

NATURE AND THE LAW: THE GLOBAL COMMONS AND THE COMMON CONCERN OF HUMANKIND

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Many believe that we are entering a new geological epoch: the Anthropocene. Humans have now become a force of nature affecting our planet Earth on a geological scale and at a much faster rate than traditional geological speed. We have the power to affect the robustness and resilience of the planet. We have impacts on all spatial scales, from local to global.

There are many examples of our dramatic impact, ranging from decreased sediments in rivers, to accelerating rate of species extinction, to pollution of land, freshwater, oceans, and atmosphere, to the recently discerned speeding up of the carbon, nitrogen, and now the hydrological cycles. The 5th Report of the IPCC's Working Group II warns that our activities are already having profound effects on every continent and on our oceans, which pose many threats, especially to global food and fresh water.¹

The result is that our planet has now become in effect a global commons. Traditionally a commons constitutes an area to which one cannot prevent access to it. The atmosphere, oceans, the ocean-atmospheric system with its monsoon system and thermohaline circulation patterns, and the ozone layer are examples of global commons. Our climate is also a global commons, for no one can prevent access to the climate system or prevent interactions from human activities in disparate parts of the planet from affecting the climate. Even the ice of the Arctic Ocean and the glaciers of the Himalayas and Antarctica are put at risk by anthropogenic carbon dioxide emissions.

The global climate, and hence the resilience and the integrity of our planet, cannot be compartmentalized. While States have claimed and exercised national sovereignty over certain specific areas, which may be analogous to the privatization of a commons, they do not have the power alone to prevent threats to the planet or to ensure its survival. In this sense, they

¹ Intergovernmental Panel on Climate Change, Summary for Policymakers, Climate Change 2014: Impacts, Adaptation, and Vulnerability, Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (2014) http://ipcc-wg2.gov/AR5/images/uploads/WG2AR5_SPM_FINAL.pdf

inherently share the global commons of our planet. Their actions and those of many others also affect people's access to resources, such as fresh water, and to benefits derived from their use.

To view the Earth as a global commons that we all share does not require that we regard it as common property that we own. Many policies, such as for energy, agricultural, and water resources, are decided upon and put into effect at the local, national, or regional level. And yet, together they affect access to and the quality of resources and the Earth's resilience and integrity. Biological diversity and fresh water, although local or regional in character and subject to national jurisdiction, are in a broader sense a common concern of the global community. The international legal doctrine of the common concern of humankind, which was set forth for climate change and biodiversity in 1992, should be extended to the global commons, so that we explicitly recognize our responsibilities for conserving the commons. This point is developed later in this manuscript.

International law offers a useful perspective in which to view issues concerning the global commons. Law is an expression of agreed values and provides a normative basis for action. It can frame issues and give order to how we should think about them and what we should do about them. It creates expectations regarding behavior and offers predictability. It influences decision-making and processes for decision-making, and can facilitate cooperation and lead to the creation of new institutional arrangements to accomplish agreed obligations or goals. For the global commons, international law speaks to the development and implementation of principles and legal instruments to protect the natural and human sustainability of our planet, both locally and globally.

One must view the global commons through two distinct lenses: the intergenerational lens, which is long-term ranging from the next generation to decades or even centuries hence; and the kaleidoscopic lens, which is a bottom-up approach focused on the actions of those who affect the commons and are affected by it.

I. The Intergenerational Framework

All generations – past, present, and future – are linked in the global commons of the Earth. We are part of the Earth and both profoundly affect the Earth and are affected by it. Since we are the most sentient of living beings on the Earth, one could argue that the Earth constitutes common property for us, but this could imply that we could do with the Earth whatever we wanted to do. Rather we are intrinsically part of the system and, in this sense, we are owners of the global commons.

The thesis is that we hold our planet in common with past, present, and future generations. If we view our planet as a trust, we are at the same time trustees of the planet for future generations and beneficiaries with the right to access and benefit from the trust.

