

A Human Right to Land

Joseph Schechla
Housing and Land Rights Network –
Habitat International Coalition



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Everybody needs and uses land. Land is indispensable to many aspects of human life on this planet. Moreover, as a matter of state, land and land administration are essential factors in governance and world order, as well as specific contexts of conflict, peace building, sustainable development and human rights.

While land is a constant subject of our daily lives, it has figured prominently in global policy instruments and the reviews of numerous states' implementation of treaty obligations. With its mandate to monitor and interpret the International Covenant on Economic, Social and Cultural Rights (ICESCR), the UN Committee on Economic, Social and Cultural Rights (CESCR) has found land to be a constant subject of states' periodic treaty performance reviews, although ICESCR does not mention land explicitly.

In fulfilling its mandate, CESCR has taken up the challenge to interpret state obligations under the Covenant in relation to land in a new General Comment (GC). However, this attempt at legally defining land-related obligations and recommended actions toward respect, protection and fulfillment of human rights under the Covenant should address land, not land only as a policy context, but as a common economic, social and cultural asset/resource and potential subject of a formal human right. This exercise inevitably confronts the question of a "human right to land," in the sense that land constitutes a universal human need. To do so, the Committee is compelled, once again, to navigate the unfamiliar territory at the convergence of law and natural science. To do so would fulfill a main purpose of the Committee's previous GC; i.e., "to develop the relationship more broadly between science and economic, social and cultural rights."¹ That also would fulfill the call from at least one UN Special Procedure and former member of the Committee for CESCR to recognize the human right to land.²

Since the adoption of ICESCR in 1966, land has remained an issue of competition and dispute, and various scales of conflict over land have been more common than examples of cooperation in its use and governance.³ Many CESCR reviews of states' treaty performance reveal a pattern of Covenant rights affected by inequitable access to, use of, and/or control over land; the concentration of land tenure, including ownership, as a feature of unprecedented global disparity in wealth and income⁴; the core subject in non-self-governing territories; and unsettled claims over indigenous, occupied, traditional and rural peoples' to their lands and related natural resources. In such cases, land lies at the source of conflict and its prevention, as well as its resolution and remedy.⁵ Nonetheless, contention over land has helped to make the human right to land politically untouchable in multilateral forums, but also a reason why its understanding and treatment as a human right is so important, timely and needed.

After decades of encouragement by its periodic reviews of states and other stakeholders of the Covenant, including calls for recognizing a "human right to land,"⁶ CESCR completed the first reading of its draft General Comment No. 26 on Land and Economic, Social and Cultural Rights at its autumn 2020 session, and the draft GC is currently available and open for input.⁷

In drafting the GC, the Committee faced the dilemma over whether to (1) recognize the element of land as a *bona fide* human right that states parties must respect, protect and fulfill, or (2) treat land as one in a chain of elements needed to fulfill other human rights guaranteed in ICESCR, and/or (3) address states' role in the context of land administration. In options 1 and 2, CESCR would have to, first, define the nature of land as a discrete subject. In any approach, the GC would have to consider the obligations of state parties to ensure land's functions to respect, protect and fulfil the bundle of other covenanted individual or collective human rights such as housing, food, self-determination and culture.

This paper argues that choosing among 1, 2 and 3 would be a false dilemma. Rather, the subject of land under ICESCR calls for all three, beginning with the recognition that everyone has a universal human right to land. This reality arises from both the universal human need for land, and the fact that land is the first element in a chain that enables the realization of a bundle of other universal human rights. As well as a specialized field of public administration.

The seeming dilemma over how to treat land within the field of human rights, in general, and within ICESCR, in particular, can be resolved by adopting the established methodology and approach of human rights interpretation in foregoing GCs, in particular, the Committee's 2002 recognition and codification of a distinct "human right to water." In that rare moment, CESCR affirmed a human right not explicit in ICESCR, while "making full use of technical and scientific knowledge,"⁸ by reaching out to natural science to inform that ground-breaking interpretation.

Beyond Property and Tenure

Although not explicitly mentioned in the Covenant, land arguably represents a subject of human rights; i.e., the "human right to land." However, recognizing land as a human right requires exploring that classical element beyond the usual consideration of landed property, as is typical in domestic law, or as a factor/input of production in classical economics. Those references express a "right to land" as a material thing to be possessed or exchanged, or even corresponding entitlements or privilege, toward the realization of other already-codified economic human rights, even at the expense of the human rights of others less advantaged.

The treatment of land as only a material object to be possessed or exchanged is not available to the guardians of, or states parties to ICESCR. For the Covenant enshrines no "human right to property" with corresponding state obligations. That right is only theorized in the narrow sense of *ownership* individually, or in association with others, in the Universal Declaration of Human Rights,⁹ with no binding effect in international law, except as an unenforceable customary law principle.

