Published in final edited form as:

J Hum Rights Environ. 2018 March ; 9(1): 89–106. doi:10.4337/jhre.2018.01.05.

A ‘burning opportunity’ for human rights: using human rights as a catalyst for policies to mitigate the health risk of household air pollution

Benjamin Mason Meier,

University of North Carolina at Chapel Hill, USA

Ipsita Das, and

University of North Carolina at Chapel Hill, USA

Pamela Jagger

University of North Carolina at Chapel Hill, USA

Abstract

With over 3 billion people dependent on traditional cooking and heating technologies, efforts to address the health burden of exposure to household air pollution (HAP), as well as other sociodemographic impacts associated with energy poverty, are central to sustainable development objectives. Yet despite overwhelming scientific consensus on the health burden of HAP exposure, particularly harms to impoverished women and children in developing countries, advocates currently lack a human rights framework to mitigate HAP exposure through improved access to cleaner household energy systems. This article examines the role of human rights in framing state obligations to mitigate HAP exposure, supporting environmental health for the most vulnerable through intersectional obligations across the human right to health, the collective right to development, and women’s and children’s rights. Drawing from human rights advocacy employed in confronting the public health harms of tobacco, we argue that rights-based civil society advocacy can structure the multi-sectoral policies necessary to address the impacts of HAP exposure and energy poverty, facilitating accountability for human rights implementation through international treaty bodies, national judicial challenges and local political advocacy. We conclude that there is a pressing need to build civil society capacity for a rights-based approach to cleaner household energy policy as a means to alleviate the environmental health effects of energy poverty.

Keywords

human rights; household air pollution; energy poverty; environmental health; sustainable development; public policy

1 INTRODUCTION

While household energy has historically been the purview of the energy and natural resource management communities, the 2016 release of the World Health Organization’s (WHO’s) report, *Burning Opportunity: Clean Household Energy for Health, Sustainable Development, and Wellbeing of Women and Children*,¹ provides an opportunity to assess the potential for public health policy to mitigate the health risks associated with exposure to household air

pollution (HAP). Despite overwhelming scientific consensus on the health burden of exposure to HAP, advocates currently lack a normative framework through which to conceptualize the need for, and content of, a policy response to realize cleaner household energy. This article examines the role of human rights in framing state obligations to mitigate HAP exposure. Drawing from WHO's attention to environmental health, the article begins by outlining the public health implications of exposure to HAP, with a focus on health impacts for vulnerable populations. Viewing such impacts as human rights violations, we then describe the evolution of human rights to environmental health, conceptualizing a rights-based response to energy poverty at the intersection of health rights, development rights, and women's and children's rights. Drawing on human rights claims analogous to those employed in addressing the health harms of tobacco, this article looks to rights-based civil society advocacy as a basis for bottom-up institutional change to mitigate HAP through international treaty bodies, national judicial challenges, and local political advocacy. We conclude that there is a pressing need to build civil society awareness and capacity for a rights-based approach to HAP, transforming WHO's scientific consensus into meaningful policy reform for cleaner household energy.

2 ENERGY POVERTY AS A DETERMINANT OF PUBLIC HEALTH

Over 3.1 billion people depend on polluting fuels (eg, dung, crop residues, reeds, fuelwood, charcoal and kerosene) and traditional technologies for cooking and heating,² exposing millions of households to dangerously high levels of HAP. The health implications of HAP are borne almost entirely by the developing world.³ Affecting primarily women and children, energy poverty (lack of access to electricity and dependence on biomass cooking fuels)⁴ accounts each year for nearly 3.8 million premature deaths and 81.1 million disability-adjusted life years.⁵

Exposure to HAP is associated with acute lower respiratory infection,⁶ asthma,⁷ bronchitis,⁸ cataracts,⁹ chronic obstructive pulmonary disease (COPD),¹⁰ low birth weight, emphysema,¹¹ lung function decrement,¹² tuberculosis¹³ and cancer.¹⁴ While the relative importance of each pollutant in HAP (eg, carbon monoxide (CO), particulate matter (PM), polycyclic aromatic hydrocarbons (PAH) and others) is not well understood (and rigorous epidemiological studies are needed to better understand the role of polluting fuel reliance on health),¹⁵ it is thought that the health effects from exposure to household air pollution are similar to the multifaceted health effects from tobacco smoke,¹⁶ making the overall causal benefits of mitigating HAP of clear and enormous public health significance.

HAP exposure most significantly affects women and children of lower socioeconomic status (SES) in developing countries.¹⁷ Where there is limited access to improved cooking fuels and technologies but expansive forest and woodland resources, polluting fuels are often the sole means of cooking food, accounting for cooking in 80 per cent of rural households in low- and middle-income countries.¹⁸ In many of these countries, the combination of high population growth rates, declining biomass stocks, and poor technology diffusion suggests that the absolute number of people living in energy poverty will grow in coming decades. This is particularly true in sub-Saharan Africa and the lowest income countries of Southeast Asia.¹⁹ Within these impoverished households, more than 60 per cent of premature deaths

from HAP occur among women and children.²⁰ Owing to traditional family responsibilities for cooking, the burden of disease from HAP is over 50 per cent higher among women.²¹ Young children, often cared for by the household member responsible for cooking, also face daily exposure to HAP, putting them at increased risk of disease and death.²² The biological vulnerability of developing fetuses, infants and young children to HAP pollutants can have long-term adverse health effects, including reduced lung function, the onset of asthma and neurodevelopmental disorders.²³

Central to sustainable development objectives, energy poverty has implications for climate change, environmental degradation and individual well-being. Black carbon ('soot') from burning polluting fuels is the second largest contributor to anthropogenic climate change after carbon dioxide.²⁴ Reliance on wood fuels leads to deforestation and forest degradation, resulting in additional net emissions of greenhouse gases.²⁵ Beyond the burden of disease, energy poverty has a pronounced effect on individual well-being through its implications for time allocation, household expenditure and productivity limitation. With fuel collection responsibilities falling largely on women and girls, lost educational or work opportunities exacerbate development inequities.²⁶ Fuel collection also disproportionately exposes women and children to multiple forms of vulnerability, increasing chances of assault, insect and snake bites and musculoskeletal injuries from carrying large loads of firewood on their heads and backs for vast distances.²⁷

