

Building the Common Home of Humanity

A Critical Legal Innovation to enable the restoration
of a well-functioning Earth System

Stockholm+49 Roadmap to Stockholm+50

COMMON HOME
OF HUMANITY

GlobalPactCoalition
ONE PLANET ONE PACT

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What is our Common Home?

A planet with an Earth System outside a favourable state for humankind simply **cannot serve** as Our Home. Our Common Home is the biogeophysical composition of atmosphere, land, oceans and ice that corresponds to a well-functioning Earth System. Thus, our Common Home is not the physical Planet Earth only, but rather the intangible Earth System that must be kept within the limits defined by the Planetary Boundaries to support life and human health.

To build our Common Home is to build a human organisation where human societies are capable of maintaining favourable biogeophysical conditions of the Earth System. To reach this goal we must embark on the civilizational journey from Explorers and Exploiters to Guardians and Managers of our intangible Common Home.

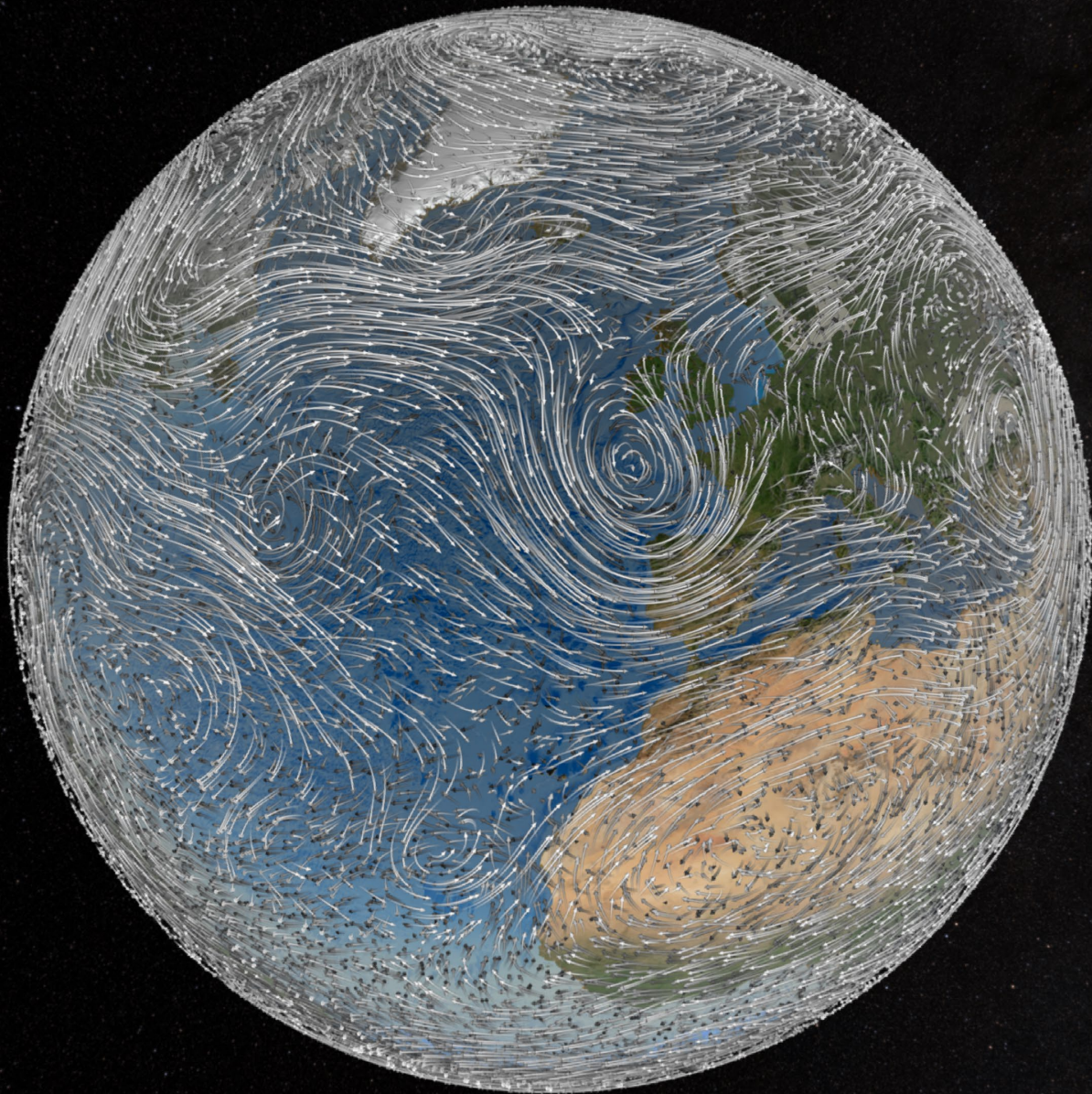
What must we achieve by the 50th Anniversary of UNEP, also known as Stockholm+50 (June 2022)?

The commemoration of the 50th anniversary of the creation of the United Nations Environment Programme (UNEP) could bring a new approach to the initiative launched by **Global Pact for the Environment (GPE)** and build critical momentum to introduce new substantive content in the political declaration foreseen for this United Nations high-level meeting. A new social and political pact that introduces the principle of the **Integrity and Unity of the Earth System** can open the door for future legal innovations like the recognition of the Earth System as the **Common Heritage of Humankind**, with cascading effects on health, economy, social justice and international relations.

What is Stockholm+49, the Civil Society Roadmap to Stockholm+50?

Stockholm+49 aims to be a **key global event for building our Common Home**. In a post-pandemic time, this may be the last collective chance to build back better our fractured Home and preserve our Common Heritage. Together, Civil Society and representatives of States – bringing together individuals and collective institutions, NGOs, enterprises, schools and academic institutions, regional and local governments – will offer to organize a global event in Stockholm in 2021, one year before the commemorations of the 50th anniversary of the United Nations Conference on the Human Environment of Stockholm 1972 – Stockholm+50, to discuss internally and with States how we could build a transformative moment for our civilization to safeguard a well-functioning Earth System.

Our Common Home
is an intangible well-functioning
Earth System:



the Common Home
of Humanity.

Why should the Global Pact for the Environment become a social and political transformative process?

The final consensus recommendations of the Ad Hoc Open-ended Working Group established by United Nations General Assembly (UNGA) resolution No. 72/277 of 10 May 2018, **entitled “Towards a Global Pact for the Environment”** (GPE), and approved by the UNGA Resolution No. 73/333 of 30 August 2019, paved the way for a wider global conversation on a **new global agreement for the Environment** to be released during the landmark 50th anniversary of the United Nations Conference on the Human Environment of Stockholm 1972 – Stockholm+50. As the window of opportunity for avoiding dangerous climate change is rapidly closing and scientists are warning about a planetary tipping point that could lie just ahead, an initiative towards a **Global Pact for the Environment** can be our last opportunity to create a conceptual evolution in international environmental law.

The new GPE should become the transformative process that drives a paradigm shift in international environmental law towards a comprehensive system of Earth System law. It should create a new conceptual basis for a constructive approach to restore Earth System functioning, enabling governments to embark on a scientifically informed path to build a successful environmental governance model.

The interconnections between economy, social justice, climate emergency, biosphere degradation and pandemics are becoming more and more evident. Furthermore, we can also define today, with a high degree of scientific accuracy, how the Earth System works as a single, integrated planetary life-support system. Postponing the process of integrating this scientific knowledge into legal instruments could prove to be fatal given the urgency of the climate crisis and the many other pressures the planet is under.

An Earth System approach to GPE can also make this agreement fairer in terms of historic responsibilities, while allowing easier and clearer transformation of the economic system so that it respects the limits of the biogeophysical cycles that define our planetary home.

CAQs - Challenging Asked Questions

1. Why do we need a critical legal innovation to tackle the climate emergency?

A stable climate is a visible manifestation of a well-functioning Earth System. Climate as “*an intangible natural resource, which spans across and beyond the national territories of States*”¹, challenges the very foundations of International Law, because it is subversive to any kind of physical/territorial division, even if in a legally abstract way. Thus, **a stable climate/well-functioning Earth System is a truly intangible global common without borders that still does not exist from a legal point of view.**

Although this is not an issue normally addressed as such, **the legal non-existence of a stable climate remains the determining structural factor underlying the deadlock of climate negotiations.**