Thus, precisely because of this omission of a "human right to property, in ICESCR, it is *the* appropriate instrument to frame the recognition and understanding of the human right to land, since its silence on property enables—indeed requires—a focus rather on the symbiotic relationship between the land and its people as a matter of equity and human need, not merely as a subject of freehold tenure or exchange value. ICESCR also enables the simultaneous consideration of land's combined economic, social and cultural dimensions.

Legal Lacunæ

Human reproduction, population dynamics, sustainable development, politics, participation in culture and the economy are broad categories of human endeavor that depend upon land. More-specific contexts requiring an appreciation of the human need and, therefore, human right to land include human settlements, housing and urbanization; rural and territorial development; governance; urban planning; conflict resolution and peace-making; natural and other resource allocation for public and private purposes; environmental policy, project implementation; extractivism; infrastructure development; environmental protection; nature conservation; biodiversity protection and

preservation; climate change; trade and investment; food security, food sovereignty and food systems; non-self-governing territories; foreign occupation, colonization and the exercise of nation's and peoples' self-determination and its economic, social and cultural human rights dimensions.

Human rights law and global policy ostensibly aligned with human rights establish criteria for each of these human endeavors, but the guidance until now remains general and non-specific as to the position of human rights applied to land, an essential element in each pursuit. As every complex task requires getting the theory right, constructing a "human right to land" requires a multidisciplinary approach found at the confluence of legal, social and physical sciences, as well as evidence-informed practice. Of these, the law—i.e., international human rights law—remains the weakest link and latest-coming of all theoretical fields. As mentioned, more-developed domestic law pertaining to land only treats land as a property to be held and exchanged for ulterior purposes. Therefore, the consideration of land as a discrete subject of international law governing states' human rights behavior has little choice but to rely on the other, more-advanced fields relating to the subject.

A strictly legal case could rest on black-letter treaty law, in particular, the provisions of the Covenant and its jurisprudence, CESCR's state-party reviews, as well as relevant general principles and peremptory norms of international law. However, such a legalistic approach would be insufficient, since the available case law, so far, also has demurred on the question of land as a human right.

Therefore, other disciplines are needed to complement the lawyer's usual references and tools of the trade. The social sciences offer crucial sources on the theories of human need¹⁰ and justice,¹¹ but these only infer the importance of land to human well-being. Economic theory addresses the process by which land, as capital, becomes a commodity (whether real or fictitious).¹²

The Universal Human Need for Land

Complementing legal philosophy and beyond ideological considerations, the physical sciences bring needed clarity to the essential nature of this classical element of land¹³ as a requisite to human well-being, dignity, physical growth and, indeed, survival. Thus, a hybrid approach is indispensable to understanding the normative content of the human right to land through the inextricable link between land and humans' physiological (and related spiritual) needs. And this within a framework of equity and social justice, which is where human rights discipline comes in.

Establishing this hybrid construct is the first logical step to be taken before applying the human right to land of particular groups and in various circumstances. Such a forensic method has operated in the emergence of water (and sanitation) as a human right, first elaborated in the CESCR's legal interpretation of state parties' related obligations under ICESCR,¹⁴ and then as adopted by the UN General Assembly.¹⁵ By comparison, the codification model of the human right to water is especially apt, since that classic element also evaded the drafters and negotiators of ICESCR.

Normative Content Derived from Science

The recognition and elaboration of land as a human right in international law would both complement and remain distinct from domestic legislation regulating land, which primarily treats the property relationship of natural and legal persons with real property. Rather, land, analogous to water, constitutes an element upon which human life, dignity and well-being depend.

As any internationally recognized human right must pass the test of universality, the value or condition recognized as a human right must relate to a commonly shared human need for a life of well-being with dignity, not only to certain segments of society, or in particular circumstances. Land is always and everywhere one such essential natural resource of finite quantity and a public good fundamental to a

life of well-being and dignity for human beings as an earth-bound species. That is where the natural science discipline comes in.

With this evidence-informed grounding, as it were, land as a human right becomes a common element to be administered—i.e., monitored, distributed, consumed, administered, protected and preserved for current and future generations—as any finite natural and public resource in the context of human activity. So, what is this element and what are its characteristics? And how does it relate to the four fundamental forces of nature: gravity, electromagnetism and nuclear forces, both weak and strong.

In the first instance, the functioning of every human body ultimately relies on a relationship to land by virtue of its coexistence with the physical forces of gravity.¹⁶ Human life originated and evolved on Earth constantly adjusting to the gravitational force that was already an integral part of the landmass on which humans found their habitat.

Of the fundamental forces of nature cited, only gravity and electromagnetism influence life processes. Electromagnetism is directly associated with all biochemical processes that sustain life, from birth, growth, reproduction, death and recycling. Gravity has no direct involvement in the chemistry of life, but indirectly influences organisms to respond to biochemistry.

The gravitational force on the surface of the Earth is generally described as one g ($1g_n$).¹⁷ Plants, for instance, have developed mechanisms to sense this g-force and developed a variety of physiological and mechanical strategies accordingly. These enable roots to grow toward the center of Earth (positively gravitropic), and shoots to grow upward toward the sun (negatively gravitropic), enabling branching patterns. This fact establishes land as an indispensable element in the normative content of the human right to adequate food (ICESCR, Article 12) and, eventually, a human right to (a clean, safe, healthy and sustainable) environment.