Given these widespread harms, alleviating energy poverty has emerged as a principal component of the Sustainable Development Goals (SDGs),²⁸ underpinning, explicitly and implicitly, a wide range of development goals. *SDG 7 – Affordable and Clean Energy* focuses explicitly on lifting people out of energy poverty, and, consequently, clean cooking options are viewed as central to ensuring sustainable energy access. Ten other SDGs have clear links to energy poverty, implicitly mainstreaming HAP mitigation across SDG targets for: *SDG 1 – No Poverty*: Clean cooking is vital to a healthy and productive life, and clean and efficient energy sources reduce health burdens and medical expenditures and generate time and financial savings, allowing households to invest in income-generating activities. *SDG 2 – Zero Hunger*: Air pollution can cause crop damage and affect food quality and security. Fuel-saving cooking technologies reduce the burden of fuel collection and/or purchase, freeing time for crop production and expenditures for food. *SDG 3 – Good Health and Well-being*: Clean cooking technologies that reduce harmful emissions such as PM_{2.5} and CO vastly reduce the burden of disease from HAP and improve household well-being, particularly for women and children. *SDG 4 – Quality Education*: Children, especially girls, are often not enrolled in school in order to contribute to household responsibilities, such as cooking and collecting fuel; reducing the burden of fuel collection and cooking time can free-up time for girls to go to school. *SDG 5 – Gender Equality*: Women and girls often perform the unpaid work of collecting fuel and cooking. As noted above, this has deleterious implications for educational and economic attainment and significantly reduces the time and energy available for anything but the precarious manual labour so central to the unequally distributed costs of energy poverty. The disproportionate impacts of these costs on women and girls are thus closely linked to their inequality with men in a wider range of educational, economic, political and health-related outcomes. *SDG 8 – Decent Work and Economic Growth*: Access to clean energy enables better productivity and inclusive economic growth

for households. The impact of energy poverty on economic opportunity is closely related, of course, to the various impacts already noted with regard to other SDGs. *SDG 11 – Sustainable Cities and Communities*: Improved household energy access and use contributes to the mitigation of major environmental problems of household and ambient air pollution, resource inefficiencies and climate change. The cumulative impacts of energy poverty in urban households can be expected to have a multiplier effect, directly affecting public health and sustainability outcomes. *SDG 12 – Ensure Sustainable Consumption and Production Patterns*: Chemicals released into the air from inefficient combustion processes contribute to both climate and health burdens associated with dirty fuels. Fostering sustainable consumption and production patterns can contribute to sustainable growth. *SDG 13 – Climate Action*: Burning polluting fuels in inefficient cookstoves contributes substantially to black carbon emissions – with significant implications, as noted above, for climate change emissions reduction targets. *SDG 15 – Life on Land*: Wood fuel harvesting is often unsustainable, and contributes to forest degradation, deforestation and climate change. Emissions from the combustion of inefficient fuels mixed with precipitation can cause acid rain, which has negative effects on crops and forests.²⁹

Growing global awareness of the negative health, climate, environment and welfare impacts of HAP has led global governance partners – including WHO, donor states and the Global Alliance for Clean Cookstoves (GACC) – to target efforts to supply clean energy systems for all.³⁰ Some of the strategies employed to achieve the global target for adoption of clean cooking and heating technologies in 100 million households by 2020 include: intensifying demand (for example, by motivating the cookstove customer and financing the purchase of clean cooking options); strengthening supply (as seen in establishing an inclusive value chain for the clean cooking sector); and creating an enabling environment (including through the promotion of international standards and exhaustive testing protocols).³¹ The standardized household energy, health and air quality indicators advanced by WHO in *Burning Opportunity* have the potential to guide national HAP-related policy reform, allow cross-country comparisons and facilitate international accountability.³² Following from *Burning Opportunity*, WHO's 'Clean Household Energy Solutions Toolkit' (CHEST) aims to provide decision-makers with the necessary guidance to develop strategies, programmes and policies that support the adoption of affordable and clean energy, including through the development of needs assessments; tools to identify interventions; standards, testing and regulations; and monitoring and evaluation.³³ These global efforts provide a framework for action; however, national stakeholders have only nascent capacity to develop policies responsive to the complex and multi-sectoral problem of energy poverty.³⁴ Without swift policy intervention, it is likely that energy poverty will persist for decades to come.³⁵ We argue that human rights can play a valuable role in these policy debates to realize clean household energy, framing the development and implementation of policies to alleviate the determinants of energy poverty and mitigate the health effects of HAP.

3 HUMAN RIGHTS OBLIGATIONS TO PROVIDE PROTECTION FROM HOUSEHOLD AIR POLLUTION

Human rights law offers universal frameworks for the advancement of justice in environmental health, codifying international standards to frame government obligations and guide government policies.³⁶ Grounded in the right to health and rights to various underlying determinants of health, a rights-based approach to HAP provides a means by which to operationalize international legal norms through advancements in public policy.³⁷ Extending the policy debate from political aspiration to legal accountability, this 'rights-based approach to health' empowers individuals to seek redress for rights violations rather than remain passive recipients of government benevolence.³⁸

Much like the rights-based response to the public health harms of tobacco, where the plight of those impacted by cigarette smoke came to be seen as a social injustice and human rights violation,³⁹ the health burden of HAP falls most heavily on the most vulnerable, who cannot readily change individual behaviours without policy support.⁴⁰ Yet, as advocates lamented in the early days of the global tobacco struggle, '[d]efining tobacco as a justice issue can be contentious because many people still believe that tobacco use is solely an individual behaviour choice and tobacco illness a lifestyle disease'.⁴¹ It was only after decades of failed anti-tobacco campaigns that public health scholars came to recognize that the 'choice' to use tobacco is heavily constrained by structural context.⁴² Energy poverty implicates similar human rights constraints in avoiding the debilitating health effects of HAP. While energy 'choices' do not carry the addictive nicotine dependence of tobacco, 'choice' surrounding cooking and heating is no less illusory given (1) the dependency of vulnerable populations on polluting fuels, (2) the absence of alternatives to traditional technologies, and (3) the lack of awareness of HAP's risks.⁴³

Without recognition of the structural determinants of individual energy choices, HAP has become an invisible pandemic, afflicting millions of vulnerable women and children but hidden behind a cloud of smoke within the home and thus 'unseen' by policymakers. Conceptualizing HAP as a human rights violation is a powerful way of addressing energy poverty as a social justice issue and engaging policymakers in realizing clean household energy. We examine the evolution of international human rights to alleviate environmental health harms, analysing a rights-based response to HAP based upon health rights, development rights, and women's and children's rights.