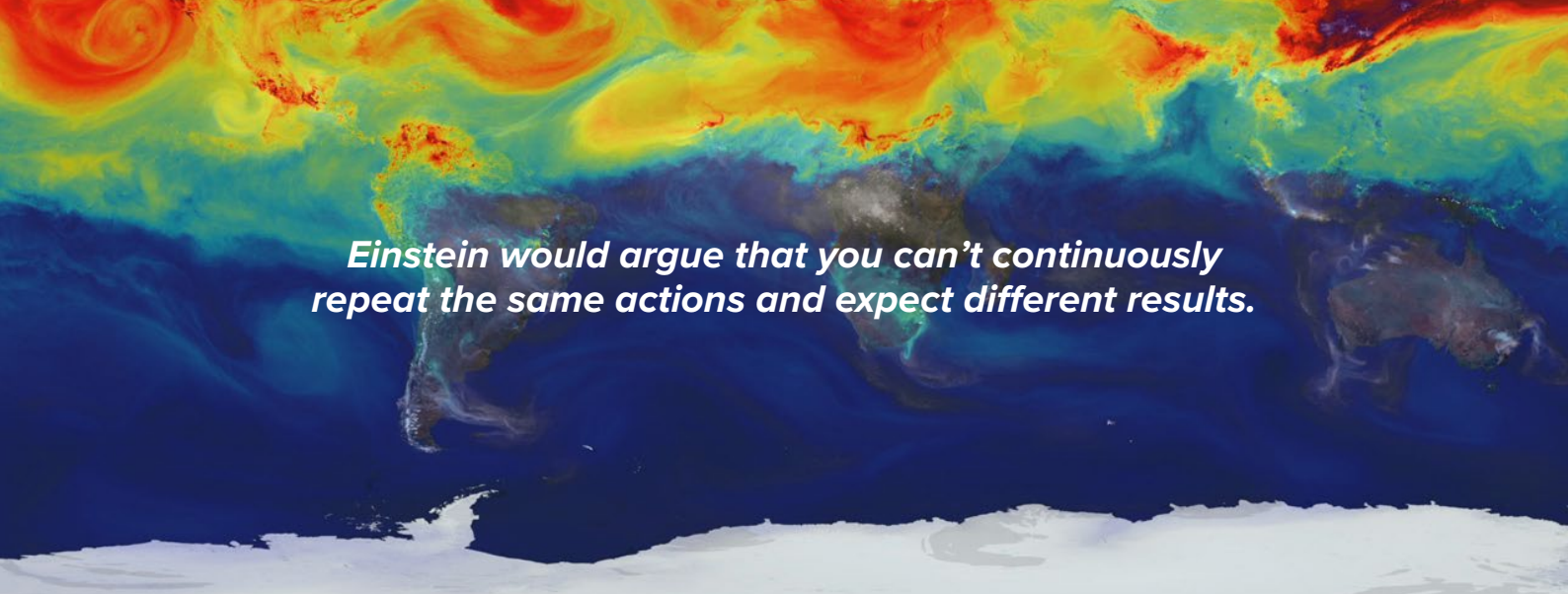
Currently, there are no economic mechanisms designed to compensate human activities or natural processes that have positive impacts (factoring in biosphere feedbacks) and contribute to the restoration of a well-functioning of the Earth System. This means that our economy is still being designed as an exclusively extractive and destructive entity, where benefits to the Earth-System functioning are not considered as wealth creation.

But before we deal with the question of designing economic mechanisms, we must address a juridical problem. Who are the beneficiaries that should receive the benefits of negative emissions? Who should pay and to whom? To whom does the Earth System belong? Which is the institution in charge of managing the use of that common good?

Therefore, from a social point of view, the benefits of restoring the Earth System disappear into a global legal hole, and consequently are invisible to the economy. This structural problem makes it technically impossible to build an economy capable of producing the needed positive contributions to the recovery of a well-functioning Earth System, and consequently to maintain a stable climate as well.

The legal non-existence of a stable climate remains the determining structural factor underlying the deadlock of climate negotiations.

¹Borg,B. (2007) Climate Change as a Common Concern of Humankind, Twenty Years Later... From UNGA to UNSC. IUCN Academy of Environmental Law, “Towards an Integrated Climate Change and Energy Policy in the European Union”. University of Malta. Retrieved from: <http://www.iucnael.org>



Einstein would argue that you can't continuously repeat the same actions and expect different results.

2. What is climate today, from a legal standpoint?

"What is the climate from a legal point of view?" After the Maltese proposal of 1988 to recognize "Climate as Common Heritage of Humankind", the UN General Assembly in its resolution 43/53 of 1998, explicitly stated that climate change was considered as "Common Concern of Humankind". Despite the calls for a future evolution and a clear definition of the content of the concern concept, in terms of rights and obligations, climate negotiations have bypassed these conceptual/structural discussions since the approval of the United Nations Framework Convention on Climate Change² (UNFCCC);

So, whether we want it or not, this option of addressing climate as a "concern" remains the formal framework in which we still move today (including the Paris Agreement). Its substantive content and characteristics are inevitably linked to the (lack of) results achieved:

- Common Concern is a derivative concept from Common Heritage of Humankind, which is still considered today as exclusively founded in the territorial dimension of the planet and dealt with its tangible resources, with all the subsequent conflicting interpretations;
- Common Concern does not require the existence of a legal object (Heritage), but rather it exists on the subjective side of a collective human feeling (concerned community³), demonstrating a collective willingness to act to achieve a common goal. "As a general concept, it does not connote specific rules and obligations, and only establishes a general basis for the community to act"⁴;
- The concern is focused on the mitigation of one problem, and not on building a permanent system of management or restoration of a common good (stable climate). It is rather an appeal to equitable sharing⁵ of burdens resulting from a problem (climate change).

²The UNFCCC entered into force on 21 March 1994. Today, it has near-universal membership. The 197 countries that have ratified the Convention are called Parties to the Convention. The UNFCCC is a "Rio Convention", one of two opened for signature at the "Rio Earth Summit" in 1992.

³Shelton, D. (2009) Common Concern of Humanity. *Environmental Policy and Law*, 39(2) 3

⁴Idem

⁵Idem

- “Common Concern is a vague political formula”⁶ (...) that has only created “a general framework for possible future legal developments to deal with global environmental challenges”⁷, but it was not a legal development in itself.

What was at the time a new path, clearly proved to be incapable of meeting the challenges of the global, complex and deeply interconnected functioning that the Earth System poses, and has also failed to tackle the ecological disruption of the human-driven age of the Anthropocene. After 25 years of negotiations, **Einstein would argue that you can’t continuously repeat the same actions and expect different results.**

3. What is the sovereignty paradox?

As a result of the **interconnected processes** that occur in the Earth System...all humans **share the positive and the negative** consequences of the acts of one another at a global scale.

This fact leads to tensions resulting from an unwanted and imposed interdependence, that also goes unrecognized and unharmonized - a contradictory phenomenon called the *sovereignty paradox*⁸, where the failure of coordination results in deeper dependence of states that also lose sovereignty due to the lack of cooperation - **the less** a country cooperates in common and indivisible questions, **the more dependent** it becomes... on decisions that will inevitably affect this country, and in which it did not participate.

The huge task before us is to define how in, a highly interconnected world, can we move from a system exclusively based on territorial sovereignty to a system based on well-defined rights, shared responsibilities and *erga omnes* obligations among states and other actors. This enormous task will firstly demand a clarification of what the “commons” are.

4. Why is the Earth System humanity’s ultimate global common?

While all planets have a physical territory, larger or smaller than the Earth, what the other planets do not have, as far as we know, is a system that has been co-created by, and is co-maintained by, life and can continue to support life. **Our planet is much more than a territory of 510 million square kilometres**, with the global commons still being seen as only the leftovers of the territorial divisions of nation states. This planetary *software*, of fluxes and exchanges in a network of energy and matter, which unites all creatures in the (re)production of life’s existence,

⁶Tolba, M. (1991) The Implications of the “Common Concern of Mankind Concept in Global Environmental Issues”. IIDH, 13, 237–246. Retrieved from: http://www.juridicas.unam.mx/publica/librev/rev/iidh/cont/13/doc/doc_27.pdf

⁷Idem

⁸Kaul, I. (2013). *Global Public Goods, A concept for framing the Post-2015 Agenda?*. Bonn: Discussion Paper, Deutsches Institut für Entwicklungspolitik. Retrieved from http://www.die-gdi.de/uploads/media/DP_2.2013.pdf

is the most outstanding feature of nature on planet Earth and **our most valuable asset**. Operating beyond all countries and borders, these global cycles that are the core engines of the functioning of the Earth System are the necessary biogeophysical conditions for all life forms we know to exist. **Although it is intangible, a well-functioning software - as a pattern of stable and predictable dynamics of the Earth System that includes a stable climate and a resilient, well-functioning biosphere - exists in the *natural world***. Thus, a well-functioning Earth System can best be classified as an intangible global common, requiring us to identify and define this favourable state.

The Earth System as a single, integrated system is impossible to divide conceptually, materially or through any legal abstraction. Because everyone has access to it, and its well-functioning state is exhaustible, it becomes a common good at the global scale. Therefore, it must be considered our ultimate global common, because it is shared by every living being on the planet, including humans, and it unites us all. We are part of it and we depend on it for our survival.



*Our planet is much more than a territory
of 510 million square kilometres*



5. Why is the unsolved “Amazon paradox” of international law at the center of climate emergency?

Very little known – and thus not discussed – is the Amazon Paradox⁹: This unsolved paradox is one of the key reasons why we are driving our planet onto a “Hothouse Earth¹⁰” pathway.

The Amazon rainforest, as one of the key terrestrial ecosystems that are critical for the maintenance of a well-functioning Earth System, is inevitably at the centre of this paradox.

There is an a fundamental conflict between the concept of tangible territorial sovereignty - which has clearly defined territorial boundaries - and the global functioning of the Earth System, which is global, indivisible – that is, it does not respect territorial boundaries – and intangible from a legal standpoint.

At the root of the controversy about the Amazon lies the contradiction between its true value, and the way in which today’s economies recognize value and wealth creation. The outstanding ecological importance of the Amazon cannot be measured in km², or tons of timber, soy or meat; rather it should be measured in terms of the total amount of biogeochemical functions and physical processes that this ecosystem provides. The fundamental role of the Amazon in the stabilization and functioning of the Earth System is incomparably higher than the value of the commodities that can be extracted from it. Unfortunately, because the global common (Earth

⁹Magalhães, P. et al. (2019) The Earth System upon which all life depends must be legally recognised if it is to be protected .https://together1st.org/blog/the_earth_system_upon_which_all_life_depends_must_be_legally_recognised_if_it_is_to_be_protected

¹⁰Steffen, W. et. al. (2018) Trajectories of the Earth System in the Anthropocene. PNAS, 115 (33), 8252-8259. DOI: 10.1073/pnas.1810141115

System) in which these biogeochemical benefits are realized does not exist from a legal point of view, this natural "work" is also legally non-existent, and consequently considered as "external" and invisible to the economy. In other words, **because this work is dispersed globally, and because we cannot touch, divide or store it since it is intangible, it is ignored by law and considered an externality for the economy.** Under current international law, those countries that have been historically gifted with a piece of the Amazon rainforest have been condemned to destroy parts of it to incorporate "wealth" into their GDP; and they still see this destruction as the only economic "value" of such an ecosystem. For this reason, the Amazon represents a perfect example of the legal dysfunctionality that underlies our economies, which – as Mariana Mazzucato puts – are focused on extracting value rather than creating it¹¹.