Humans (genus homo), too, have evolved a variety of mechanisms to sense position, maintain balance and uprightiness, maintain circulation and other vital bodily functions. This nature evolved through the human experience over 2.4 million years, enabling blood to regularly reach the heart and brains. This makes land an essential element to the normative content of the human right to the highest attainable standard of mental and physical health (ICESCR, Article 14).

Our musculoskeletal system has evolved to support body mass and provide structural and postural stability, as well as mobility, to animals and humans. The sensory-motor system evolved so that organisms can recognize the gravity vector and orient themselves. This normative marker adds to land's additional link to the human right to freedom of movement (ICCPR, Article 12).

The 1g force of land's gravity also keeps moisture and gases from escaping from the surface of the Earth into the æther, ensuring that vital oxygen remains around us. Humans' dependent relationships with photosynthesizing plants especially rely on plants taking in carbon dioxide (CO₂) within the same gravitational sphere.

Of the 94 naturally occurring elements, plants are made up of about 17, and humans about 25. Six of these (carbon, hydrogen, nitrogen, oxygen, phosphorus and sulfur) are absolutely essential for all life found on the Earth; i.e., land and its gravitational biosphere. Hence, land, as the source of these vital elements, is essential to realizing the human right to life (ICCPR, Article 6).

The land pulls fruits and seeds down to Earth so that the next generation of plants can grow, replenishing the earthly habitat. Even at this legally abstract—but biologically indispensable—point, the now-codified human right to water relates to land in many forms. We then store land-bound and gravitationally flowing water for numerous basic human needs and uses, including agriculture, domestic use (adequate food and adequate housing, ICESCR Article 11), energy generation and industry.

Water could be lacking, in such abundance as to cause floods and other hazards and crises, or it could be non-potable, highly polluted, contaminated and otherwise denied due to private interest. However, gravity is constant. On Earth's landed surface, gravity could be altered for experimental purposes only in laboratories.

Human contact with land also represents a potential treatment and remedy to a variety of degenerative diseases,¹⁸ and a primary factor in regulating the endocrine and nervous system.¹⁹ This link to, and indispensable content of the human right to health (ICESCR, Article 14) can be explained by science, but not affected by human-made law.

The dominant electromagnetic frequency of the earth (7.83 Hz)²⁰ is the same as the dominant frequency of the human brain and extremely close to that of alpha rhythms,²¹ the electrical frequency of the human brain at rest. Through the technological age, humans are inundated with multiple electronic—including wireless—signals, while the earth remains the constant source of the natural frequency that human mental and physical existence require to function in a healthy way.

In the current environment in which the human is bombarded by multiple electromagnetic frequencies, we are becoming increasingly aware of how rises in electromagnetic fields in the human environment factor among multiple environmental pollutions affecting human health and well-being.²² The intense negative charge carried by the Earth is electron rich, and the human body's direct physical contact with the land is a potent antioxidant. Actual contact with land represents a potential treatment/solution to a variety of degenerative diseases,²³ ranging from chronic stress to autonomic nervous system dysfunction, inflammation, pain, poor sleep, heart rate variability, hyper-coagulable blood and cardiovascular disease,²⁴ and a primary factor in regulating the endocrine and nervous systems.²⁵

In the age of multiple wireless technologies, the earth still provides the natural signal that human mental and physical existence requires for healthy functioning, and earthing the human body may be essential to the human health equation, along with sunshine, clean air and water, nutritious food, and physical activity.²⁶ On the planet Earth, this grounding is inextricably linked to physical access to land as an indispensable factor of human well-being, whether in humans' primordial habitat and/or built environment. In this contemporary context, a return "back to the land" takes on a physiological value.

Land's Organic Link to the Human Right to Participate in Culture

The notion of land, as a common and indispensable part of the human habitat, is expressed in many cultures. Inherent in the traditions and customs of traditional and indigenous peoples is the concept of collective guardianship of land and the prohibition against land's treatment as a commodity.

Notably in Islamic cultures is the prophetic Tradition that “people share in three things: water, (pasture) land and fire” and “it is forbidden to put a price on them.”²⁷

In many earthly human cultures, this synchronicity and symbiosis are considered sacrosanct.²⁸ For millennia, Sioux people have expressed the life-giving force of the land and soil as part of their nature.²⁹ Modern cultures still consider physical access to land as a therapy known as “grounding,” or “earthing,” similar to what Germans call *Waldbaden* and Japanese refer to as *shinrin’yoku* (森林浴).

Land is also attributed with multiple functions: economic, social, cultural and ecological.³⁰ Respecting, protecting and fulfilling secure and equitable access, management, use and secure tenure of adequate land constitute primary elements in a domino causality toward the realization of other human rights.

