, one that hints at alternative ways of knowing and governing a changing environment, especially in

the face of the climate crisis. However, as it unfolds, this process seems to be always undone. Akin to Gieryn's depiction of science, there is no definitive or essential form of traditional knowledge. Its content and applications are permanently negotiated. The ways in which its symbolic and social boundaries are drawn and redrawn in governance processes is an analytical endeavor that requires further exploration. This is all the more imperative as transformative changes are being demanded in science and politics, and environmental knowledge is moving towards the uncharted territory of the Anthropocene.

## Annex: Indicative Timeline of Environmental Governance and Indigenous Peoples Governance

ENVIRONMENTAL GOVERNANCE		INDIGEN PEOPLES GOVERNANCE
UN Scientific Conference on the Conservation and Use of Resources (UNSCCUCR)	1949	
International Technical Conference for the Protection of Nature (ITCPN)		
	1957	ILO Convention 107 on 'Indigenous and Tribal Populations'
Man and the Biosphere Program	1971	Declaration of Barbados
UN Conference on the Human Environment (UNCHE)	1972	
	1974	World Council of Indigenous Peoples International Indian Treaty Council
	1977	International Non-Governmental Organizations Conference on Indigenous Peoples of the Americas Declaration of Barbados 2
World Conservation Strategy	1980	
	1981	International NGO Conference on Indigenous Peoples and the Land Martínez-Cobo Study of the Problem of Discrimination Against Indigenous Populations
	1982	UN Working Group on Indigenous Populations
Brundtland Report 'Our Common Future'	1987	
	1989	ILO Convention 169 on 'Indigenous and Tribal Peoples'
UN Conference on Environment and Development (UNCED)	1992	

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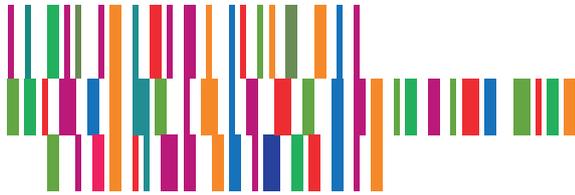
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## Abstract

In the wake of the 1992 Earth Summit in Rio de Janeiro, ‘traditional knowledge’ became a recurring theme in global environmental governance. The emergence of traditional knowledge in a governance field marked by global science begs the following question: how is it that a particular set of intellectual activities other than science came to be perceived as a form of knowledge whose attributes are valuable for governing the global environment? This paper aims to grapple with this question by tracing the emergence of the category of traditional knowledge in global environmental governance. The main argument is that traditional knowledge came to be conceived of as a cognitive resource with utilitarian and ‘glocal’ properties through a series of interventions on the part of public scientists and landmark environmental reports that blurred the boundaries between science and nonscience. Building upon the concept of boundary work in Science and Technology Studies, this paper puts forth the concept of boundary blurring to analyze how aspects of science are attributed to traditional knowledge, thus attenuating the demarcation between science and other forms of knowledge. Boundary blurring works as a form of legitimation of traditional knowledge and, through the attribution of knowledge to nonscientific actors, opens up a space for these to make knowledge claims in global governance processes. Ultimately, the analysis throws light on the constitution of unconventional ‘knowledge actors’ in global governance, in particular indigenous peoples and local communities.

**Keywords** Boundary blurring; Traditional knowledge; Indigenous peoples; Global environmental governance

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