Only with a legal innovation it is possible to change this scenario, and to create an economy that produces true wealth - and respects the intangible conditions that support life itself.

6. Why is a positive and deliberate human approach critical to steer the Earth System away from a dangerous threshold?

Currently, the Earth System is on a Hothouse Earth pathway driven by human emissions of greenhouse gases and biosphere degradation toward a planetary threshold at ~2 °C, beyond which the system follows an essentially irreversible pathway raising the temperature further in a domino-like cascade that could take the Earth System to even higher temperatures. Even if the Paris Agreement target of a 1.5 °C to 2.0 °C rise in temperature is met, we cannot exclude the risk that a cascade of feedbacks could push the Earth System irreversibly onto a "Hothouse Earth" pathway. The challenge that humanity faces is to create a "Stabilized Earth" pathway that steers the Earth System away from its current trajectory toward the threshold beyond which is Hothouse Earth."¹²

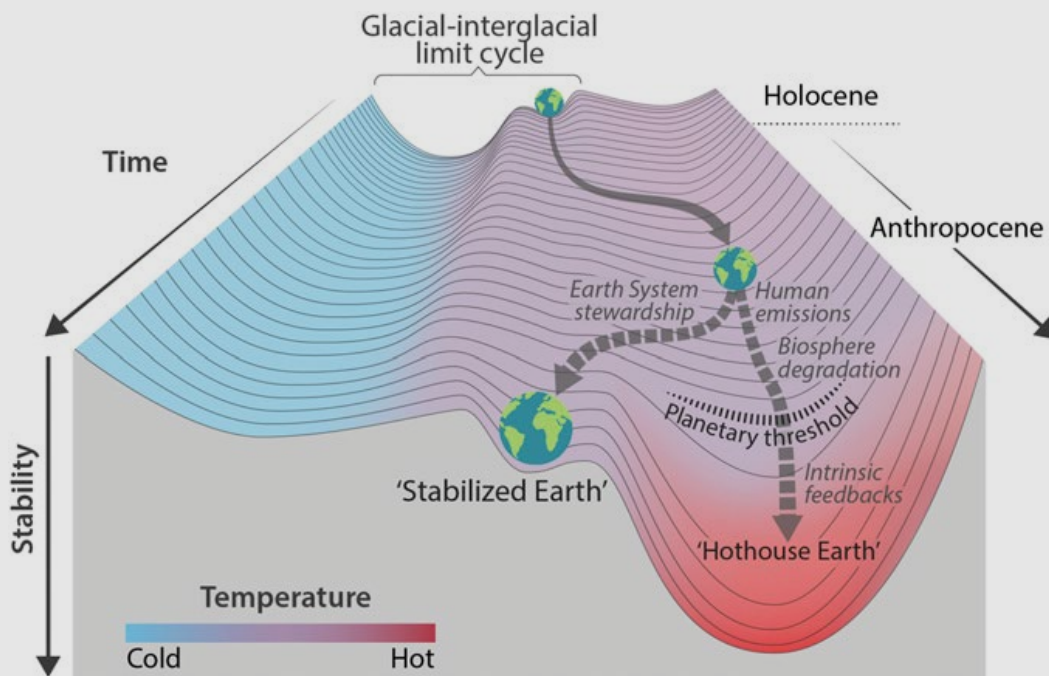
The Stabilized Earth Pathway that we urgently need requires deliberate human action (production of environmental benefits and not only the reduction of damages) to create feedbacks that keep the system on a Stabilized Earth pathway.

It is clear that the activity of caring for and restoring a stable climate, requires a new legal framework that defines the rights that emerge from restoration actions and obligations based on its depreciation. A positive human approach should define the activities recognised as beneficial to the conservation of the climate, the mechanisms of measuring and defining

¹¹ Mazzucato, M. (2017) *The Value of Everything - Making and taking from global economy*
<https://marianamazzucato.com/publications/books/value-of-everything/>

¹² Steffen, W. et. al. (2018) Trajectories of the Earth System in the Anthropocene. *PNAS*, 115 (33). 8252-8259. DOI: 10.1073/pnas.1810141115

value, and the entity responsible for the management of this common good. The human stewardship to create and maintain a stable climate implies an economy of restoring and permanently caring for a well-functioning Earth System. This is only possible if the most basic requirement that makes possible any human enterprise is in place: **an appropriate legal framework**. In the case of a stable climate, this legal framework must be designed for the management of a common good that is global, intangible, impossible to divide and but is exhaustible by overuse – a well-functioning Earth System with a stable climate. The first step to make its restoration and future maintenance possible is recognition of the common good itself as a legal object – A Common Heritage of Humankind.



Trajectories of the Earth System in the Anthropocene, Steffen et al. (2018)

The Stabilized Earth Pathway that we urgently need requires deliberate human action (production of environmental benefits and not only the reduction of damages) to create feedbacks that keep the system on a Stabilized Earth pathway.

7. Why is it impossible to restore a stable climate and meet the Paris Agreement targets without a legal innovation?

We live in a world where the window of opportunity for avoiding dangerous climate change is rapidly closing and scientists are warning about a planetary tipping point that can lie just ahead. According to One Earth¹³ we have three main pillars of action to meet the Paris Agreement climate targets: (1) 100% decarbonization of energy by 2050, (2) a major conservation/restoration effort spanning 50% of lands and oceans; and (3) transition to regenerative, carbon-negative agriculture by mid-century.

The biggest finding of these studies was that without BOTH the energy transition and nature-based solutions together we just can't get there in time. **While it is absolutely essential that we achieve a total decarbonization of the economy by 2050, or preferably earlier, we likely won't meet the Paris targets without nature-based solutions also.** Natural green infrastructure acts as a “global carbon sponge” that works towards stabilizing our climate system, absorbing about a quarter of human emissions per year). This means **we can't afford to lose any of the remaining natural green infrastructure and, in addition, we have to restore some of what has been lost.**

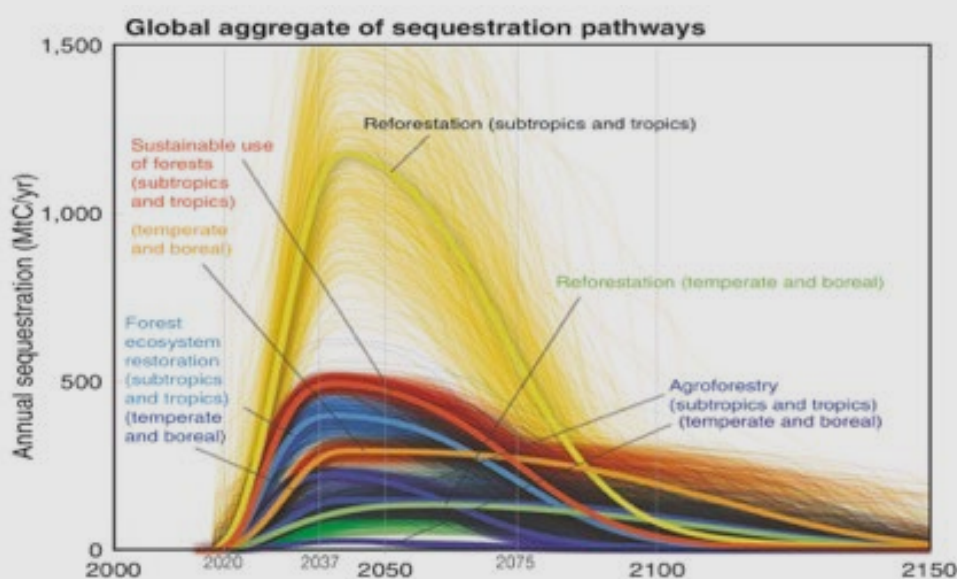


Figure 1. Global aggregate of sequestration pathways. *Source:* One Earth (2019)