Both expressions of land as a universal human need and human right, as well as the special relationship of certain human populations to the basic element and resource of land, underscore these economic, social and environmental functions of land as a common good and resource. Land as a human right makes it both an individual and collective prerequisite to the realization of other internationally guaranteed rights, including the human right to participation in culture (ICESCR, article 15). Identifiable land territory and the community’s habitual relations to, and interaction with it are essential to the sustainability of land-based cultures.

In indigenous and other land-based cultures, practitioners retain their organic relationship to land and, in the legal definition of indigenous peoples, to a *particular* land.³¹ Their strong link to territories and surrounding natural resources is often expressed in spiritual and even mystic terms. To outsiders, this relationship is often seen as exotic, colorful, earthy, quaint, poetically expressed and geographically isolated. However, rather than romanticizing this vital land-people relationship as uniquely indigenous, the sciences clarify for modern audiences what makes the land so sacred from time immemorial.

In fact, many—but not necessarily all—human cultures emanate from such a relationship with the land, despite the common urban and class bias, national amnesia and discrimination against rural populations that often prevails. This loss of memory and perspective highlights the importance of articulating clear and consistent human rights obligations of states, as well as shared responsibilities, in relation to land as a distinct human right, as well as an essential element for the realization of other rights guaranteed in the Covenant to which they are party.

Equity

Many people, including some colleagues in human rights fields, still intuitively perceive the “human right to land” as a “property” right. With its narrow interpretation of land as a matter of “tenure,” the current draft GC follows—indeed, promotes—that materialistic trend. However, the codification of “land as a human right” through the ICESCR should disabuse us of that premise. And the forthcoming GC should make that explicit. Therefore, the elaboration of land within human rights methodology requires thoughtful consideration of land rather as a subject of equity. Otherwise, the alternative property approach may be a slippery slope toward land-related tyranny, the antithesis of human rights.

The Vancouver Declaration and Action Plan, Habitat I (1976) noted that “The ideologies of States are reflected in their human settlement policies. These being powerful instruments for change, they must not be used to dispossess people from their land or entrench privilege and exploitation.”³² This injunction echoes the Human Rights Covenants, which both warn in their common Article 1.2 “In no case may a people be deprived of its own means of subsistence.”

Nonetheless, the historic pattern involves more-powerful humans occupying and appropriating a disproportionate amount of land, pushing out other humans and other life. The long and continuous

legacy of colonialism bears this out. Despite its sacred qualities, land has become a platform for humans to stage conflict, rather than a living space to share and enjoy responsibly and equitably. This land-grabbing pattern has been replicated until the present day, acquiring acceptance as normal. The recognition and codification of land as a human right would be crucial step toward developing critical thought, policy and behavioral alternatives to current treatment of land in all jurisdictions.

Noting the distinct approaches to rights and obligations, Cherokee elder Stan Rushworth has explained:

“...the difference between a Western settler mindset of ‘I have rights’ and an indigenous mindset of ‘I have an obligation.’ Instead of thinking that I am born with rights, I choose to think that I was born with obligations to serve past, present, and future generations, and the planet herself.”³³

Although far from a human rights-affirming process, Habitat III nevertheless culminated in the 2016 “New Urban Agenda,” which further envisaged “cities and human settlements that [f]ulfil their social function, including the social and ecological function of land, with a view to progressively achieving the full realization of the right to adequate housing as a component of the right to an adequate standard of living, without discrimination...”³⁴ This recognition tethers land to a single human right (adequate housing) and complements that link already observed in connection with legal security of tenure in CESCR’s General Comment No. 4 on the normative content of the right:

“Tenure takes a variety of forms, including rental (public and private) accommodation, cooperative housing, lease, owner occupation, emergency housing and informal settlements, including occupation of land or property. Notwithstanding the type of tenure, all persons should possess a degree of security of tenure which guarantees legal protection against forced eviction, harassment and other threats. States parties should consequently take immediate measures aimed at conferring legal security of tenure upon those persons and households currently lacking such protection, in genuine consultation with affected persons and groups;”³⁵

Identifying the inequity of denying that human right, CESCR has defined the single most-habitual violation of adequate housing as the antithesis of secure tenure in the practice of “forced eviction,” as:

“the permanent or temporary removal against their will of individuals, families and/or communities from the homes and/or land which they occupy, without the provision of, and access to, appropriate forms of legal or other protection.”³⁶

Toward a General Comment on the Human Right to Land

In order to articulate the obligations of states parties to ICESCR in relation to land as a distinct human right, CESCR’s authoritative interpretation could overcome the methodological dilemma by treating land not merely as a context in which other Covenant rights are to be respected, protected and fulfilled. By comparison, the Committee’s foregoing General Comment No. 24 exemplifies an interpretation of established rights in the context of business activities. Land, however, is not merely a human activity or particular circumstance in which to consider other human rights. Indeed, it constitutes an indispensable need and value of human existence and is present in every context and human endeavor.