This perspective has deep roots in many different cultural, religious, and legal traditions. In the Judeo-Christian tradition, God gave the Earth to his people as an everlasting possession to be passed on from generation to generation. In the Islamic religious tradition, man has inherited all the resources of life and nature and has certain religious obligations to God in using them. Each generation makes the best use of the Earth without upsetting the interests of future generations. No generation owns the Earth permanently. The nontheistic traditions in Asia and South Asia also respect nature and our responsibilities to future generations as stewards of the Earth. They stress living in harmony with nature.

Both the common law and civil law legal traditions also reflect the perspective of a trust to be used and cared for by each generation. In the common law tradition, John Locke, for example, posits that whether by natural reason or by God's gift to Adam and his posterity, humankind holds the planet in common. We have an obligation not to take more of the fruits of nature than we can use, so that they remain for others to use. We ought not to waste the fruits of nature. In the civil law tradition, Germany recognizes social obligations that are inherent in the ownership of private property. Karl Marx proposed that all communities were only in possession, or users, of the Earth, with obligations to conserve it for future generations.

African customary law is striking in that it generally recognizes that we are only tenants on Earth, and thus have obligations to both past and future generations to care for the Earth. The Chief is like a trustee who holds the Earth in common for the use of the community. Customary laws and practices of many traditional peoples all over the world also view nature as held in common by the community and thus impose obligations on its use so that it will be available to future generations.

These examples show that the concept that we hold the Earth in common with past, present, and future generations – that we act as trustees or stewards of the Earth – has deep cross-cultural roots. It can provide the basis for recognition of a common ownership of the Earth that both gives entitlements of access and use and imposes restrictions on that access and use.

Principle of Intergenerational Equity

The principle of intergenerational equity holds that all generations are partners in caring for and using the Earth. The present generation must pass

the Earth and our natural and cultural resources on to future generations in at least as good condition as it received them so they can meet their own needs. This obligation applies both to diversity and quality. It leads to robustness and resilience of the human environment.

The principle is a foundation for sustainable development and is found in diverse juridical writings and legal instruments.² As we have seen, it is broadly acceptable across diverse cultures and religious traditions. In international law, the principle builds upon the use of equity, initially formulated by Aristotle and elaborated by Grotius, as addressing cases not covered by universal law. In the 20th century, equity has been invoked more broadly as a basis for allocating and sharing resources and for distributing burdens.

The principle of intergenerational equity has three intergenerational elements: comparable options, comparable quality, and comparable or nondiscriminatory access. These elements are consistent with the following criteria: a) to encourage equality among generations; b) not to require the present generation to predict the values and preferences of future generations, but rather to give future generations flexibility to achieve their own goals; c) to be reasonably clear in application to foreseeable situations; and d) to be generally shared by different cultural traditions and generally acceptable to different economic and political systems.

The first element, “comparable options”, calls for conserving the diversity of the natural resource base so that future generations have a robust and flexible inheritance with which to achieve their own well-being. This means, for example, conserving biological diversity, respecting recharge rates in using fresh water from renewable ground water aquifers, conserving germplasm and local understanding of the plant environment, conserving productivity of soils, and constraining the use of fossil aquifers according to certain criteria. Conserving options is especially relevant for adapting to climate change.

The second element, “comparable quality”, calls for ensuring that the quality of the environment left to future generations is *on balance* in no worse condition than received. At any given time, we may both degrade and protect or improve the environment. Hence, the reference is to “on balance”. Some actions generate long-term, even irreversible serious harm. For example, pollution of ground water is difficult and costly to reverse. Flushing persistent toxic chemicals from lakes through natural processes

² See, e.g., Edith Brown Weiss, *In Fairness to Future Generations: International Law, Common Patrimony, and Intergenerational Equity* (Dobbs Ferry, N.Y.: United Nations University, Transnational Publishers, 1989); “Intergenerational Equity”, *Max Planck Encyclopedia of Public International Law*, Vol. V (Oxford: Oxford University Press, 2012 and online).

may take a century, as it does, for example, in Lake Superior in the United States. Disposal of nuclear wastes can lead to long-term contamination. Desertification of soils renders them unproductive. We should avoid these actions. But other actions, such as those that result in the cutting of forests or the taking of ground water in excess of recharge rates can be offset by replanting or conservation of forests elsewhere or by the carrying out and implementation of water research into more efficient transport and use of fresh water.