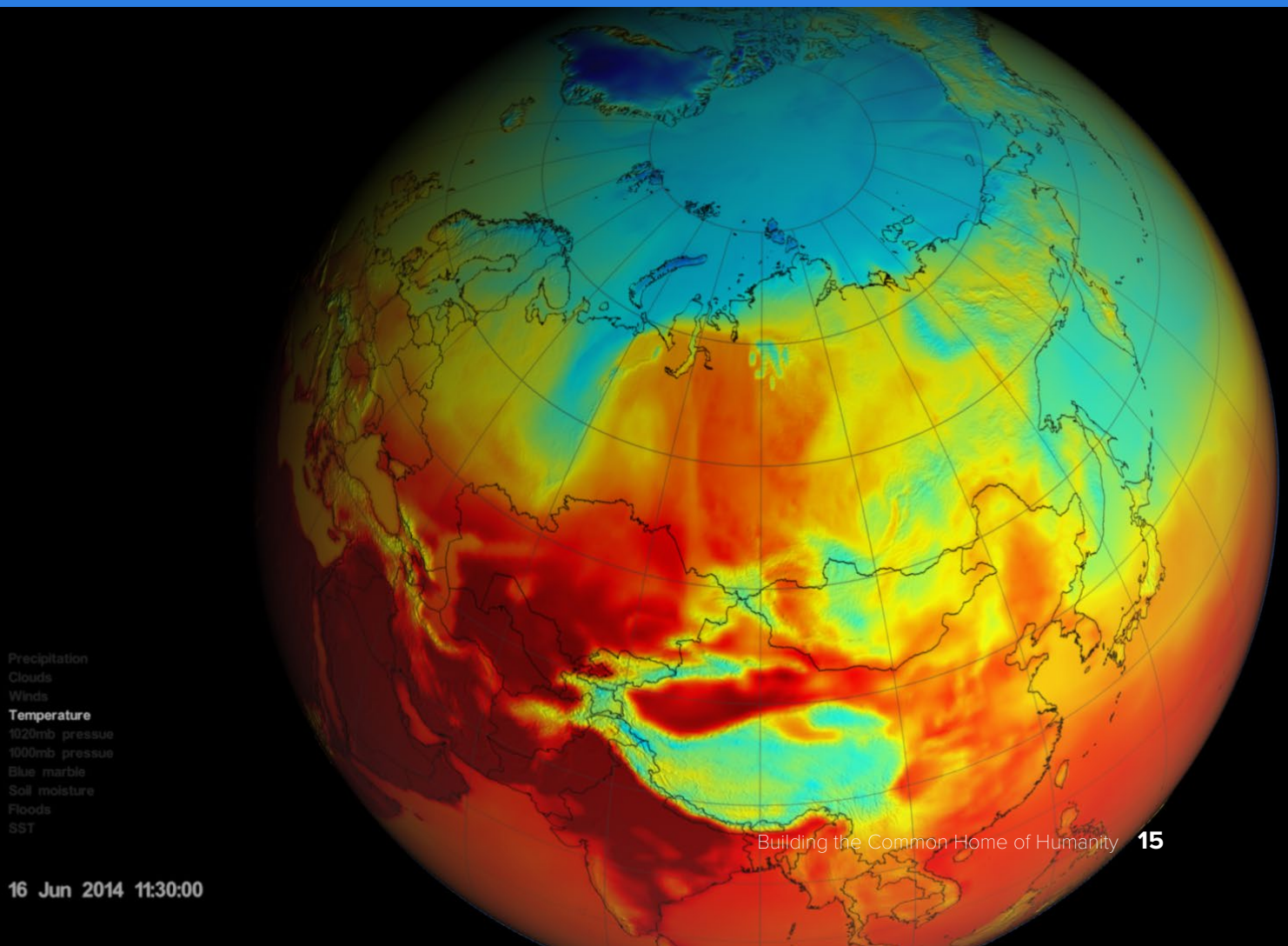
Notes: The big yellow curve shows a potential of about 300 Mha of tropical reforestation possible through 2100 and another 50 Mha of temperate reforestation. The blue lines show the potential for increasing carbon density through rewilding of existing forests. The orange lines show potential for better forest management practices. And the purple lines at the bottom show potential of planting trees on croplands.

¹³Burkart, K. (2019) One Earth Project, Rockefeller Philanthropy.

As shown in Figure 1, using a statistical approach to include natural restoration into the climate models, forest-related pathways are the most commonly used, and reforestation is the biggest. How can such an enterprise be possible if the vital intangible work of a forest to help maintain a stable climate disappears into a global legal and economic void? How could restoration of natural green infrastructure be possible if we are still living in world where only through the destruction of ecosystems is it possible to create wealth and increase a nation's GDP?

The massive investments needed to maintain what is leftover and to restore what has been lost demands a legal innovation that makes the intangible work of nature - those that contribute to maintaining a stable climate, thus representing a value-gain to the Common Heritage - internalized, visible and accountable in the economy.

we can't afford to lose any of the remaining natural green infrastructure and, in addition, we have to restore some of what has been lost.



8. Why can Common Heritage of Humankind be considered as a positive approach?

The Heritage approach implies the existence of a legal object – the Heritage itself.

The possibility of recognizing climate as a common heritage implies the prior definition of the global common good that is at stake (a well-functioning Earth System), its legal status (Common Heritage) and to whom this good belongs (all of humanity).

With the heritage approach, it is possible to capture not only the damages made to the common good that belongs to everyone, but also to make visible the positive benefits to the common good produced by ecosystems or human activities that actually create an environmental benefit by reducing the amount of **carbon** dioxide emitted to the atmosphere and by removing additional carbon dioxide from the atmosphere (removals and sink of CO₂, ecosystem services, that goes beyond achieving net zero **carbon** emissions or avoided emissions). In other words, both the positive actions (those that contribute to maintaining a stable climate, thus representing a value-gain to the common heritage) and negative actions (those that contribute to climate disruption, thus representing a value-loss to the common heritage) can become internalized and accountable.

This approach results in a fundamental difference: because the common heritage approach implies the existence of a legal object (climate) and the definition of common ownership and tutelage, rights and obligations can emerge. From the definition of the object and its belonging, it is possible to build a congruent system between the rules of appropriation (negative impacts) and of provision (positive impacts) as a structural condition for a successful management of commons¹⁴, and create an economy of restoration and maintenance of a well-functioning Earth System, including a stable climate system.

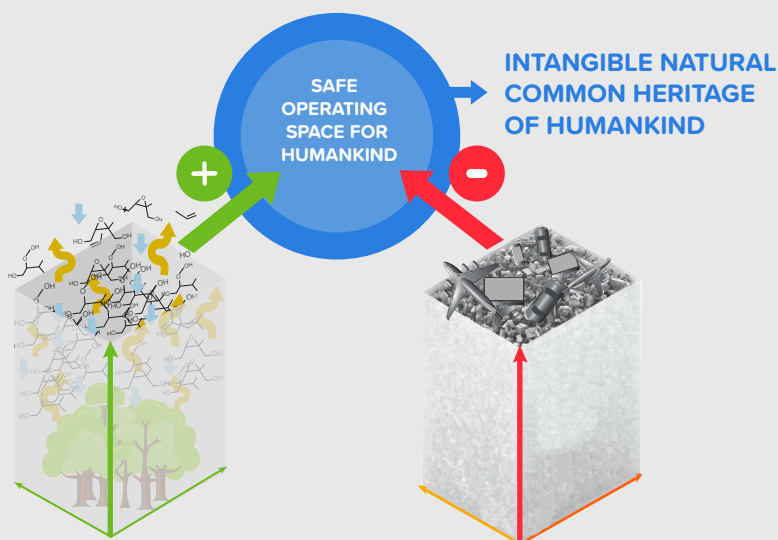
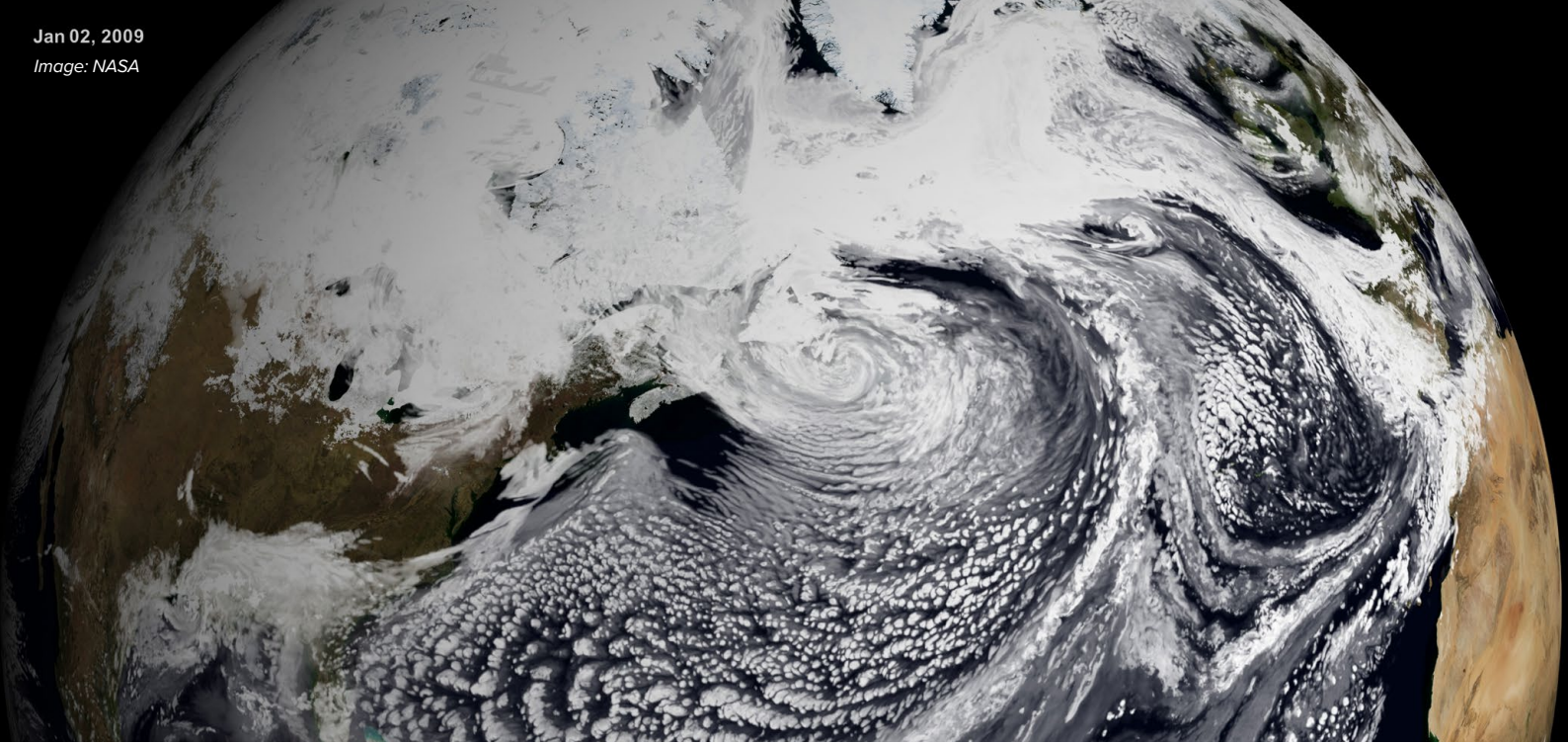


Figure 2. The intangible Common Heritage of Humankind as the legal support for capturing positive and negative externalities. (Magalhães, 2018)

¹⁴Ostrom, E. et al. (1999) Revisiting the Commons: Local Lessons, *Global Challenges Science*, 284(5412), 278–282. doi:10.1126/science.284.5412.278.