3.1 The evolution of human rights for environmental health

As a basis for building a just world order out of the ashes of World War II, policymakers have looked to the United Nations (UN) human rights system to develop and implement human rights for environmental health.⁴⁴ Governments initially worked through the UN General Assembly to elaborate human rights under international law, proclaiming on 10 December 1948 the Universal Declaration of Human Rights (UDHR) to create 'a common standard of achievement for all peoples and all nations'.⁴⁵ Seeking to prevent deprivations like those that had occurred in the West during the Great Depression and the Second World War,⁴⁶ the UDHR proclaimed a right to 'a standard of living adequate for ... health and

well-being’, adding that ‘[m]otherhood and childhood are entitled to special care and assistance’ in the realization of this right.⁴⁷ Building on this non-binding Declaration, states negotiated in the ensuing years to develop specific legal obligations under two separate human rights covenants, enacting in 1966 the International Covenant on Civil and Political Rights (ICCPR)⁴⁸ and the International Covenant on Economic, Social and Cultural Rights (ICESCR).⁴⁹ These three documents – the UDHR, ICCPR and ICESCR, referred to collectively as the ‘International Bill of Human Rights’ – formed the normative foundation from which human rights for environmental health would evolve under international law.⁵⁰

Addressing threats to public health as ‘rights violations’, human rights have expanded dramatically over the past seventy years to offer a framework for justice in environmental health.⁵¹ With a right to health declared for the first time in the 1948 WHO Constitution,⁵² states sought to advance public health discourses in human rights law, framing a human right to health in the 1966 ICESCR that would encompass both a right to health care and rights to underlying determinants of health.⁵³ The ICESCR provides for ‘the right of everyone to the enjoyment of the highest attainable standard of physical and mental health’, specifically including government obligations to take all steps ‘necessary for the improvement of all aspects of environmental and industrial hygiene’.⁵⁴

The human right to health continued to develop in subsequent international instruments, providing a more detailed normative framework for justice in environmental health. As public health policymakers came to understand the importance of environmental conditions to all aspects of life, the link between human health and a right to a healthy environment was recognized explicitly for the first time in the 1972 Declaration of the UN Conference on the Human Environment (Stockholm Declaration), which concluded that ‘both aspects of man’s environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights – even the right to life itself’.⁵⁵ With institutions of global health governance shifting from an encompassing right to a healthy environment (as a basis for all human rights) to a limited right to environmental health (as a component of the right to health),⁵⁶ WHO’s Declaration of Alma-Ata reaffirmed a rights-based emphasis on underlying environmental determinants of health: ‘health – which is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity – is a fundamental human right [that] requires the action of many other social and economic sectors in addition to the health sector’.⁵⁷ WHO thereby articulated rights-based obligations for public health, outlining a multi-sectoral programmatic vision for implementing human rights to environmental health as part of primary health care efforts, with a specific focus on ‘education concerning prevailing health problems and the methods of preventing and controlling them’ and on the ‘prevention and control of locally endemic diseases’.⁵⁸

These human rights standards for environmental health endured in international law, reconceptualized through a rights-based approach to the underlying determinants of women’s and children’s health. The 1979 UN Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) articulated specific obligations towards rural women in relation to development, health services and adequate living conditions.⁵⁹ As WHO began to develop its first air quality guidelines, environmental health obligations advanced further under human rights law through the 1989 UN Convention on the Rights of

the Child (CRC), formalizing responsibilities for the child's right to health and requiring that governments 'take appropriate measures to combat disease and malnutrition through the provision of adequate nutritious foods and clean drinking water, *taking into consideration the dangers and risks of environmental pollution*' (emphasis added).⁶⁰

Recognizing the interconnected human rights that influence public health, linking the right to environmental health with the right to a healthy environment, the UN Committee on Economic, Social and Cultural Rights (CESCR) issued a General Comment in 2000 to provide an authoritative interpretation of the human right to health.⁶¹ To reflect a modern understanding of determinants of health, General Comment 14 states that:

The right to health embraces a wide range of socio-economic factors that promote conditions in which people can lead a healthy life, and extends to the underlying determinants of health, such as food and nutrition, housing, access to safe and potable water and adequate sanitation, safe and healthy working conditions, and a healthy environment. [emphasis added]⁶²

The CESCR thereby found the right to health to be an expansive right, inclusive of underlying environmental determinants of health, with specific government obligations (drawn explicitly from the 1972 Stockholm Declaration) for 'the prevention and reduction of the population's exposure to ... *detrimental environmental conditions* that directly or indirectly impact upon human health' (emphasis added).⁶³ With the right to health evolving through the UN human rights system to reflect modern public health understandings,⁶⁴ the right to health now 'extends across a wide, diverse, and at times highly complex range of issues'⁶⁵ and provides a basis alongside other rights for mitigating environmental health threats.

3.2 A rights-based approach to mitigating household air pollution

Human rights to environmental health can alleviate the public health impacts of energy poverty and frame a rights-based approach to mitigating HAP. Beyond the health of ecosystems, environmental rights can be seen to apply to public health harms arising from both the natural and the built environment.⁶⁶ With the harms of HAP falling most heavily on impoverished and vulnerable populations, it is possible to examine these environmental health effects at the intersection of the right to health, the right to development, and women's and children's rights.

Where the right to health includes safeguards against health threats in the built environment, HAP can be seen as an issue of environmental health requiring a government response to protect individuals from activities harmful to a healthy environment. Elaborating upon the actions to be taken by states under international law, the CESCR has detailed public health obligations under the right to a healthy environment, linking the right to a healthy environment with the right to health⁶⁷ and specifically assigning state responsibility for 'failure to discourage production, marketing and consumption of tobacco, narcotics *and other harmful substances*' (emphasis added).⁶⁸ In protecting individuals from substances harmful to environmental health, normative thickening of this right can be observed at the regional level, where the right to a clean and healthy environment has been codified under the African Charter on Human and Peoples' Rights,⁶⁹ the Additional Protocol to the

American Convention on Human Rights in the Area of Economic, Social and Cultural Rights (Protocol of San Salvador)⁷⁰ and the Arab Charter on Human Rights.⁷¹ From the regional to the national level, states almost universally recognize an obligation to protect their populations from harmful environmental health risks,⁷² with increasing numbers of states promulgating a right to a healthy environment within their national constitutions.⁷³ As the right to a healthy environment has come to encompass the built environment – operationalised at the intersection of the right to health, the right to an adequate standard of living and the right to housing – the right to health becomes essential for responding to differential health risks due to structural inequities in living conditions.⁷⁴

The human right to development correspondingly requires global action on HAP to ensure the underlying conditions for salubrious development. Conceptualized as a collective right, the 1986 UN General Assembly Declaration on the Right to Development holds that:

The right to development is an inalienable human right by virtue of which every human person and all peoples are entitled to participate in and contribute to and enjoy economic, social, cultural, and political development, in which all human rights and fundamental freedoms can be fully realized.⁷⁵

With states recognizing that development is a ‘comprehensive economic, social, cultural and political process, which aims at the constant improvement of the well-being of the entire population and of all individuals’,⁷⁶ the collective right to development has been repeatedly reaffirmed as a foundation for all human rights and fundamental freedoms, structuring the conditions that enable the public’s health.⁷⁷ The UN has come to recognize the complementarity of the right to development and the right to health, focusing increasingly on ‘diseases of poverty’ among rural populations.⁷⁸ Addressing the global economic conditions that shape energy poverty, the right to development has been employed as a basis to ameliorate underlying determinants of environmental health through development processes that bolster public health systems.⁷⁹ While such collective rights remain contested in international relations and under international law, this focus on a right to development has proven central in framing development holistically under the SDGs,⁸⁰ structuring rights-based policy efforts to promote environmental health, alleviate energy poverty and realize clean household energy.⁸¹

Turning to the rights of women and children as a framework for clean household energy, human rights can promote substantive equality through a rights-based approach to environmental health,⁸² which can address the specific struggles for power affecting vulnerable populations in situations of energy poverty and strengthen the agency of those populations to change the conditions of their vulnerability to HAP.⁸³ Since the health implications of HAP fall disproportionately on women and children, redressing such violations through frameworks for the rights of women and children can be a powerful normative basis for rectifying power imbalances.

Assessed through women’s rights, gender-based disempowerment can deny women the capability to control their home environments, and this loss of agency with regard to one’s immediate environment can be detrimental to health, with diminished social status forcing women to remain hunched over traditional stoves in unventilated homes. CEDAW seeks to

eliminate such discriminatory effects (whether intended or unintended) in both the public and private spheres, examining inequitable threats to health within the home.⁸⁴ Elaborating this obligation in the context of the right to health, the ICESCR has been interpreted as requiring a gender perspective in all health-related government action, recommending that:

States integrate a gender perspective in their health-related policies, planning, programmes and research in order to promote better health for both women and men. A gender-based approach recognizes that biological and socio-cultural factors play a significant role in influencing the health of men and women.⁸⁵

Beyond the direct health effects of HAP, inequitable domestic responsibilities in collecting household fuel can come at the expense of a range of underlying social determinants of women's health, including income-generation, education and care for family members.⁸⁶

Where HAP is also a principal impediment to 'the best interests of the child', the CRC seeks to 'ensure to the maximum extent possible the survival and development of the child'.⁸⁷ The UN Committee on the Rights of the Child has clarified that the child's right to health in the CRC includes protection from the 'dangers and risks of environmental pollution', requiring governments to address HAP through '[a]dequate housing that includes non-dangerous cooking facilities, a smoke-free environment, [and] appropriate ventilation ...'.⁸⁸ Taken up by the UN Special Rapporteur on the Right to Health, who found 'indoor air pollution' to be a principle risk factor for childhood disease, the UN human rights system has come to see the alleviation of energy poverty as fundamental to children's environmental health rights.⁸⁹

These connections across the human right to health, the collective right to development and the rights of women and children can be seen as a cluster of intersectional environmental health-related human rights. The nexus between these rights highlights the multiple, overlapping ways in which HAP can be seen as a violation of human rights under international law and a basis for rights-based claims against the state. As with the health harms of tobacco, the state bears human rights obligations under international law to protect its peoples from the health harms of HAP, even if the state is not directly responsible for the conditions of energy poverty.⁹⁰ Given that these obligations are largely unmet, despite a clear imperative to transition vulnerable populations to clean household energy systems, there is a need for civil society advocacy to facilitate accountability for the progressive realization of human rights to environmental health through national HAP policy.⁹¹

4 RIGHTS-BASED ADVOCACY TO REFORM PUBLIC POLICY

Human rights can frame advocacy to press governments to meet rights-based obligations for environmental health. Galvanizing institutional change through civil society activisms, human rights can play a central accountability role in mitigating the health burden of HAP.⁹² International human rights law identifies individual rights-holders and their entitlements and corresponding government duty-bearers and their obligations, with states required to implement international obligations through national policy.⁹³ In reforming public policy, human rights can empower advocates with moral, legal and political authority, backed by international standards, to influence a state's internal politics for the implementation of rights.⁹⁴ Complementing formal avenues of international legal accountability through the

UN human rights system, the ability of advocates to illuminate neglect of human rights has led governments to acknowledge and address a range of underlying determinants of health.⁹⁵ As seen in national debates to implement the Framework Convention on Tobacco Control (FCTC), human rights have become a catalyst for civil society advocacy,⁹⁶ with tobacco control advocates employing human rights obligations to structure national policy reforms.⁹⁷ While both market-based and behaviour-change models will play a critical role in the adoption of clean fuels and technologies, there are pressing impacts of energy poverty on environmental health, and human rights claims can support civil society health advocacy for necessary HAP policy reforms.

In realizing human rights to mitigate the environmental health harms of HAP – under the right to health, the right to development and women's and children's rights – advocates must consider four key attributes of public policies to alleviate energy poverty and promote clean household energy systems:

- *Availability* – the state must ensure a sufficient quantity of resources integral to environmental health, supporting markets for clean cookstoves and modern fuels to create demand for goods and services related to clean household energy systems;
- *Accessibility* – the state must remove development barriers to the realization of environmental health – whether imposed through economic, geographic, physical or information barriers – by supplying cash transfers to spur cookstove purchases, providing free or subsidised clean cookstoves and modern fuels directly to households, and educating individuals (especially women and the poor, rural or marginalized) to understand the health benefits of adopting clean household energy;
- *Acceptability* – the state must tailor environmental health interventions to ensure that they are satisfactory, according to cultural traditions and gender norms;
- *Quality* – the state must maintain a level of environmental health quality consistent with scientific standards, monitoring trends in: the adoption and sustained use of cleaner household energy systems (through household surveys and objective measures such as stove use monitors), associated HAP exposures (using personal exposure monitoring equipment), and HAP-related health outcomes (collecting biomarker data or relying on self-reported symptoms of HAP-related illness and injury), disaggregating data by gender and age.⁹⁸

Assessing rights-based policy through these overlapping normative attributes, there is no single reform, fuel or technology that can implement these overlapping obligations to mitigate the environmental health risks of HAP, and, as a result, the state must seek a context-specific combination of these interventions in order to 'progressively realize' human rights for environmental health. In accordance with the 'principle of progressive realization', legislatively grounded in the ICESCR and applicable to all resource-dependent rights under CEDAW and the CRC, a state must take steps to uphold rights only 'to the maximum of its available resources, with a view to achieving progressively the full realization of the rights'.