The third element, “comparable or nondiscriminatory access” gives members of the present generation a reasonable, non-discriminatory right of access to the environment and natural resources to use for their own benefit and provides for equitable non-discriminatory access to future generations. This suggests, for example, that the real price of resources to future generations, at least to immediate ones, be comparable to the present value. In the context of climate change, the element of access suggests that measures to adapt to climate change try to provide comparable or nondiscriminatory access to resources and environmental benefits for future generations.

The principle of intergenerational equity imposes obligations on the present generation to future generations. The 1997 UNESCO Declaration on Responsibilities to Future Generations focuses on such obligations.³ Obligations do not necessarily entail corresponding rights. In the context of future generations, one can argue that future generations have rights and the present generation has obligations to respect those rights. Rights of future generations are not individual rights. Rather they are generational rights, which can be usefully conceived only at a group level. They are in the nature group or collectively held rights in relation to other generations – past, present, and future. They exist regardless of the number and identity of the people who exist in each generation.

Rights of future generations are rights to diversity and quality comparable to those enjoyed by previous generations. Both of these can be evaluated by objective criteria and indices. Enforcement of these rights would appropriately be done by a guardian or representative of future generations as a group, not of future individuals, who are necessarily indeterminate. Implementation of the rights of future generations could, for example, mean giving a voice to the interests of future generations in the decisions we take today, such as those decisions related to climate change.

³ UNESCO, Declaration on the Responsibilities of the Present Generations Towards Future Generations, Nov. 12, 1997, http://portal.unesco.org/en/ev.php-URL_ID=13178&URL_DO=DO_TOPIC&URL_SECTION=201.html

Intergenerational equity and intragenerational equity may appear to clash, in the sense that resources should be devoted to resolving the great inequities that exist today rather than addressing the concerns of future generations. Indeed, many people are too poor today to have effective access to the benefits of the resources of our planet. This also, however, affects our ability to conserve the planet for future generations. From the intergenerational perspective, as our concerns extend further in time, we can conserve our resources for our descendants only by conserving the environment in which they will live. This in turn means that we need to assist impoverished people and communities. Their willingness and ability to meet obligations to future generations is conditioned upon having access now to the benefits of their environmental legacy. Thus addressing the severe problems of poverty and inequality, especially within countries, can be seen as a critical part of the intergenerational issue.

One can argue, further, that intergenerational equity encompasses intragenerational equity as an integral element of the principle. Once future generations become part of the present generation, they have obligations toward members of the present generation that reflect their intergenerational obligations. Thus, the intergenerational element of access gives members of the present generation, defined as living persons, reasonable, nondiscriminatory rights of access to resources to use to improve their own economic and social well-being, with the obligation to respect their obligations to future generations. Thus, in the intragenerational context, the realization of the intergenerational principle of conservation of access means that all peoples should have a minimum level of access to the Earth and its resources today for their own benefit.

While this intragenerational component flows from the principle of intergenerational equity, it could also be regarded as an independent component, which is not required by the principle. In international law, the principle of intergenerational equity has been accepted as defining the obligations among generations, and for many, both the rights and the obligations of future generations, but not the issues of equity among those living today.

Implementation of a Principle of Intergenerational Equity

Governments habitually avoid addressing the long-term. Sustainable development and other goals require paying attention to the long term. The principle of intergenerational equity puts the focus on the long-term and requires that the interests of future generations be considered in our decisions today.

Actions implementing a principle of intergenerational equity are increasing. We turn first to some of the specific developments in institutions

and in judicial cases at the international, national, and local levels, and then to the general strategies needed to implement the principle.