9. Why is the state of the Earth System intangible from a legal standpoint?

From a legal point of view, a well-functioning state of the Earth, as described the natural sciences, has a number of characteristics that identify, define and classify it:

- 1: We cannot touch it or see it;
- 2: It is globally coherent and not geographically located;
- 3: Is materially and legally indivisible;
- 4: It cannot be appropriated although its quality can be degraded and is exhaustible;
- 5: It is measurable and identifiable, therefore, not only is it possible to distinguish it from the territorial space of the planet, but it is possible to detach it in relation to physical space and thus to consider it as a separate legal entity.¹⁵.

Nature is not only what is touched and seen, but its most valuable dimension is its intangible dimension. Fortunately, human societies have a long history of recognising intangible assets and granting them legal protection. Examples include the Intangible Cultural Heritage (UNESCO), good will value of companies and intellectual property rights. These solutions, which are based on the legal recognition of new intangible assets, have proven to be essential for the structure and functioning of today's society. Because international law is still based on an exclusively territorial approach, phenomena like a stable climate, although it is certainly real and can be clearly and quantitatively described by science, remains invisible to our legal system because it is intangible. Only by recognizing its existence from a legal point of view is it possible to organize our relations that emerge from its common use.

¹⁵Magalhães, P. (2020) Climate as Heritage or a Concern? Addressing the structural roots of climate emergency. *Revista Electrónica de Direito*, https://cije.up.pt/client/files/0000000001/6-artigo-paulo-magalhaes_1592.pdf

10. Why restoring a stable climate requires a holistic Earth System approach?

The most critical scientific principle that underpins the Earth System framework is that **the Earth System functions as a single integrated system at the planetary level.**¹⁶ If some of its critical components are degraded or its fundamental cycles are disrupted, the risk that the Earth System is driven out of the Holocene stability domain (the recent, stable state of the Earth System) rapidly increases. If we address single processes or components in an isolated way, we will be ignoring all the other critical processes that interact with this one, as well as all the feedbacks and domino effects that could happen throughout the system because of interactions.

For example, the processes that are central to the climate system are closely connected to global biogeochemical cycles, such as the carbon cycle. It is now possible to understand the interacting chemical, biological and physical processes of the Earth System that are conducive to maintaining a favourable state for humanity (i.e., the Holocene) and those that act to push the Earth System out of this stable, desirable state. Because **there are many interactions among the biotic and abiotic features of the planet, with a myriad teleconnections and feedbacks that together create a single complex system, the most appropriate way to tackle the climate emergency is to address the Earth System in integrated way as a single whole**, as embodied, for example, in the Planetary Boundaries framework¹⁷.



¹⁶Steffen, W. et. al. (2018) Trajectories of the Earth System in the Anthropocene. PNAS, 115 (33) 8252-8259. DOI: 10.1073/pnas.1810141115

¹⁷Rockström, J. et. al. (2009) A Safe Operating Space for Humanity. *Nature*. 461(7263), 472. doi:10.1038/461472a

11. Why do we need to distinguish the system from the territory?

There is a long history of maladaptation and conflict between the international legal-political regulation and the highly interconnected global Earth System. These conflicts, which result from the global circulation of water, carbon, nitrogen and other substances and of the ocean and the atmosphere, are a clear sign of the dysfunctionality of international law, which considers our planet as a mere territory, and does not recognize the functional dimensions the Earth System.

Even if it is possible to realize a legal division of the area of the oceans into different maritime zones, or divide the area of the airspace through a series of legal abstractions, the same operation of division through a legal abstraction is impossible at the level of the biogeochemical functioning of the atmosphere or oceans, or the climate system, given that their constituent fluids and substances circulate all around the entire planet driven by a planetary energy system. The distinction between the biogeochemical composition of the atmosphere and the geographic contours of the airspace, as well as among the physical quality of water, its global circulation and the space where the molecules of water are temporally located, is still considered as a “legal impossibility”¹⁸, once it entails the recognition of the existence of “an intangible natural resource (the climate system), which spans across and beyond the national territories of States”¹⁹.

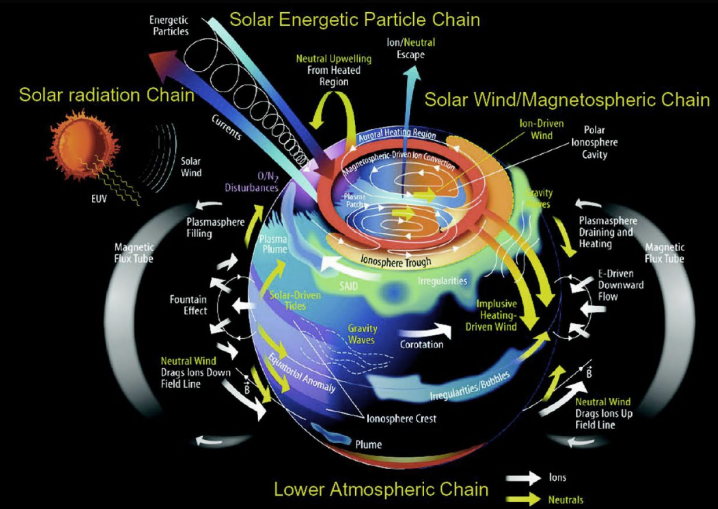
The distinction between the geographical territorial area of Planet Earth and its functional systems with various modes of functioning is one of the most important scientific achievements in Earth System science. **It enables humankind to formulate a new conceptualisation about our planet: the physical one (Planet Earth) and the intangible one (the Earth System).** This is vital to understand the Earth System as a common good that is independent from the artificial physical divisions created by political territorial borders. Understanding this difference opens up the possibility to build new concepts with a greater ability to identify the common good that must be the object of common stewardship.

¹⁸Magalhães, P. (2020) Climate as Heritage or a Concern? Addressing the structural roots of climate emergency. *Revista Electrónica de Direito*, https://cije.up.pt/client/files/0000000001/6-artigo-paulo-magalhaes_1592.pdf

¹⁹Borg, S. (2007) Climate Change as a Common Concern of Humankind, Twenty Years Later... From UNGA to UNSC. IUCN Academy of Environmental Law - Towards an Integrated Climate Change and Energy Policy in the European Union. University of Malta. Retrieved from: <http://www.iucnael.org>



Planet Earth



Earth System

The distinction between the geographical territorial area of Planet Earth and its functional systems with various modes of functioning is one of the most important scientific achievements in Earth System science. It enables humankind to formulate a new conceptualisation about our planet: the physical one (Planet Earth) and the intangible one (the Earth System).

12. Is it technically possible to recognize Earth System as the Common Heritage of Humankind?

When Arvid Pardo in 1967 proposed the initial concept of Common Heritage of Humankind (CHH), he clearly realized that the characteristics, principles and objectives of CHH do not fit within the one-dimensional view that reduces the planet to a geographic area measured in hectares and divided by boundaries. Conscious of this, he sought to avoid the limitations of the territorial approach by proposing an ocean space treaty in 1971 that "*attempted to show how the common heritage concept could be implemented in the marine environment as a whole*"²⁰.

It was inevitable that this proposal was not accepted at that time because there were no scientific instruments in the 1960s to define, measure and delimit what would be this "marine environment", and inevitably the project did not have the needed technical requirements to be put into practice. However, the original concept underpinning Pardo's proposal intuitively included the vision of what is really common to all humanity and unites us all, as something that transcends the territorial dimension of the planet. The founding motive of the CHH concept already considered the idea of interconnectedness - that the global commons cannot only be confined outside national borders, and thus cannot be managed through a governance model based on silo-thinking. With the definition of the *safe operating space for humankind*²¹ as a non-territorial concept, we have now the necessary definition in quantitative terms to delimit a new legal object. This approach may thus overcome the initial technical limitations of the legal concern, and provide the answer for the growing range of possible non-spatial applications, which was also the embryonic purpose the Common Heritage of Humankind.

13. Has Law already recognized the existence of intangible natural objects?

If the Earth System is "an intangible natural resource which spans across and beyond the national territories of States"²², is it possible to legally recognize natural intangible goods. Oosterlinck²³, in his article "Tangible and Intangible Property in Outer Space", states: "Property in space is certainly one of the most important issues for the future not only in the context of the more classical form of tangible property such as minerals but also intangible property such as orbital slots on the geostationary orbit, frequencies, etc." This is a very interesting achievement, once these intangible objects of space law are not "ideas" or "creations of the human spirit", but

²⁰Pardo, A. (1993) The Origins of the 1967 Malta Initiative. *International Insights*, 9 (2), 65–69.