⁹⁹ Thus, governments may justifiably differ in their actions based upon their respective

political will, public health needs and economic resources. Nevertheless, civil society advocacy must seek to ensure, in accordance with CESC interpretations of the ICESCR, that state implementation efforts ‘move as expeditiously and effectively as possible’ towards the full realization of human rights for environmental health, employing rights-based advocacy to reform public policy to alleviate energy poverty.¹⁰⁰

To progressively realize these health-related human rights, advocates have sought to shift from the development of human rights under international law to the implementation of these international standards through national policy – framing the legal environment, integrating core principles into programming and evaluating policy reforms.¹⁰¹ Yet despite a comprehensive set of environmental health obligations at the international level, the lack of implementation of these obligations through public policy reform still remains an obstacle to human rights realization that requires the participation of civil society.¹⁰² Civil society has a powerful role in facilitating accountability for implementation efforts: in collecting information on the scope of energy poverty; in disseminating information on the individual and collective implications of HAP; in bringing together diverse constituencies (for example, health and natural resource management policymakers and practitioners) to develop environmental health policy; and in advocating for policy reforms that support measurable improvements in environmental health outcomes.¹⁰³ With civil society beginning to influence policy implementation efforts to mitigate HAP,¹⁰⁴ we analyse how a human rights accountability regime has evolved across levels of governance to incorporate civil society advocacy in the context of international human rights treaty bodies, national judicial challenges, and local policy advocacy.

4.1 International human rights treaty bodies

Designed to provide international accountability for rights-based policy implementation, each human rights treaty body holds an international legal mandate to monitor state implementation of its respective human rights treaty, and through this monitoring process it reviews state reports on treaty implementation, engages in ‘constructive dialogue’ with government representatives and issues concluding observations for public discourse.¹⁰⁵ Overcoming deficiencies in government self-reporting, these monitoring bodies have expanded their oversight by allowing civil society actors to submit independent ‘alternative reports’ and ‘shadow reports’.¹⁰⁶ Tobacco control advocates have repeatedly used these participatory opportunities to provide information challenging government self-reported progress in realizing rights.¹⁰⁷ With environmental health data serving as indicators of human rights realization, treaty bodies have already considered the harms of environmental conditions in reviewing state reports, as seen where the Committee on the Rights of the Child has remarked in its concluding observations that:

The Committee is very concerned at the high number of children living in poverty, the shortage of adequate housing, clean water, adequate sanitation and sewage and the problem of air pollution, all of which have a serious negative impact on the living conditions of children in the State party, causing injuries, sickness and death.
108

Where treaty bodies have not previously considered the interrelated human rights implicated by HAP, however, such human rights claims could be made in alternative reporting to treaty bodies under the CRC, CEDAW and ICESCR, working with WHO to develop indicators that would link HAP mitigation data with human rights obligations for environmental health.¹⁰⁹

4.2 National judicial challenges

As a strategy for enforcing human rights obligations through individual cases, litigation has allowed civil society actors to raise human rights claims concerning environmental health matters before national courts. Empowering individuals to seek impartial adjudication from a government institution with remediation authority, litigation can provide justice beyond the individual claimant, with tribunals interpreting human rights, setting legal precedents and prescribing national policies for leading health threats.¹¹⁰ Such cases have increased dramatically over the past twenty years, especially in middle- and low-income countries, with judicial challenges advancing an expanding range of human rights to various underlying determinants of health.¹¹¹ With a clear trend towards more (and more progressive) cases on environmental health harms,¹¹² tobacco control advocates have embraced human rights litigation as a means of facilitating judicial accountability for tobacco companies.¹¹³ Given that the 1992 Rio Declaration encourages civil society to pursue ‘effective access to judicial and administrative proceedings’ for environmental protection,¹¹⁴ such litigation, similar to tobacco claims in challenging the harms of second-hand smoke,¹¹⁵ can alleviate energy poverty by demanding that government ministries set specific HAP standards under national law, develop education programmes on household energy and provide cleaner technologies for cooking and heating.

4.3 Local policy advocacy

Apart from formal access to international human rights bodies and litigation strategies before national courts, civil society actors can also pursue informal mechanisms of policy advocacy at the local level¹¹⁶ – to shape public opinion on national policies, empower participation in the policymaking process and press governments to comply with rights-based obligations for environmental health.¹¹⁷ As a means to investigate, expose and critique governments in the eyes of their public constituencies (whether domestic or global), human rights endow this advocacy with normative authority and rights-based standards to influence local politics.¹¹⁸ Advocates have created guides to educate local civil society actors in lobbying governments to realize health-related human rights, with such activism shedding light on environmental rights violations and compelling governments to address underlying determinants of health.¹¹⁹ Tobacco control organizations have adopted such rights-based advocacy strategies to reform local policies, dramatically increasing the ‘naming and shaming’ of recalcitrant governments and corporations as an accountability mechanism to spur health policy reforms.¹²⁰ Such local human rights campaigns (abetted by international news organizations and social media platforms)¹²¹ can lead to policy reforms for HAP, with community health workers playing a key role in marketing cookstoves, educating individuals, implementing policies and monitoring impacts.¹²² However, in order to engage policymakers and reform policies, it will be necessary to devote adequate resources to understanding how such rights-based advocacy can alleviate energy poverty and mitigate HAP exposure.¹²³

Given the evolving development of human rights obligations for environmental health and the accountability mechanisms that exist at international, national and local levels to facilitate rights-based policy implementation, there is now a pressing need for civil society capacity building to engage with human rights in HAP policy reform. We find that the public health and human rights implications of energy poverty present an opportunity for civil society advocacy in the context of human rights treaty bodies, judicial challenges and policy advocacy. Where energy poverty falls at the intersection of environmental protection, economic development and public health, environmental health advocates can employ human rights to work with these multi-sectoral constituencies, pressing policymakers to realize human rights to mitigate the health risks of HAP.

5 CONCLUSION

Despite persistent efforts on the part of the energy sector and the natural resource management community over the past decades, transformations in the household energy sector have proven elusive for governments – with dire implications for climate change, economic development and environmental health. *Burning Opportunity* presents an unparalleled opportunity to address the environmental health benefits of alleviating energy poverty, with a rights-based approach to HAP mitigation offering a normative framework through which to develop indicators that can facilitate the progressive realization of human rights. Where there is growing empirical evidence of impact for the rights-based approach to health, human rights capacity building can facilitate civil society engagement in household energy policy and provide a basis by which to realize clean household energy for environmental health, sustainable development and the well-being of women and children.