At the international level, civil society has led a push to establish a formal position representing the interests of future generations within the United Nations. The August 2013 Report of the UN Secretary-General on *Intergenerational Solidarity and the Needs of Future Generations* references several options, including a United Nations High Commissioner for Future Generations or a Special Envoy for Future Generations. At the national level, Finland has established a permanent parliamentary Committee for the Future; the Hungarian Parliament created an Ombudsman for Future Generations, which is now under the Commissioner for Fundamental Rights; the Israeli Knesset created a Commission for Future Generations, which while dissolved is now under consideration to be recreated, and the German Bundestag established the Parliamentary Advisory Council on Sustainable Development to serve as the advocate of long-term responsibility. The functions vary from issuing reports to intervening in the judicial process, as in the case of Hungary. The first meeting of all the national institutions concerned with future generations was held in Budapest, Hungary, in late April 2014. The principals have agreed to meet annually to exchange information and experiences on a regular basis.

National courts have also used a principle of intergenerational equity in their decisions. These include courts in New South Wales, Australia, the National High Court of Brazil, the High Court of Kenya, the Supreme Court of India, courts in New Zealand, and the Supreme Court of the Philippines, among others. These developments are especially significant because a principle of international law is being invoked domestically or otherwise found in national constitutions or statutes.

To implement a principle of intergenerational equity in a broader context, we need to adopt an intergenerational lens to identify appropriate strategies. These strategies may include, but are not limited to, the following:

1. Representation for the interests of future generations in decision-making and in other appropriate venues
2. Sustainable use of resources, especially including soils
3. Long-term integrated, intergenerational assessments, monitoring, and transparency
4. Scientific and technological research and development on long-term issues that the private sector does not otherwise fund, such as monitoring of ground water pollution and certain resource use
5. Attention to the cost and ease of maintaining projects or programs when deciding whether to undertake them

6. Codification of norms and promotion of shared values
7. Education for conserving diversity, quality, and access for present and future generations

These and other strategies are appropriately pursued at all levels and are consistent with the rapidly emerging bottom-up empowerment described below. We need to engage all actors at all levels in taking actions to conserve our global commons for present and future generations.⁴

II. The Kaleidoscopic World with Bottom-up Empowerment

At the same time that we are being forced in the Anthropocene Epoch to confront our responsibilities for the Earth as a global commons, we are an international community that is becoming more and more a kaleidoscopic world, with increased integration and fragmentation, millions of new actors, rapid communication, and rapid change. Governance, or management, of the many systems, whether directly or indirectly, is becoming ever more challenging and difficult. At the same time, we face powerful threats of top down control, which further complicates governance issues.

In the new kaleidoscopic world, information technology is transforming the participation of individuals, *ad hoc* coalitions, nongovernmental organizations, transnational networks, business groups, religious orders, communities and other groups in governance at the international, national, regional, and local levels. States and international organizations remain critical players, but the international system is less hierarchical and much more chaotic than before. There is an explosion of bottom-up initiatives and empowerment. This has important advantages but also raises important issues.

Integration and fragmentation in the international system are taking place at the same time. States now number more than 195, as opposed to little more than 50 when the United Nations was founded. According to the 2013–2014 Yearbook of International Organizations, there are over 26,000 active intergovernmental and international nongovernmental organizations, and if special international organizations, including religious orders and secular institute, and inactive ones are included, the total number rises to over 66,000.⁵ In addition, numerous networks and other significant groups operate across national borders.

⁴ For a comprehensive report on steps for decision-makers to take to address the future, see *Now for the Long Term*, Report of the Oxford Martin Commission for Future Generations (Oxford: Oxford University, 2013).

⁵ Union of International Associations, *Yearbook of International Organizations 2013–2014* (Leiden: Brill, 2013). The data was collected in 2012.