²¹Rockström, J. et al. (2009) – A Safe Operating Space for Humanity. *Nature*. 461(7263), 472. doi:10.1038/461472a

²²Borg, S. (2007) Climate Change as a Common Concern of Humankind, Twenty Years Later... From UNGA to UNSC. IUCN Academy of Environmental Law - Towards an Integrated Climate Change and Energy Policy in the European Union. University of Malta. Retrieved from: <http://www.iucnael.org>

²³Oosterlinck, R. (1996) Tangible and Intangible Property in Outer Space. In *International Institute of Space Law, Proceedings of the 39th Colloquium of the Law of Outer Space*, Reston: American Institute of Aeronautics and Astronautics, 271.

rather natural facts that exist in the universe and are exhaustible by their use. Thus, these natural intangible objects are examples in which the need to organize their use, or the relevance (and economic value) of the goods themselves, justified the search for new solutions by law.

If “International law itself was (and to a certain extent remains) ill-equipped to address state activities affecting negatively an intangible natural resource which spans across and beyond the national territories of states”²⁴, and **we have already recognized the existence of natural intangible objects of law in space law, why can’t we recognize the existence of natural intangible objects of law on Earth?**

14. Why do we propose that the Earth System be recognized as an intangible common heritage of Humankind?

Alexander Kiss came very close to the essence of the issue when he asked: **“How can a good that belongs to no one be subject to a legal regime?”**²⁵. The activities of caring for the Earth System and ensuring a stable climate – for example, activities that go beyond achieving net zero carbon emissions to actually create an environmental benefit by removing additional carbon dioxide from the atmosphere - are dealing with an intangible asset with no borders, an asset that is not legally recognized and belongs to no one.

The first step for successful management of the commons is the adoption of a clear **definition of the common good**²⁶. In other words, we must recognize the existence of an intangible global common – the Earth System - and to self-organize the internal relations that are established among all users of the same common good, once all users share both the positive and the negative consequences of the acts of one another.

Taking into account that the “nature of the common heritage is a form of a trust whose principal aims are exclusive use for peaceful purposes, rational utilization in a spirit of conservation, good management or wise use, and transmission to future generations²⁷” but also “benefits of the common heritage may be shared in the present through equitable allocation of revenue” (...) ²⁸ we can consider that we already have the necessary elements to put in place the restoration scheme of the resource that is at stake.

Of course, the restoration of the common good, or of the common intangible software of the Earth System, will imply some evolution in thinking to account for its nature, but the “diversity of regimes corresponding to the common heritage of humanity and unity of its foundations”²⁹

²⁴Borg, S. (2009) Key Note Speech at the unveiling ceremony of the Climate Change Initiative Monument, University of Malta, 21 April 2009, 1. Retrieved from: <https://www.um.edu.mt/newsoncampus/features/?a=62770>

²⁵Kiss, A. (1982) La notion de Patrimoine Commun de L'Humanité. Acedémie de Droit International, Recueil de Cours, Vol.175 (Tom II).

²⁶Ostrom, E. (1990) Governing the Commons The Evolution of Institutions for Collective Action. Political Economy of Institutions and Decisions. Cambridge., Cambridge University Press.

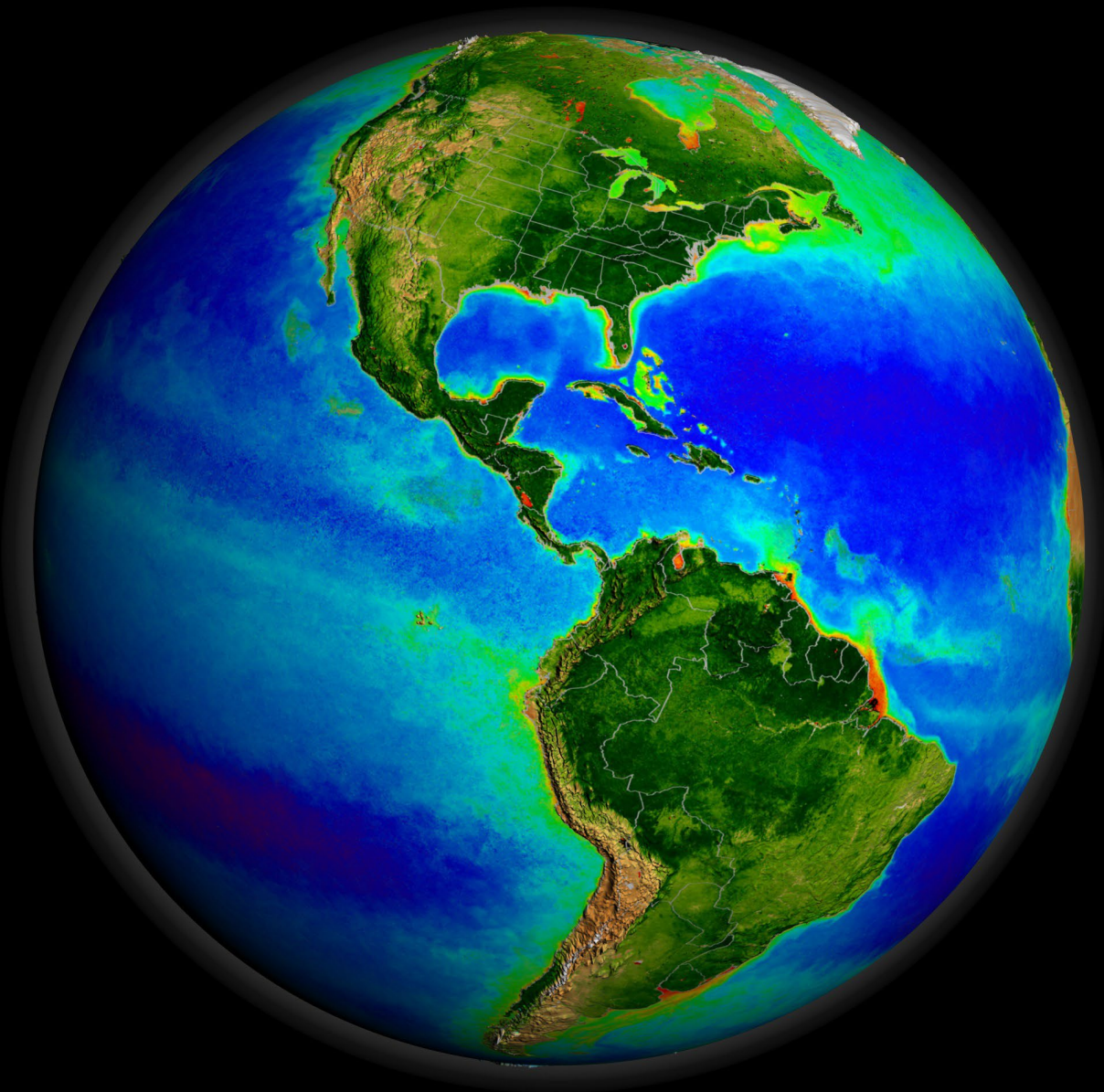
²⁷Idem

²⁸Shelton, D. and Kiss, A. (2007) Guide to International Environmental Law. I Martinus Nijhoff Publishers., 13.

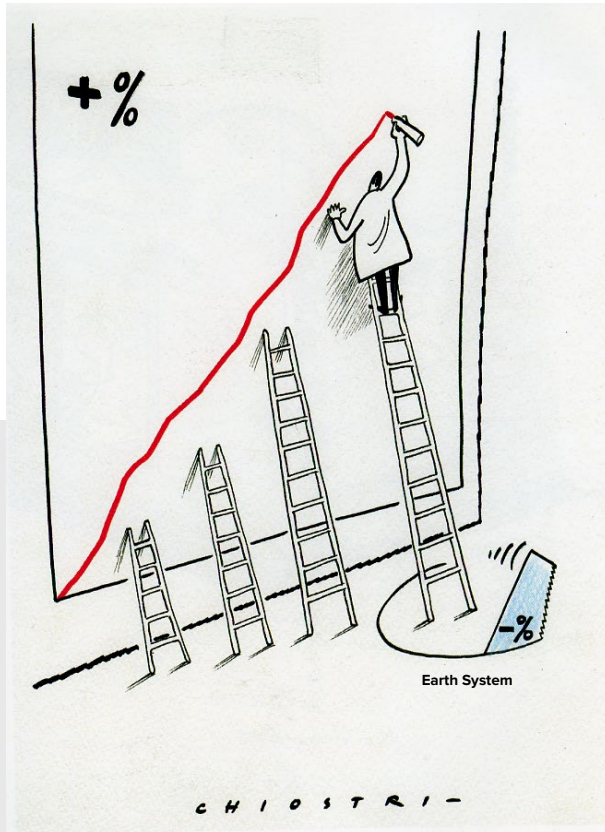
²⁹Idem 24

clearly indicates that this type of thinking is possible. The most important challenge is to give visibility to the positive contributions derived from the maintenance of the common good, accompanied by incentives, mechanisms and balance sheets for contributions to each of its parts and processes.

The legal recognition of a well-functioning state of the Earth System represented by the Safe Operating Space for Humankind, as a Common Heritage of Humankind, is a structural innovation on which we can build an economy that actively restores the common heritage and which truly serves the interest of the community of states – and ultimately of all humankind.



15. What is value? What is wealth creation? Is it possible to build an economy of restoring and caring for a well-functioning Earth System?



*Value is not a given thing;
it is shaped and created*

To break away from our current trajectory on a Hothouse Earth pathway requires much more than technological transformation. Incremental linear changes to the present socio-economic system are not enough to stabilize the Earth System, even as human emissions are reduced (Steffen 2018). It is absolutely necessary that the resilience and functioning of ecosystems are recognized in economic accounting and political decisions and, in this way, create human systems that are compatible with a stabilized Earth System.