References

1. World Health Organization, *Burning Opportunity: Clean Household Energy for Health, Sustainable Development, and Wellbeing of Women and Children* (World Health Organization, Geneva 2016).
2. Ibid at 3.
3. Ibid at 5.
4. OECD/IEA, *Energy Poverty: How to Make Modern Energy Access Universal?* Special Early Excerpt of the World Energy Outlook 2010 for the UN General Assembly on Millennium Development Goals (International Energy Agency, Paris 2010) 8.
5. Forouzanfar MH et al., 'Global, Regional, and National Comparative Risk Assessment of 79 Behavioural, Environmental and Occupational, and Metabolic Risks or Clusters of Risks in 188 Countries, 1990–2013: A Systematic Analysis for the Global Burden of Disease Study 2013' (2015) 386 *Lancet* 2287, 2296–2305.
6. Smith KR et al., 'Indoor Air Pollution in Developing Countries and Acute Lower Respiratory Infections in Children' (2000) 55 *Thorax* 518; [PubMed: 10817802] Gurley ES et al., 'Indoor Exposure to Particulate Matter and the Incidence of Acute Lower Respiratory Infections among Children: A Birth Cohort Study in Urban Bangladesh' (2013) 23 *Indoor Air* 379; [PubMed: 23906055] van Gemert F et al., 'Prevalence of Chronic Obstructive Pulmonary Disease and Associated Risk Factors in Uganda (FRESH AIR Uganda): A Prospective Cross-sectional Observational Study' (2015) 3 *Lancet Global Health* e44. [PubMed: 25539969]
7. Van Gemert (n 6); Fullerton DG, Bruce N and Gordon SB, 'Indoor Air Pollution from Biomass Fuel Smoke is a Major Health Concern in the Developing World' (2008) 102 *Transactions of the Royal Society of Tropical Medicine and Hygiene* 843. [PubMed: 18639310]
8. Kurmi OP et al., 'COPD and Chronic Bronchitis Risk of Indoor Air Pollution from Solid Fuel: A Systematic Review and Meta-analysis' (2010) 65 *Thorax* 221. [PubMed: 20335290]

9. World Health Organization, WHO Guidelines for Indoor Air Quality: Household Fuel Combustion – Review 4: Health Effects of Household Air Pollution Exposure (World Health Organization, Geneva 2014).
10. Smith KR, Mehta S and Maeusezahl-Feuz M, 'Indoor Air Pollution from Household Use of Solid Fuels', in Ezzati et al. (eds), Comparative Quantification of Health Risks: Global and Regional Burden of Disease Attributable to Selected Major Risk Factors (World Health Organization, Geneva 2004) 1435–93; Kurmi (n 8); van Gemert (n 6).
11. Van Gemert (n 6).
12. Sinha D and Ray MR, 'Health Effects of Indoor Air Pollution Due to Cooking with Biomass Fuel', in Roberts SM et al. (eds), Studies on Experimental Toxicology and Pharmacology (Studies on Experimental Toxicology and Pharmacology, Springer International Publishing, Cham 2015).
13. Gurley (n 6).
14. Foell W et al., 'Household Cooking Fuels and Technologies in Developing Economies' (2011) 39 Energy Policy 7487; Global Alliance for Clean Cookstoves, Delivering on the SDGs through Clean Cooking – Factsheet (2016).
15. Martin WJ, Hollingsworth JW and Ramanathan V, 'Household Air Pollution from Cookstoves: Impacts on Health and Climate', in Pinkerton KE and Rom WN (eds), Global Climate Change and Public Health 237, 241–4 (Springer Science + Business Media, New York et al. 2014).
16. Fullerton Bruce and Gordon (n 7); US Surgeon General, How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease: A Report of the Surgeon General (US Department of Health and Human Services, Centers for Disease Control and Prevention 2010) 221–612.
17. Lewis JJ and Pattanayak SK, 'Who Adopts Improved Fuels and Cookstoves? A Systematic Review' (2012) 120 Environ Health Perspectives 637.
18. World Health Organization (n 1) 44.
19. Bailis R, Ezzati M and Kammen DM, 'The Role of Technology Management in the Dynamics of Greenhouse Gas Emissions from Household Energy Use in Sub-Saharan Africa' (2005) 14 Journal of Environment & Development 149.
20. World Health Organization, Women and Health: Today's Evidence Tomorrow's Agenda (World Health Organization, Geneva 2009) 3.
21. Bailis et al. (n 19) 98.
22. Martin et al. (n 15).
23. Perera F, 'Multiple Threats to Child Health from Fossil Fuel Combustion: Impacts of Air Pollution and Climate Change' (2017) 125 Environmental Health Perspectives 141. [PubMed: 27323709]
24. Ramanathan V and Carmichael G, 'Global and Regional Climate Changes Due to Black Carbon' (2008) 1 Nature Geoscience 221, 224.
25. Wilkinson P et al., 'Public Health Benefits of Strategies to Reduce Greenhouse-gas Emissions: Household Energy' (2009) 374 Lancet 1917, 1928.
26. Foell et al. (n 14) 7491.
27. Rehfuess E, Fuel for Life: Household Energy and Health (World Health Organization, Geneva 2006) 17.
28. United Nations, Sustainable Development Knowledge Platform <<https://sustainabledevelopment.un.org/?menu=1300>> accessed 15 May 2017.
29. Amegah AK and Jaakkola JKK, 'Household Air Pollution and the Sustainable Development Goals' (2016) 94 Bulletin of the World Health Organization 215, 217–18; Global Alliance for Clean Cookstoves (n 14).
30. World Health Organization (n 1).
31. Cordes L, Igniting Change: A Strategy for Universal Adoption of Clean Cookstoves and Fuels (Global Alliance for Clean Cookstoves, Washington 2011) 27–48.
32. World Health Organization (n 1) 9.
33. World Health Organization, Clean Household Energy Solutions Toolkit (CHEST) (forthcoming).