In the new situation, informal groups, *ad hoc* coalitions and individuals are becoming important participants in helping to conserve or to desecrate our planet. Information technology enables people to create cross-border coalitions, which constantly shift in focus and followers. There are myriads of informal groups, communities, and special interests, and millions of individuals that can affect the governance of the commons. As of June 2014, Tumblr reported 191 million blogs.⁶ In February 2014, the blogging tool WordPress reported 77 million WordPress sites, with 409 million unique monthly users per month.⁷ In November 2011, BlogScope tracked more than 57 million blogs across the different sites, with 1 billion posts. At that time, blogs were already read daily by 346 million people in 81 different languages, with 900,000 unique blog posts on average every 24 hours.⁸ Twitch, a live video streaming site, reported 900,000 unique broadcasters per month at the end of 2013, while YouTube reported that 100 hours of video are uploaded to YouTube every minute.⁹ The microblogging social networks report similarly large numbers. In April 2014, Twitter reported 255 million monthly active users as of March 31, 2014, 198 million of which were mobile monthly active users.¹⁰ In July 2013, Burson–Marsteller released a study that found that more than three-quarters of States had a Twitter account.¹¹ There are many more social networking sites than those referenced here.

Mobile phones are widely used to help organize coalitions and actions, whether locally or across national borders. While many poor people still do not have access to mobile phones, access is rapidly increasing across Africa, Asia and Latin America. Cell phones are the fastest diffusing technology in history. These explosive developments in communications technology mean

⁶ <https://www.tumblr.com> Yahoo, which acquired Tumblr in June 2013, indicated that Tumblr receives 300 million unique monthly visitors, though experts believe the number may be significantly lower, J. Yarrow, “The Truth About Tumblr: Its Numbers Are Significantly Worse Than You Think”, *Business Insider*, May 21, 2013, <http://www.businessinsider.com/tumblrs-active-users-lighter-than-expected-2013-5>

⁷ WordPress, “Stats”, <http://en.wordpress.com/stats/>

⁸ BlogScope, <http://www.blogscope.net/> The site has been discontinued as of April 2012, but the BlogScope technology has been channeled into www.sysomos.com since 2007.

⁹ Twitch, “2013 Retrospective”, <http://www.twitch.tv/year/2013>; YouTube, “Statistics”, <http://www.youtube.com/yt/press/statistics.html>

¹⁰ Twitter, “Twitter Reports First Quarter 2014 Results”, Apr. 29, 2014, <https://investor.twitterinc.com/releasedetail.cfm?releaseid=843245>

¹¹ *Twiplomacy: Heads of state and government on Twitter, July 2013* (2013), http://twiplomacy.com/wp-content/uploads/2013/12/Twiplomacy_countries.pdf

that many groups and especially individuals can participate directly in so-called governance of our global commons and its innumerable local aspects. We may characterize this as “bottom-up empowerment”.

Bottom-up empowerment is taking place across the globe. Examples include the campaign to ban land mines, which led to the conclusion of an international treaty, the significant protests in London against the treatment of Tamil people in Sri Lanka, which led to pressures on the government in Sri Lanka, so-called color and velvet revolutions in the Ukraine and areas of Central and Eastern Europe, and the Arab Spring. Actions in civil society in one part of the world can quickly go viral today.

Bottom-up empowerment also is taking place across different sectors of the world, which involve the world economy. The creation of Bitcoin and other new electronic forms of money and the development of thousands of small businesses that operate through the Internet illustrate this new and growing phenomenon. Kiva and other informal groups that seek funds from thousands of donors on the Internet for specific development projects and the emergence of crowd sourcing as a source of funds for a specific new project illustrate the growing bottom-up empowerment. Bottom-up initiatives are doing things that in the past have been associated with initiatives of governments or of large businesses. Thus, if we want to address issues of sustainability for the global commons effectively, it will be essential to recognize and use the bottom-up initiatives that are possible in this new kaleidoscopic world.

There is a substantial literature on governing a commons, which is relevant to governance in the kaleidoscopic world.¹² People have been organizing among themselves for centuries to use resources, which may give at least some hope that we can organize at multiple levels and places for sustainability.