As developed through the CESCR’s interpretation of state party obligations corresponding to other specific human rights, a GC on the human right to land should follow a similar forensic method. Therefore, building on the multidisciplinary approach proposed here, any forthcoming GC on land should interpret the normative content, sources in law, state obligations and violations pertaining to “the human right to land.”

The sources of the human right to land in law are inherent in the Covenant, as recognized in numerous foregoing General Comments.³⁷ Land already has been referenced repeatedly in previous GCs as essential to the domino causality required for the realization of other Covenant rights. However, given the human need for land as essential to sustain human life, its treatment now should follow the same

method of interpreting other human rights enshrined in ICESCR, as well as water, which is not. Land is not as a mere context in which other human rights may be affected. The human right to land possesses its own attributes as universally needed for human life, with equitable treatment as a state obligation under ICESCR to ensure that life with dignity. Through the indispensable multidisciplinary lens of law and the social and natural sciences, overcoming a self-inflicted dilemma over whether or not formally to recognize the human right to land, we do not find ourselves divided by ideology as much as we are united in biology.

Endnotes:

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- ¹ General comment No. 25 (2020) on science and economic, social and cultural rights (article 15 (1) (b), (2), (3) and (4) of the International Covenant on Economic, Social and Cultural Rights), E/C.12/GC/25, 30 April 2020, para. 3, https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Download.aspx?symbolno=E%2fC.12%2fGC%2f25&Lang=en.
 - ² Report of the Special Rapporteur on the right to adequate food, Olivier de Schutter, A/65/281, 6 March 2020, https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Download.aspx?symbolno=E%2fC.12%2fGC%2f25&Lang=en.
 - ³ *Land and Human Rights, Standards and Application* (Geneva: OHCHR, 2015), http://www.ohchr.org/Documents/Publications/Land_HR-StandardsApplications.pdf; *Land and Human Rights: Annotated Compilation of Case Law* (Geneva: OHCHR, 2015), http://www.ohchr.org/Documents/Publications/Land_HR-CaseLaw.pdf; *Realizing Women's Rights to Land and Other Productive Resources* (Geneva: OHCHR, 2013), <http://www.ohchr.org/Documents/Publications/RealizingWomensRightstoLand.pdf>; Report of the United Nations High Commissioner for Human Rights on land and human rights, E/2014/86, <http://www.un.org/Docs/journal/asp/ws.asp?m=E/2014/86>.
 - ⁴ "Capital and land: The return of wealth is about more than housing," *The Economist* (4 February 2014), <https://www.economist.com/free-exchange/2014/02/04/capital-and-land>; Sam Moyo, "Land Ownership Patterns and Income inequality in Southern Africa," Identities, Conflict and Cohesion Programme Paper Number 10 December 2004 (Geneva: United Nations Research Institute for Social Development, 2015), [http://www.unrisd.org/80256B3C005BCCF9/\(httpAuxPages\)/101C4E46DE4EA2B080256B6D005786F0/\\$file/moyo.pdf](http://www.unrisd.org/80256B3C005BCCF9/(httpAuxPages)/101C4E46DE4EA2B080256B6D005786F0/$file/moyo.pdf) and <https://pdfs.semanticscholar.org/4b6d/5d9142a42693e17ca28d35e38ff5299d8136.pdf>; Michael R. Carter, "Land Ownership Inequality and the Income Distribution Consequences of Economic Growth," Working Papers No. 201 (Helsinki: United Nations University, World Institute for Development Economics Research, 2000), <https://pdfs.semanticscholar.org/4025/00aed5f49cddb53705693a7f47b56490c7c.pdf>; Klaus Deininger and Pedro Olinto, "Asset distribution, inequality, and growth" (Washington: The World Bank, 2000), <http://web.worldbank.org/archive/website01066/WEB/IMAGES/127527-2.PDF>; Keith Griffin, Azizur Rahman Khan and Amy Ickowitz, "Poverty and the Distribution of Land," *Journal of Agrarian Change*, Vol. 2 No. 3 (July 2002), pp. 279–330; *Land inequality and decentralized governance in LDCs* (Helsinki: United Nations University, World Institute for Development Economics Research, 2000), <https://www.wider.unu.edu/project/land-inequality-and-decentralized-governance-ldcs>; Paolo Verme, Branko Milanovic, Sherine Al-Shawarby, Sahar El Tawila, May Gadallah and Enas Ali A. El-Majeed, *Inside Inequality in the Arab Republic of Egypt* (Washington: World Bank, 2014), <http://www.worldbank.org/content/dam/Worldbank/egypt-inequality-book.pdf>; *Unearthed: Land, Power and Inequality in Latin America* (Oxford: Oxfam International November 2016), https://www.oxfam.org/sites/www.oxfam.org/files/file_attachments/bp-land-power-inequality-latin-america-301116-en.pdf; Paolo Verme, Branko Milanovic, Sherine Al-Shawarby, Sahar El Tawila, May Gadallah, and Enas Ali A.El-Majeed, *Inside Inequality in the Arab Republic of Egypt: Facts and Perceptions across People, Time, and Space* (Washington: The World Bank, 2014), <http://www.worldbank.org/content/dam/Worldbank/egypt-inequality-book.pdf>.
 - ⁵ The United Nations Land and Conflict Guidance Note of the Secretary-General, March 2019, <https://gltn.net/2019/03/15/guidance-note-of-the-secretary-general-the-united-nations-land-and-conflict-march-2019/>.
 - ⁶ Notably, Housing and Land Rights Network – Habitat International Coalition, FIAN International and other civil society organizations.
 - ⁷ Draft General Comment No. 26 on Land and Economic, Social and Cultural Rights (in English) is available <https://www.ohchr.org/Documents/HRBodies/CESCR/Contributions/CESCR-draft-GC-26.docx>.
 - ⁸ As called for under Article 11.2(a), International Covenant on Economic, Social and Cultural Rights, General Assembly resolution 2200A (XXI), 16 December 1966, <https://www.ohchr.org/en/professionalinterest/pages/cescr.aspx>.
 - ⁹ Universal Declaration of Human Rights, A/RES/III/217A, 10 December 1948, Article 17, <https://www.un.org/en/universal-declaration-human-rights/>.
 - ¹⁰ Len Doyle and Ian Gough, *A Theory of Human Need* (London: MacMillan, 1991).
 - ¹¹ John Rawls, *A Theory of Justice* (Cambridge MA: The Belknap Press of Harvard University Press, revised edition, 1999), http://www.consiglio.regione.campania.it/cms/CM_PORTALE_CRC/servlet/Docs?dir=docs_biblio&file=BiblioContenuto_3641.pdf.
 - ¹² Brett Christophers, "For real: land as capital and commodity," *Transactions* (2016), <https://rgs-ibg.onlinelibrary.wiley.com/doi/pdfdirect/10.1111/tran.12111>.
 - ¹³ Classical elements typically refer to water, earth, fire, air, and (later) æther, which were proposed to explain the nature and complexity of all matter. See T.J.M. Boyd and J.J. Sanderson, *The Physics of Plasmas* (Cambridge, England; New York: Cambridge University Press, 2003); and Philip Ball, *The Elements: A Very Short Introduction* (Oxford: Oxford University Press, 2004).
 - ¹⁴ CESCR, General Comment No. 15: The right to water, E/C.12/2002/11, 20 January 2003, https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Download.aspx?symbolno=E%2fC.12%2f2002%2f11&Lang=en.
 - ¹⁵ The human right to water and sanitation, A/RES/64/292, 3 August 2010, https://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/64/292; and The human rights to safe drinking water and sanitation, A/RES/70/169, 22 February 2016, <https://undocs.org/A/RES/70/169>.
 - ¹⁶ As affirmed in gravitational biology, human physical development is adapted to life on land, as the factor gravity enables functions of the spine, internal organs, digestion, elimination of waste, flexible mobility, reproduction and the circulation of blood and oxygen. See Ralf H. Anken and Hinrich Rahmann, "Gravitational Zoology: How Animals Use and Cope with Gravity," *Astrobiology: The Living Universe - Gravitational Biology* (2001), http://www.dlr.de/me/Institut/Abteilungen/Strahlenbiologie/pdf/astrobiologie/P4_20.pdf; Janet Tou, April Ronca, Richard Grindeland and Charles Wade, "Models to Study Gravitational Biology of Mammalian Reproduction," *Biology of Reproduction*, Vol. 67 (2002), <http://www.bioreprod.org/cgi/content/abstract/bioreprod.102.007252v1>.
 - ¹⁷ One g is the force per unit mass due to gravity at the Earth's surface and is the standard gravity (symbol: gn), defined as 9.80665 meters per second squared, or equivalently 9.80665 newtons of force per kilogram of mass.