34. Williams KN, Northcross AL and Graham JP, 'Health Impacts of Household Energy Use: Indicators of Exposure to Air Pollution and Other Risks' (2015) 93 Bulletin of the World Health Organization 507, 507.
35. Ibid 508.
36. Westra L, Environmental Justice & the Rights of Unborn & Future Generations: Law, Environmental Harm & the Right to Health (Earthscan, London 2006) 3–4.
37. London L, 'What is a Human-rights based Approach to Health and Does It Matter?' (2008) 10 Health and Human Rights 1, 6.
38. Steiner HJ, Alston P and Goodman R, International Human Rights in Context: Law, Politics, Morals: Text and Materials (Oxford University Press, Oxford 2008), 476.
39. Dresler C and Marks SP, 'The Emerging Human Right to Tobacco Control' (2006) 28 Human Rights Quarterly 599.
40. Fullerton Bruce and Gordon (n 7) 848.
41. Heaton C and Nelson K, 'Reversal of Misfortune: Viewing Tobacco as a Social Justice Issue' (2004) 94 American Journal of Public Health 186, 187.
42. Jacobson PD and Soliman S, 'Co-opting the Health and Human Rights Movement' (2002) 30 Journal of Law, Medicine & Ethics 705, 708.
43. Compare Meier BM, 'Breathing Life into the Framework Convention on Tobacco Control: Smoking Cessation and the Right to Health' (2005) 5 Yale Journal of Health Policy, Law, and Ethics 137, 159–62, with Jagger P and Jumbe C, 'Stoves or Sugar? Willingness to Adopt Improved Cookstoves in Malawi' (2016) 92 Energy Policy 410, 414.
44. D Shelton, 'Human Rights and the Environment: What Specific Environmental Rights Have Been Recognized?' (2006) 35 Denver Journal of International Law and Policy 129, 131.
45. UNGA, 'Universal Declaration of Human Rights' (1948) UN Doc A/810, Preamble.
46. Donnelly J, Universal Human Rights in Theory and Practice (3rd edn, Cornell University Press, Ithaca 2013) 86.
47. UNGA (n 45) art 25.
48. UNGA, 'International Covenant on Civil and Political Rights' (1966) UN Doc A/6316.
49. UNGA, 'International Covenant on Economic, Social and Cultural Rights' (1966) UN Doc A/6316.
50. Willis FM, 'Economic Development, Environmental Protection, and the Right to Health' (1996) 9 Georgetown International Environmental Law Review 195, 200–202.
51. Kiss AC and Shelton D, International Environmental Law (2nd edn, Transnational Publishers, New York 2000) 21–31; Samet JM and Gruskin S, 'Air Pollution, Health, and Human Rights' (2015) 3 Lancet Respiratory Medicine 98, 99.
52. World Health Organization, Constitution (1948) Preamble.
53. UN Committee on Economic, Social and Cultural Rights, General Comment No. 14, The substantive issues arising in the implementation of the international covenant on economic, social, and cultural rights (UN Doc No E/C12/2000/4, 2000).
54. UNGA (n 49), art 12.
55. Nations United, Report of the UN Conference on the Human Environment, Declaration of the UN Conference on the Human Environment. A/CONF.48/14.Rev.1 (1972), Principle 1.
56. Shelton D, 'Human Rights and the Environment: What Specific Environmental Rights Have Been Recognized' (2006) 35 Denver Journal of International Law & Policy 129, 131.
57. UNICEF and World Health Organization, Primary Health Care: Report of the International Conference on Primary Health Care, Alma-Ata, USSR, 6–12 9 (1978), art I.
58. Ibid, art VII.
59. United Nations, Convention on the Elimination of All Forms of Discrimination Against Women, 1249 U.N.T.S. 13, 18–19 (1979), art 14.
60. United Nations, Convention on the Rights of the Child, 1577 U.N.T.S. 3 (1989), art 24.
61. UN Committee on Economic, Social and Cultural Rights (n 53).
62. Ibid ¶4.

63. Ibid ¶ 15 (citing United Nations (n 55), Principle 1).
64. Meier BM, 'Employing Health Rights for Global Justice: The Promise of Public Health in Response to the Insalubrious Ramifications of Globalization' (2006) 39 Cornell International Law Journal 711, 745–8.
65. Hunt P, 'The Right to Health: Key Objectives, Themes and Interventions' in Weston BH and Gear A (eds), *Human Rights in the World Community: Issues and Action* (University of Pennsylvania Press, Philadelphia 2016) 190.
66. Gellers JC, 'The Great Indoors: Linking Human Rights and the Built Environment' (2016) 7 Journal of Human Rights and the Environment 243, 244.
67. UN Committee on Economic, Social and Cultural Rights (n 53), at ¶ 15.
68. Ibid ¶ 51.
69. OAU, African Charter on Human and Peoples' Rights (1982) CAB/LEG/67/3 rev. 5. ILM 58, art 16.
70. OAS, Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights (1988) OASTS 69, art 10.
71. League of Arab States, 'Arab Charter of Human Rights' (2008), art 38.
72. Fidler DP, 'A Globalized Theory of Public Health Law' (2002) 30 Journal of Law, Medicine & Ethics 150, 156.
73. Boyd DR, 'The Implicit Constitutional Right to Live in a Healthy Environment' (2011) 20 RECIEL 171.
74. Gellers (n 66) 244–9.
75. United Nations, Declaration on the Right to Development, G.A. Res. 41/128, U.N. GAOR, 41 Sess., Annex, U.N. Doc. A/RES/41/128 (1986), art 1.
76. Ibid at Preamble.
77. Sengupta AK, 'Preface', in Marks SP, *Implementing the Right to Development: The Role of International Law* (Geneva, Friedrich Ebert Stiftung, 2008) 8.
78. Grover A, Report of the Special Rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health: Unhealthy foods, non-communicable diseases and the right to health (UN Doc A/HRC/17/25, 2011), ¶ 6.
79. Meier BM and Fox AM, 'Development as Health: Employing the Collective Right to Development to Achieve the Goals of the Individual Right to Health' (2008) 30 Human Rights Quarterly 259, 341–54.
80. Forman L, Ooms G and Brolan CE 'Rights Language in the Sustainable Development Agenda: Has Right to Health Discourse and Norms Shaped Health Goals?' (2015) 4 International Journal of Health Policy and Management 799, 801.
81. Knox JH 'Human Rights, Environmental Protection, and the Sustainable Development Goals' (2015) 24 Washington International Law Journal 517, 524–6.
82. Yamin AE and Cantor R, 'Between Insurrectional Discourse and Operational Guidance: Challenges and Dilemmas in Implementing Human Rights-Based Approaches to Health' (2014) 6 Journal of Human Rights Practice 451, 453–4.
83. Jagger and Jumbe (n 43) 414.
84. de Silva de Alwis R and Daynard R, 'Reconceptualizing Human Rights to Challenge Tobacco' (2008) 17 Michigan State Journal of International Law 291, 329–34.
85. UN Committee on Economic, Social and Cultural Rights (n 53). ¶ 20.
86. World Health Organization (n 20) 10–11.
87. United Nations (n 60) art 6.
88. UN Committee on the Rights of the Child, General Comment No. 15, Right of the child to the enjoyment of the highest attainable standard of health (art. 24) (UN Doc No CDC/C/GC/15, 2013), ¶ 49.
89. P ras D, Report of the special rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health (UN Doc A/70/213, 2015), ¶ 9.