The Importance of Values

In the new kaleidoscopic world, effective governance requires a set of common values. Such common values are particularly important for voluntary commitments to be effective for the global commons. These com-

¹² See, e.g., Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (New York: Cambridge University Press, 1990) and subsequent work. For legal literature, see Burns H. Weston and David Bollier, *Green Governance: Ecological Survival, Human Rights, and the Law of the Commons* (New York: Cambridge University Press, 2013).

mitments must be based on the normative value of sustainability, and on other equally important values, such as intergenerational fairness and social and economic equality. Traditionally international agreements reflect such values and articulate shared commitments, and States have the responsibility to implement them. In the kaleidoscopic world, the common values and shared commitments must also flourish from the bottom up. Because local communities, informal or transient groups of participants, or individuals will increasingly be able to influence the development and commitment to international agreements and other legal instruments, the sharing of common values becomes essential to effective governance. Otherwise, voluntary commitments to sustainability will be wholly insufficient to achieve even modest sustainability goals, or worse, only a fig leaf for inaction.

Since as part of the revolution in information technology, individuals can communicate globally and are doing so in rapidly increasing numbers, the youngest generation is growing up with an outlook that assumes that people can communicate with others elsewhere. This development may provide a means for fostering shared values about sustainable development and conservation of the integrity of our planet.

Religious institutions have significant influence in fostering the values of sustainability, environmental justice, and fairness to future generations. Sustainability depends upon the ethical principles of the people who decide every day what actions to take. This in turn, at least in part, is likely to reflect principles that have been widely discussed and publicized and have been endorsed by religious and political leaders.

The Doctrine of the Common Concern of Humankind

New legal principles and doctrines are emerging that are critical to protecting our global commons. The principle of intergenerational equity represents one such development. The second is the concept and evolving doctrine of the “common concern of humankind”.

If, in the new Anthropocene Epoch, we were to designate our planet as a global commons, the legal doctrine of common concern of humankind would serve as the legal basis for developing new commitments to sustainability. These could take place in all sectors and at all geographical levels.

The legal concept of the common concern of humankind first emerged as a distinct concept in the parallel negotiations for the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity, which were prepared for the 1992 Rio Conference on Environment and Development. The Preface to the UNFCCC “acknowledges” that “changes in the Earth’s climate and its adverse

effects are a common concern of humankind”. The Preface to the Convention on Biological Diversity “affirms” the conservation of biological diversity as “a common concern of humankind”.

The terminology is intended to distinguish the concept from the by then familiar legal concept of the “common heritage of mankind”, which had been developed and primarily used to refer to the deep seabed resources and to outer space.¹³ Traditionally the doctrine of “common heritage of mankind” has been associated with notions of property in the sense that everyone or every State may have a property interest in anything that is so designated. One may argue that such property could be regarded as “*res communis*” or owned in common. This need not follow, for the 1972 World Heritage Convention provides for States to put natural or cultural sites located within their country on a World Heritage List, and this does not mean that the site has become *res communis*.¹⁴ Except for this singular example, States have been exceedingly reluctant to adopt any terminology that could suggest they are relinquishing any property interest in areas under their jurisdiction or control. For centuries they have exercised national sovereignty in such areas. By developing the concept of “common concern of humankind”, one can avoid the focus on a property interest and focus instead on the common interest that all have in protecting the resources and environmental systems essential for humankind.

The concept of common concern of humankind has never been articulated in detail in any legal instrument. From 1990–1991, the United Nations Environment Programme (UNEP) hosted a group of legal experts to examine the concept. The report of the final meeting of the group noted that “the concept... was sufficiently flexible to warrant its general acceptance as providing a broad basis for the consideration of environmental issues... and should relate both to environment and to development”.¹⁵ Since 1992, there has been only limited attention to the concept until recently. Scholarly writing has proposed that access to and quality of fresh water should be

¹³ For writings, see Prue Taylor and Lucy Stroud, *Common Heritage of Mankind: A Bibliography of Legal Writing* (Valletta, Malta: Fondation de Malte, 2013).

¹⁴ Convention Concerning the Protection of the World Cultural and Natural Heritage, Nov. 16, 1972, 1037 UNTS 151.