- ¹⁸ These range from ranging from chronic stress to autonomic nervous system dysfunction, inflammation, pain, poor sleep, heart rate variability, hyper-coagulable blood and cardiovascular disease. See James L Oschman, Gaétan Chevalier, Richard Brown, “The effects of grounding (earthing) on inflammation, the immune response, wound healing, and prevention and treatment of chronic inflammatory and autoimmune diseases,” *Journal of Inflammation Research*, Vol. 8 (24 March 2015), <https://www.dovepress.com/the-effects-of-grounding-earthing-on-inflammation-the-immune-response-peer-reviewed-article-JIR>; Joseph Mercola, “The Effects of Grounding” (21 November 2015), <https://articles.mercola.com/sites/articles/archive/2015/11/21/grounding-effects.aspx>; Gaétan Chevalier, Stephen T. Sinatra, James L. Oschman, and Richard M. Delany, “Earthing (Grounding) the Human Body Reduces Blood Viscosity—a Major Factor in Cardiovascular Disease,” *The Journal of Alternative and Complementary Medicine*, Vol. 19, No. 2 (2013), <https://www.liebertpub.com/doi/pdfplus/10.1089/acm.2011.0820>. Direct contact with land (earthing) during exercise also can inhibit hepatic protein catabolism or increase renal urea excretion, resulting in a positive nitrogen balance. This phenomenon has fundamental importance in understanding human metabolic processes. Paweł Sokal, Zbigniew Jastrzębski, Ewelina Jaskulska, Karol Sokal, Maria Jastrzębska, Łukasz Radziński, Robert Dargiewicz, and Piotr Zieliński, “Differences in Blood Urea and Creatinine Concentrations in Earthed and Unearthed Subjects during Cycling Exercise and Recovery,” *Evidence-Based Complementary and Alternative Medicine*, Vol. 2013 (2013), <http://dx.doi.org/10.1155/2013/382643>.
- ¹⁹ Karol Sokal and Paweł Sokal, “Earthing the Human Body Influences Physiologic Processes,” *The Journal of Alternative and Complementary Medicine*, Vol. 17, Issue 4 (April 2011), <https://www.liebertpub.com/doi/abs/10.1089/acm.2010.0687>.
- ²⁰ Also referred to as the “Schumann resonance,” named after the physicist who first studied the theoretical aspects of the global resonances of the earth–ionosphere waveguide system. Winfried Otto Schumann, “Über die strahlungslosen Eigenschwingungen einer leitenden Kugel, die von einer Luftschicht und einer Ionosphärenhülle umgeben ist,” *Zeitschrift für Naturforschung*, Vol. 7, No 2 (1952), <https://www.degruyter.com/downloadpdf/j/zna.1952.7.issue-2/zna-1952-0202/zna-1952-0202.pdf>.
- ²¹ The neural oscillations in the frequency range of 7.5–12.5 Hz arising from synchronous and coherent (in phase or constructive) electrical activity of thalamic pacemaker cells in humans when a person is awake and relaxed.
- ²² Colin Pritchard, Anne Silka and Lars Hansen, “Are rises in Electro-Magnetic Field in the human environment, interacting with multiple environmental pollutions, the tipping point for increases in neurological deaths in the Western World?” *Medical Hypotheses*, Vol. 127 (June 2019), pp 76–83, <https://www.sciencedirect.com/science/article/pii/S0306987719300040>.
- ²³ Oschman, Chevalier and Brown, *op. cit.*; Joseph Mercola, “The Effects of Grounding” (21 November 2015), <https://articles.mercola.com/sites/articles/archive/2015/11/21/grounding-effects.aspx>.
- ²⁴ Chevalier, Sinatra, Oschman and Delany, *op. cit.*; Sokal, Jastrzębski, Jaskulska, Sokal, Jastrzębska, Radziński, Dargiewicz and Zieliński, *op. cit.*
- ²⁵ Sokal and Sokal, *op. cit.*
- ²⁶ Gaétan Chevalier, Stephen T. Sinatra, James L. Oschman, Karol Sokal and Paweł Sokal, “Earthing: Health Implications of Reconnecting the Human Body to the Earth’s Surface Electrons,” *Journal of Environment and Public Health*, Vol. 2012 (2012), <http://dx.doi.org/10.1155/2012/291541>.
- ²⁷ ﴿الناس شركاء في ثلاثة: في الكَلأ، والماء، والنار﴾ or ﴿المسلمون شركاء في ثلاث في الماء والكَلأ والنار وثمنه حرام﴾, Hadith no. 2472, by the authority of Ibn Abbas, and Hadith no. 2473 by the authority of Abu Hurairah, <http://mobile.ahadith.co.uk/chapter.php?page=4&cid=175> and <http://www.taimiah.org/Display.Asp?f=bc9051100010.htm>. See also the Ahadith related by Abu-Dawud, Ibn Majah and al-Khallal, *Islamset*, <http://www.islamset.com/env/contentv.html>.