90. Crow ME, 'Smokescreens and State Responsibility: Using Human Rights Strategies to Promote Global Tobacco Control' (2004) 29 *Yale Journal of International Law* 209, 247.
91. Lim J et al., 'A Rights-Based Approach to Indoor Air Pollution' (2013) 15 *Health and Human Rights* 160, 163.
92. Gellers (n 66) 258–9.
93. Donnelly (n 46) 8.
94. Busby JW and Kapstein EB 'Framing Global Health as Human Rights: Learning from the Case of HIV/AIDS' (2016) 10 *Global Health Governance* 24, 26–7.
95. MacNaughton G and Hunt P 'Health Impact Assessment: The Contribution of the Right to the Highest Attainable Standard of Health' (2009) 123 *Public Health* 302, 303; eg, Bustreo F and others, *Women's and Children's Health: Evidence of Impact of Human Rights* (World Health Organization, Geneva 2013) 24–64; de Albuquerque C and Roaf V, *On the Right Track: Good Practices in Realising the Rights to Water and Sanitation* (Office of the High Commissioner for Human Rights, Geneva 2012) 62–6.
96. Dresler C et al., 'Human Rights-Based Approach to Tobacco Control' (2012) 21 *Tobacco Control* 208, 210–11.
97. Cabrera OA and Gostin LO, 'Human Rights and the Framework Convention on Tobacco Control: Mutually Reinforcing Systems' (2011) 7 *International Journal of Law in Context* 285, 295–302.
98. UN Committee on Economic, Social and Cultural Rights (n 53) ¶ 12.
99. UNGA (n 49) art 2.
100. UN Committee on Economic, Social and Cultural Rights, General Comment No. 3, The nature of states parties' obligations (UN Doc No E/1991/23, 1990) ¶ 9; UN Committee on Economic, Social and Cultural Rights (n 53) ¶ 31.
101. Hunt PH, 'Configuring the UN Human Rights System in the "Era of Implementation": Mainland and Archipelago' (2017) 39(3) *Human Rights Quarterly* 489.
102. Guillermin N and Cesari G, 'Fighting Ambient Air Pollution and its Impact on Health: From Human Rights to the Right to a Clean Environment' (2015) 19 *The International Journal of Tuberculosis and Lung Disease* 887, 893.
103. Wüstenhagen R, Wolsink M and Bürera MJ, 'Social Acceptance of Renewable Energy Innovation: An Introduction to the Concept' (2007) 35 *Energy Policy* 2683, 2686.
104. Guillermin and Cesari (n 102) 893–4.
105. O'Flaherty M and Tsai P, 'Periodic Reporting: The Backbone of the UN Treaty Body Review Procedures', in Bassiouni MC and Schabas WA (eds), *New Challenges for the UN Human Rights Machinery* (Intersentia, Cambridge et al. 2012) 37, 38–44.
106. Lynch P and Schokman B, 'Taking Human Rights from the Grassroots to Geneva ... and Back: Strengthening the Relationship Between UN Treaty Bodies and NGOs', in Bassiouni MC and Schabas WA (eds) *New Challenges for the UN Human Rights Machinery* (Intersentia, Cambridge et al. 2012) 173, 180–89.
107. O'Neill Institute for National & Global Health Law and Fundacion InterAmericana del Corazon-Argentina, 'A Guide to Tobacco-Related Shadow Reporting before United Nations Human Rights Bodies' <https://www.law.georgetown.edu/oneillinstitute/tobacco-control/docs/FIC%20-%20ONeill%20-%20shadow_reporting_guide_ENG.PDF> accessed 15 May 2017.
108. United Nations, Report of the Committee on the Rights of the Child, Thirty-Fourth Session, Concluding Observations, Pakistan, UN Doc CRC/C/133 (2004) ¶ 58.
109. Acharya N and Meier BM, 'Facilitating Accountability for the Right to Health: Mainstreaming WHO Participation in Human Rights Monitoring' (2016) *Health and Human Rights* <<https://www.hhrjournal.org/2016/04/facilitating-accountability-for-the-right-to-health-mainstreaming-who-participation-in-human-rights-monitoring/>> accessed 12 January 2017.
110. Langford M, 'The Justiciability of Social Rights: From Practice to Theory', in Langford M (ed), *Social Rights Jurisprudence: Emerging Trends in International and Comparative Law* (Cambridge University Press, Cambridge 2009) 3, 3–4.
111. Meier BM et al., 'Bridging International Law and Rights-Based Litigation' (2012) 14 *Health and Human Rights* 20, 23.

112. Boyd (n 73) 172–7.
113. Reubi D, ‘Making a Human Right to Tobacco Control: Expert and Advocacy Networks, Framing and the Right to Health’ (2012) 7 *Global Public Health* S176, S183–5.
114. UN General Assembly, Rio Declaration on Environment and Development (1992) Principle 10.
115. Reubi (n 113) S185.
116. Hafner-Burton EM, ‘Sticks and Stones: Naming and Shaming the Human Rights Enforcement Problem’ (2008) 62 *International Organization* 689, 694–6.
117. O’Hare BA, Devakumar D and Allen S, ‘Using International Human Rights Law to Improve Child Health in Low-Income Countries: A Framework for Healthcare Professionals’ (2016) 16:11 *BMC International Health and Human Rights* 1, 2.
118. Kenyon KH and Garcia RA, ‘Exploring Human Rights-Based Activism as a Social Determinant of Health: Insights from Brazil and South Africa’ (2016) 8 *Journal of Human Rights Practice* 198, 206–13.
119. Nelson PJ, ‘Social Movements and the Expansion of Economic and Social Human Rights Advocacy Among International NGOs’, in Haglund L and Stryker R (eds), *Closing the Rights Gap: From Human Rights to Social Transformation* (University of California Press, Oakland 2015) 149.
120. Dresler et al. (n 96) 210.
121. Dempsey RA and Meier BM ‘Framing the Position of Social Media in the Local Institutionalization of International Human Rights Norms’, in Bonacker T, von Heusinger J and Zimmer K (eds), *Localization in Development Aid: How Global Institutions Enter ‘Local Life-worlds* (Routledge, London 2016).
122. Lim et al. (n 91) 163–5; O’Hare, Devakumar and Allen (n 117) 3–6.
123. Westra (n 36).