¹⁵ United Nations Environment Programme, Beijing Symposium on Developing Countries and International Environmental Law (Beijing, China, August 12–14, 1991); Antônio Augusto Cançado Trindade, *International Law for Humankind: Towards a New Jus Gentium*, 2nd rev. ed. (Leiden: Hague Academy International Law, Martinus Nijhoff, 2013).

viewed as a common concern of humankind,¹⁶ and there are incipient efforts to explore its application more broadly in other fields.

Voluntary Commitments

In the Anthropocene Epoch and the new kaleidoscopic world, legal instruments are and will be important for codifying values, for specifying obligations and for trying to ensure that commitments are followed, whether by States, other groups, or individuals. They shape the way actors are expected to behave.

The new kaleidoscopic world has significant implications for these legal instruments and processes. We are accustomed to thinking of international law as consisting of binding international legal agreements, such as the United Nations Framework Convention on Climate Change (UNFCCC), the Montreal Protocol on Substances that Deplete the Ozone Layer, or the Convention on Biological Diversity.¹⁷ But non-binding legal instruments, commonly referred to as “soft law”, have become increasingly important in addressing new problems, in taking first steps to address an old problem, or in putting in place an instrument to address a rapidly evolving problem. In the case of the Arctic, for example, countries adopted a non-binding Declaration on the Arctic, which led to the creation of the Arctic Council, under whose auspices a binding agreement was recently negotiated.¹⁸

The new century of “bottom up empowerment” is leading to the emergence of a new legal instrument to address problems of the global commons, namely voluntary commitments. This is not only because there are over 195 States, who must agree to specific obligations, but as importantly because the many groups of nonstate actors and individuals must commit to taking actions. While States remain central for certain functions such as security, these other actors are essential in performing other functions. Their embrace of common goals and commitments is essential to achieving them.

¹⁶ Edith Brown Weiss, *International Law for a Water-Scarce World* (Leiden: Hague Academy International Law, Martinus Nijhoff, 2013).

¹⁷ United Nations Framework Convention on Climate Change, May 9, 1992, 1771 UNTS 107; Montreal Protocol on Substances that Deplete the Ozone Layer, Sept. 16, 1987, 1522 UNTS 3; Convention on Biological Diversity, June 5, 1992, 1760 UNTS 79.

¹⁸ Declaration on the Establishment of the Arctic Council, Sept. 19, 1996, 35 *International Legal Materials* 1382 (1996). Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic, May 15, 2013, <http://www.arctic-council.org/eppr/agreement-on-cooperation-on-marine-oil-pollution-preparedness-and-response-in-the-arctic/> The agreement provides for provisional application pending the receipt of necessary documents from member States to become party.

Voluntary commitments are to be distinguished from international agreements and nonbinding legal instruments. Voluntary commitments are not taken pursuant to a binding or nonbinding international legal instrument, which embody a consensus reached by the negotiating parties. Rather they are undertaken voluntarily, pursuant to shared objectives or goals or to common undertakings.

States themselves are resorting to such voluntary commitments. For example, when States could not agree in Copenhagen in 2009 on specific binding or even non-binding commitments to limit greenhouse gases, 141 States subsequently made voluntary nonbinding commitments to limit greenhouse gases.¹⁹ The Copenhagen Accord on climate change had no legal status, since the Conference never adopted it. In the case of climate change, we could have a new binding international agreement in which individual countries voluntarily make whatever commitments they deem appropriate, if agreement on specific binding commitments to control greenhouse gases cannot be reached.

This new emphasis on voluntary commitments extends especially to private industry, nongovernmental organizations, and others, which are increasingly making voluntary commitments to promote sustainability and other goals. The United Nations Global Compact, for example, has three principles for businesses that directly concern environment: support a precautionary approach to environmental challenges, undertake initiatives to promote greater environmental responsibility, and encourage development and diffusion of environmentally friendly technologies. As of June 2014, the Compact had over 12,000 participants in more than 145 countries.²⁰ An increasing number of international initiatives solicit and publish voluntary commitments by States, private industry and nongovernmental organizations to sustainable development. Most initiatives record and collect these commitments in their own separate registries.