This is, essentially, a problem of value. The highly complex atmosphere of Earth is continually being produced and regulated by life (in all its diversity). How then is it possible that the value of a forest only becomes visible in a country's GDP, and in GDP-based political decisions, on the day it is turned into timber? Why, despite having this knowledge, are we still destroying critical biomes (like tropical forests) that play an essential role in the functioning of the Earth System just to produce soy? Is the value of soy higher than that of the intangible biogeochemical work done by these biomes to help regulate the chemical composition of the atmosphere, water and soils and the processes that connect them? Is it soy or this intangible work that creates true value and wealth to human societies? Why is the vital intangible work of nature still not accounted for in human economies?

Value is not a given thing; it is shaped and created³⁰. With this knowledge we have the opportunity to create social, political and legal frameworks for coordinated action at a scale never done before. This is a massive challenge, but we cannot escape from it if we agree that there is no greater crime than depriving the next generations of any hope of having a planet they can live on. This can only be achieved if the concept of value finds once again its rightful place at the centre of economic thinking.³¹

16. Why is a critical legal innovation the way forward for food security?

Human societies are an integral part of the Earth System, not an outside driver perturbing an otherwise natural system³². Our future depends on our capacity to self-organize our relations around the use of the Earth System to which we belong to and on which we depend.

But the ability to provide food and nutritional security for all is rapidly becoming undermined. Our food system is the single largest reason for destabilizing the Earth System and transgressing key planetary boundaries, not only for climate. The food system is still being designed in a human-centered approach mainly as an extractive, destructive and profit-making enterprise, where benefits to the Earth-System functioning (such as regenerative agriculture, food processing technologies, sustainable consumption or zero food waste) still remain as discretionary, marginal and incremental pathways, and not as the only way to sustain both human and planetary health. Transforming the current unsustainable, destructive food system requires “unprecedented global collaboration and commitment”³³ on new governance structures, new global scientific targets, new policy incentives, and new economic mechanisms, **but most of all the recognition that without preserving and restoring the biogeophysical conditions that are the essential foundation of our Common Home, it will be impossible to provide food and nutritional security to all people to live a life with dignity and, simultaneously, maintain a well-functioning planetary home.**

³⁰Mazzucato, M. (2017) *The Value of Everything*, Making and taking from global economy. <https://marianamazzucato.com/publications/books/value-of-everything/>

³¹*Idem*

³²Young, O.R. and Steffen, W. (2009) The Earth System: Sustaining Planetary Life-Support Systems. In F. S. Chapin et al. (eds.), *Principles of Ecosystem Stewardship*, 295, 296. DOI 10.1007/978-0-387-73033-2 14

³³Willett, W. et al. (2019) Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems, *The Lancet Commissions*.16. [http://dx.doi.org/10.1016/S0140-6736\(18\)31788-4](http://dx.doi.org/10.1016/S0140-6736(18)31788-4)

FAQs - Frequently Asked Questions

1. What is the Earth System?

The Earth System is the “*global environment as an integrated whole*”, a unique set of interacting physical, chemical and biological global-scale cycles and energy flows that allows, and is regulated by, life on Earth. In essence, it is the integration of the geophysical properties of our planet with the living biosphere that forms the intangible Earth System.

A key feature of the Earth System is a level of self-regulation, which consists of feedback loops formed by component parts of the system that work synergistically to keep the system within well-defined states. Humans and human activities are an integral part of the Earth System and not separate from it.

2. What is a Stable Climate? What is the Holocene?

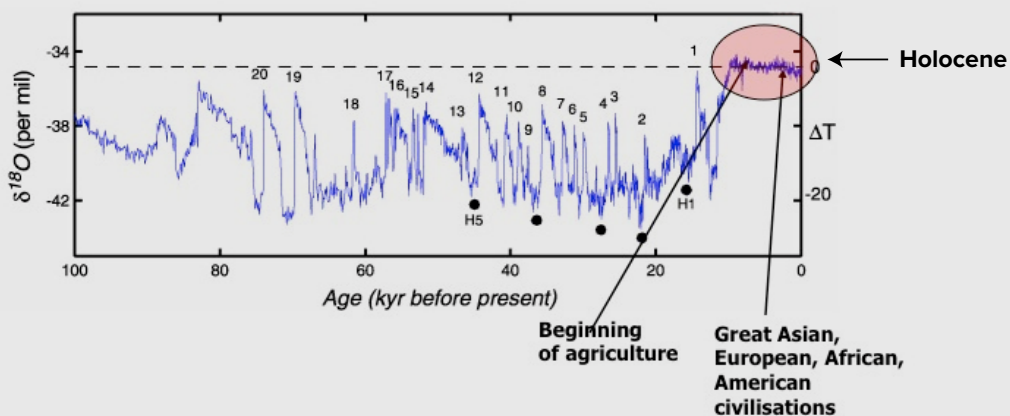


Figure 3. Record of $\delta^{18}\text{O}$ per mil (scale on left) from the Greenland Ice Sheet Project (GRIP) ice core, a proxy for atmospheric temperature over Greenland (approximate temperature range on $^{\circ}\text{C}$ relative to Holocene average is given on the right), showing the relatively stable Holocene climate during the past ca. 11,700 years and Dansgaard-Oeschger events (numbered) during the preceding colder glacial climate (Ganopolski and Rahmstorf 2001). Note the relative stability of temperature for the last 11,700 years (the Holocene) compared to the earlier ice age period.

Throughout the history of Earth on a geological timescale, the Earth System has existed in relatively stable, well-defined states interrupted periodically by periods - some quite long - of transformative change. Some were triggered by the internal dynamics of the system while others were the result of external forcing such as meteorite strikes. The stable states are

characterised by well-defined biogeophysical features and relatively predictable interactions and cycles that together regulate the functioning of the Earth System.

A stable climate is a result of well-defined biogeophysical structures and cycles that generate a well-functioning state of the Earth System, i.e. a pattern resulting from millennia of slow interactions between life and the abiotic components of the Earth System that produce and regulate the biogeochemical composition of the atmosphere, land and ocean. The most recent period of climate stability is the Holocene, the last 11,700 years, which has allowed the development of agriculture, villages and cities, and the complex societies that we live in today. Stable states of the Earth System are dominated by ‘negative feedbacks’ that dampen shocks and perturbations to the system, creating a pattern of well-buffered stability defined by an “envelope of natural variability” (Steffen et al. 2004, 336). This Eden-like Holocene, the most recent in a series of interglacial states that periodically interrupt longer ice ages, is the only state of the Earth System that we know for certain can support contemporary human civilisations.

3. Why is Earth System science a major scientific paradigm shift to understand the natural world?

In recent years, Earth System science has come to represent a significant paradigm shift because it generates a new way of thinking about humanity and the Earth, by seeking a **deeper understanding** of the physical, chemical, biological and **human interactions** that define the Earth System. It represents an integrative meta-science of the whole planet as an interconnected, complex, single and evolving system, beyond a mere collection of isolated ecosystems or disconnected global processes.

Building on earlier conceptualisations of the Earth System, such as James Lovelock’s Gaia hypothesis, in 1986 the International Geosphere-Biosphere Programme (IGBP) was formed and became the first major international scientific research effort to conceptualise Earth as a single system. Earth System science attempts to expand our knowledge of how the planet works as a single, well-defined system – including the interacting physical, chemical and biological cycles and energy fluxes that make up the life support system on the surface of the planet. This includes the effects of human activities, which means that we do not sit outside the Earth System but are an integral part embedded within it.

For this reason, Earth System science is the study of the physical, chemical and biological processes of atmospheric chemistry, oceanic circulation, biodiversity, ecosystem physiology, and so on. But it is also the study of their complex interactions with human beings and our societies and technologies. Earth System science underpins our understanding of human destabilization of the Holocene, and can provide the core elements required to underpin a ‘guidance system’ that can steer humanity’s actions towards achieving a stabilized Earth System that can still serve as humanity’s common home.