- ²⁸ See Roger S. Gottlieb, ed., *This Sacred Earth: Religion, Nature, Environment* (New York: Routledge, 2nd edition 2004).
- ²⁹ Luther Standing Bear (a.k.a. Ota Kte or Mochunozhin), *Land of the Spotted Eagle* (Lincoln NE and London: University of Nebraska Press, 1933; Bison Book reprinting, 1978).
- ³⁰ The New Urban Agenda, adopted by the General Assembly on 23 December 2016, recognizes the “social and ecological function of land, with a view to progressively achieving the full realization of the right to adequate housing as a component of the right to an adequate standard of living, without discrimination, universal access to safe and affordable drinking water and sanitation, as well as equal access for all to public goods and quality services in areas such as food security and nutrition, health, education, infrastructure, mobility and transportation, energy, air quality and livelihood through decent works...” A/RES/71/256, 25 January 2017, para. 13, http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/71/256;
- ³¹ Indigenous peoples are those populations possessing the following four basic characteristics: (1) presence before a process of colonization or massive immigration, (2) continuous presence in a defined territory, (3) practicing a culture distinct from the dominant society and (4) self-identification as indigenous people. See Jose R. Martinez Cobo, the Special Rapporteur of the Sub-Commission on Prevention of Discrimination and Protection of Minorities, “Study on the Problem of Discrimination against Indigenous Populations,” UN Doc. E/CN.4/Sub.2/1986/7 and Add. 1-4. The conclusions and recommendations of the study, in Addendum 4, are also available as a United Nations sales publication (U.N. Sales No. E.86.XIV.3), <https://www.un.org/development/desa/indigenouspeoples/publications/martinez-cobo-study.html>.
- ³² The Vancouver Action Plan, Preamble, para. 3, <https://undocs.org/en/A/CONF.70/15>.
- ³³ Hal Atwood, “The End of Ice,” *Lion’s Roar* (2 October 2019), <https://www.lionsroar.com/the-end-of-ice/>, from an interview with mountaineer and former war reporter Dahr Jamail about his book *The End of Ice: Bearing Witness and Finding Meaning in the Path of Climate Disruption* (New York and London: The New Press, 2019).
- ³⁴ New Urban Agenda, *op. cit.*, para. 13.
- ³⁵ CESCR, General Comment No. 4 on the Right to Adequate Housing (1991), contained in UN Doc. E/1992/23, para. 8(a), https://tbinternet.ohchr.org/Treaties/CESCR/Shared%20Documents/1_Global/INT_CESCR_GEC_4759_E.doc.
- ³⁶ CESCR, General Comment No. 7: The right to adequate housing (art. 11 (1) of the Covenant): Forced evictions, para. 3, https://tbinternet.ohchr.org/Treaties/CESCR/Shared%20Documents/1_Global/INT_CESCR_GEC_6430_E.doc.
- ³⁷ See CESCR General Comment No. 4, *op. cit.*, paras. 8(a) and (e); CESCR General Comment No. 7 (1997) on Forced Evictions, contained in UN Doc. E/1998/22, annex IV., at paras. 2, 3, 7, 9, 15 and 16, https://tbinternet.ohchr.org/Treaties/CESCR/Shared%20Documents/1_Global/INT_CESCR_GEC_6430_A.doc; CESCR General Comment No. 12 (1999) on the Right to Adequate Food, UN Doc. E/C.12/1999/5, at paras. 12, 13 and 26, <https://docstore.ohchr.org/SelfServices/FilesHandler.ashx?enc=4slQ6QSmIBEDzFEovLCuW%2bKyH%2bnXprasyMz2e8mx4fouQpDVshj73SoMLU1JtJtZDtdYerYia%2bctGqO8NrWmRL%2ft1OvyKtqjxnygkOzYPp9tCFBWVc0bkQ1mCWULU7>; CESCR General Comment No. 14 (2000) on the Right to the Highest Attainable Standard of Health, UN Doc. E/C.12/2000/4, at para. 27, <https://docstore.ohchr.org/SelfServices/FilesHandler.ashx?enc=4slQ6QSmIBEDzFEovLCuW1AVC1NkPsgUedPIF1vFPMJ2c7ey6PAz2qaoiTzDjmCOy%2b9t%2bsAtGDNzdEqA6SuP2q1EgTk1Ow%2fx8U1%2bxIzyE445PEm%2bvfROsIzbHO%2fwiIa>; CESCR General Comment No. 15 (2002) on the Human right to water, UN Doc. E/C.12/2002/11, at paras. 16(c) and (d),