The United Nations hosts at least several such initiatives: The UN Sustainable Development Knowledge Platform established in preparation for the Rio+20 conference in 2012; the Sustainable Energy for All, initiated by the United Nations Secretary General to obtain commitments by gov-

¹⁹ States submissions are available at https://unfccc.int/meetings/copenhagen_dec_2009/items/5262.php See also US Climate Action Network, <http://www.usclimatenetwork.org/policy/copenhagen-accord-commitments>

²⁰ United Nations Global Compact, <http://www.unglobalcompact.org> Figures are compiled from database which can be searched by participants or countries.

ernments, industry and civil society to take actions to ensure global access to sustainable energy by 2030, and the UN Global Compact referenced above.²¹ There are also multiple private sector initiatives, such as the Clinton Global Initiative, the Corporate Eco Forum, which is a membership organization of large companies which publishes commitments to sustainability, and the Natural Resources Defense Council's Cloud of Commitments, which provides an international registry which aggregates commitments from various initiatives.²²

Notably, these registries and sites do not yet gather data on compliance with commitments, and there are generally no reporting requirements. We do not know whether those who make the commitments are successful in reaching their goals. Voluntary commitments are often made because they enhance the reputation of those making them, though according to some research, there is little evidence that sales or share prices reflect these commitments.²³

There are several technical problems with voluntary commitments. They may be enunciated in different formats, which make it hard to compare and to assess the aggregate progress in advancing toward sustainability. Monitoring is difficult, since there may be hundreds, or thousands of commitments in different formats and with different content. It would be helpful to have platforms that compile and aggregate individual commitments and that make them readily accessible online. It would be even better to have a system of reporting on implementation and results and systematic monitoring of what is actually happening on the ground. In the absence of even a reporting requirement, it may be difficult to detect "green-wash" and distinguish it from genuine commitments to sustainability.

In the bottom-up kaleidoscopic world, accountability will be ever more essential and at the same time difficult. Not only governments, but the private sector, nongovernmental organizations, ad hoc coalitions, and individuals need to be accountable for their actions. The traditional ways of holding institutions and people accountable, namely by determining post hoc whether they have met their obligations and imposing sanctions if they have

²¹ United Nations Sustainable Development Knowledge Platform, <http://sustainabledevelopment.un.org>; Sustainable Energy for All, <http://www.se4all.org/>; United Nations Global Compact, <http://www.unglobalcompact.org>

²² Clinton Global Initiative, <http://www.clintonfoundation.org/clinton-global-initiative/commitments/>; Corporate Eco Forum, <http://corporateecoforum.com>; Natural Resources Defense Council, "Cloud of Commitments", <http://cloudofcommitments.org>

²³ See, e.g., David Vogel, "The Private Regulation of Global Corporate Conduct: Achievements and Limitations", *Business & Society*, 49: 68-87 (2010).

not, are not sufficient for making innumerable actors in rapidly changing contexts accountable. At the same time, it is essential not to saddle a bottom-up world with accountability requirements that pose such significant administrative costs or are inappropriate to local conditions so as to discourage innovation and badly needed actions. It will take time to work out an appropriate balance, but it is important to begin to do so.

III. Concluding Comment

Two major developments confront us. The first is that we are entering a new geological Epoch of the Anthropocene, in which we humans are a major force of change. The second is the emerging kaleidoscopic world, with millions if not several billion participants, which features bottom-up initiatives and empowerment. Our Earth has become a global commons. Cumulatively, actions taken across the world affect its resilience and integrity. Increasingly we face problems with serious long-term implications for the well-being of future generations. Changes can be rapid. Bottom-up empowerment can collide with top-down efforts to control it. In this complex, dynamic setting, shared values and widely accepted legal principles will be central to the stability of the international system. The legal principle of intergenerational equity and the doctrine of the common concern of humankind can provide bases upon which to address the sustainability of Earth and to ensure its resilience and integrity for present and future generations. Religious institutions have a very important role to play in fostering such common values, so that they are diffused and accepted among diverse peoples. These institutions affect billions of people. They can become a major force for addressing the sustainability of the Earth as a global commons.