<https://docstore.ohchr.org/SelfServices/FilesHandler.ashx?enc=4slQ6QSmIBEDzFEovLCuW1AVC1NkPsgUedPIF1vfPMJGPrCK5aXxG4bAqt2RQ8OBgsAGw8XJOuajoG9jmUjYRQ5MFTYfmhvQ3AV3OHC0EpZ0Zj1BrdYR43fQjTM%2fzAgW>; CESCR General Comment No. 16 (2005) on the Equal Right of Men and Women to the Enjoyment of all Economic, Social and Cultural Rights, UN Doc. E/C.12/2005/4, at para. 28, <https://docstore.ohchr.org/SelfServices/FilesHandler.ashx?enc=4slQ6QSmIBEDzFEovLCuW1AVC1NkPsgUedPIF1vfPMJpdX7m2Tx5L7detnk4aL8Sk%2bOCLoahsUFVMh6SviNU98K5SduLm26zwGFbhyc3dEiHiMSnifnn6SMHL2Csf1g>; CESCR General Comment No. 21 (2009) on the Right of Everyone to Take Part in Cultural Life, E/C.12/GC/21, at paras. 3, 15(b), 36, 49(d), and 50(c), <https://docstore.ohchr.org/SelfServices/FilesHandler.ashx?enc=4slQ6QSmIBEDzFEovLCuW1a0Szab0oXTdlmnsJZVQc5ReG9hKvddWC2MLSU76E63nT%2beY%2btmSVIRS0ynN0q4DVe7VNwOgDL65M0T9xmC2uem8o3Rci9A7lcPhcoi2lc>.