Earth system trends

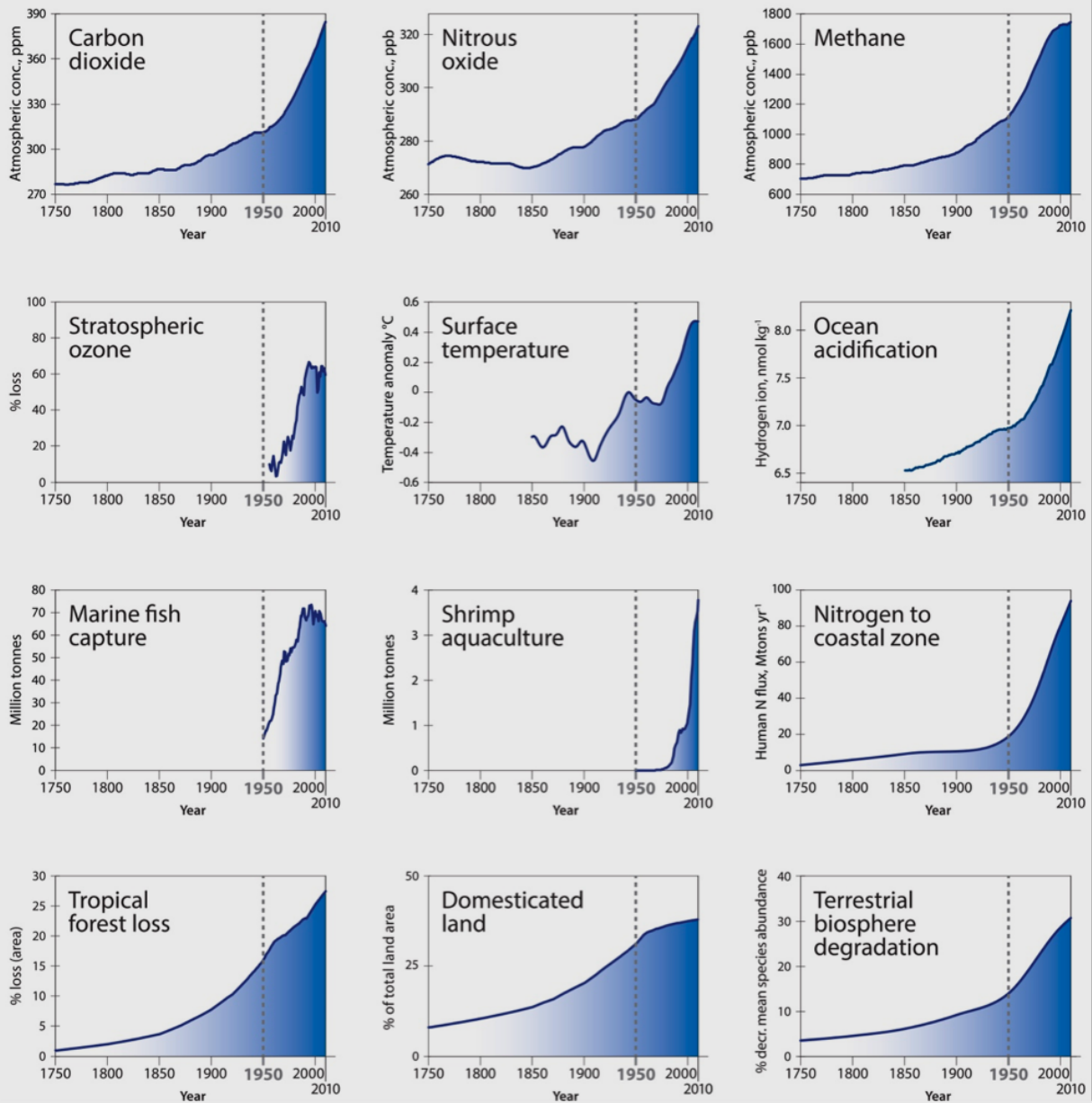
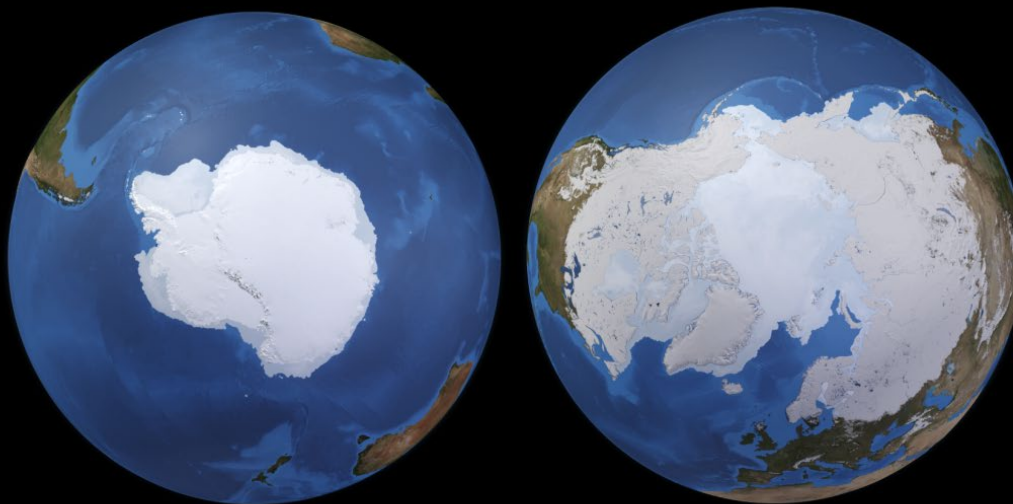


Figure 4. (A) Trends from 1750 to 2010 in globally aggregated indicators for socioeconomic development. Details on each of the individual panels and the sources for the data are given in Steffen et al. (2015b)³⁴

³⁴ Steffen, W., Broadgate, W., Deutsch, L., et al. (2015b). The Trajectory of the Anthropocene: The Great Acceleration. *The Anthropocene Review*. doi: 10.1177/2053019614564785



4. What is the Anthropocene?

The term ‘Anthropocene’ denotes a proposed new geological epoch in which ‘many geologically significant conditions and processes are profoundly altered by human activities.’³⁵ In an Earth System context, it is a very rapid human-driven trajectory of the Earth System away from the glacial–interglacial limit cycle toward new, hotter climatic conditions and a profoundly different biosphere.³⁶

In other words, the “Anthropocene” enables us to say that we have left the Holocene and are on a rapid trajectory towards a new state of the Earth System that has yet to be determined. Thus, we are transitioning beyond the “Safe Operating Space” of the Holocene and into a new, rapidly changing and clearly unsafe space, where the vital planetary flows of matter and energy, and their associated cycles, are shifting rapidly, leaving behind the stability of the Holocene climate that has supported the development of our civilization so far. Driving the trajectory of the Anthropocene are large increases in human population but more importantly, even larger increases in production and consumption of goods and services. These human activities - agriculture, industrial production, transport, and so on - have not only destabilized the climate system but are also driving the Earth’s sixth great extinction event. These activities are already leaving many markers in Earth’s geological strata, the evidence for a new geological epoch where humans have become a global geophysical force that now dominates the great forces of nature.”

³⁵The Working Group on the Anthropocene of the International Commission on Stratigraphy. <http://quaternary.stratigraphy.org/workinggroups/anthropocene/>

³⁶Steffen, W. et. al. (2018) Trajectories of the Earth System in the Anthropocene. PNAS, 115 (33) 8252-8259. DOI: 10.1073/pnas.1810141115

Socio-economic trends

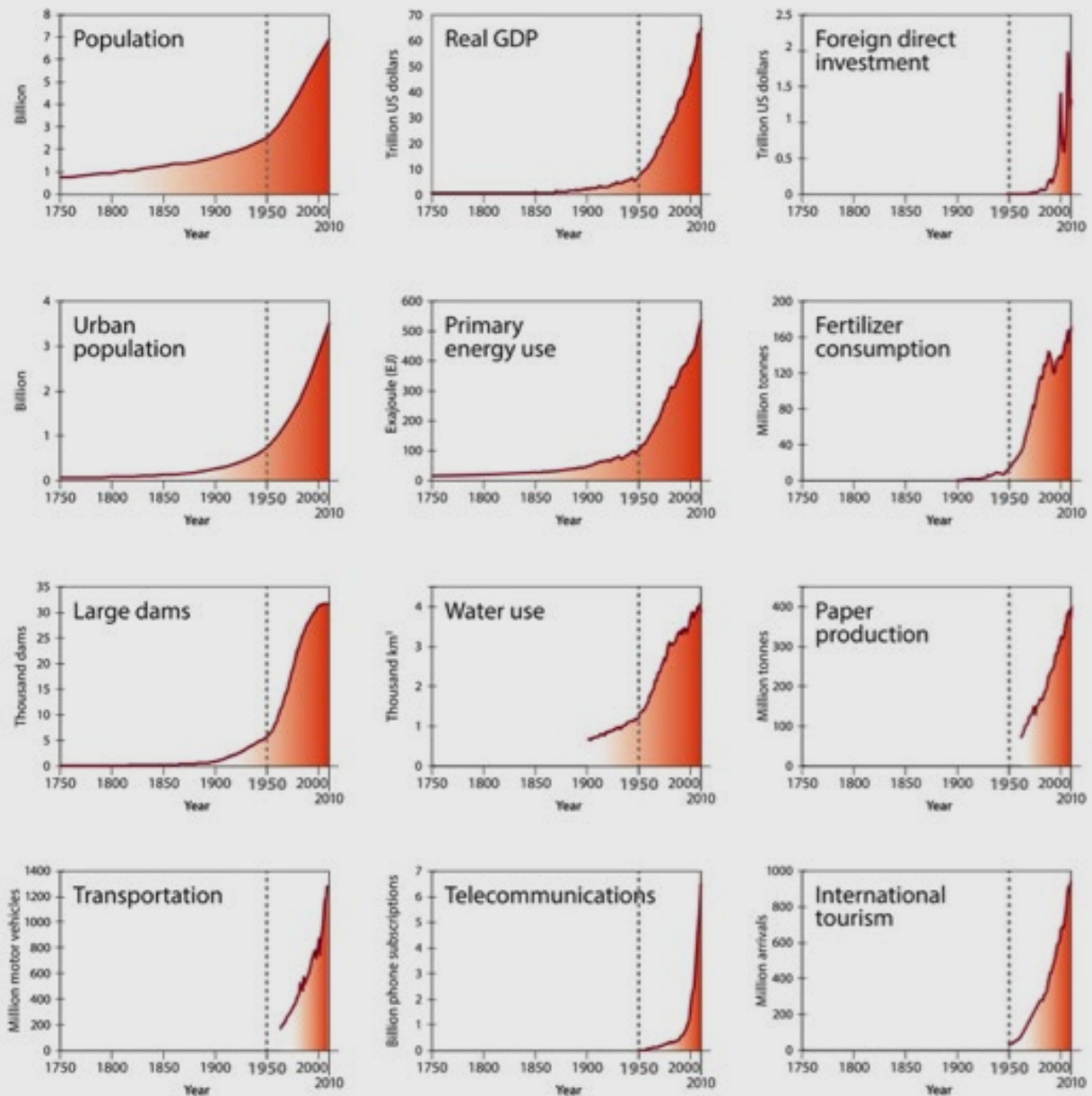
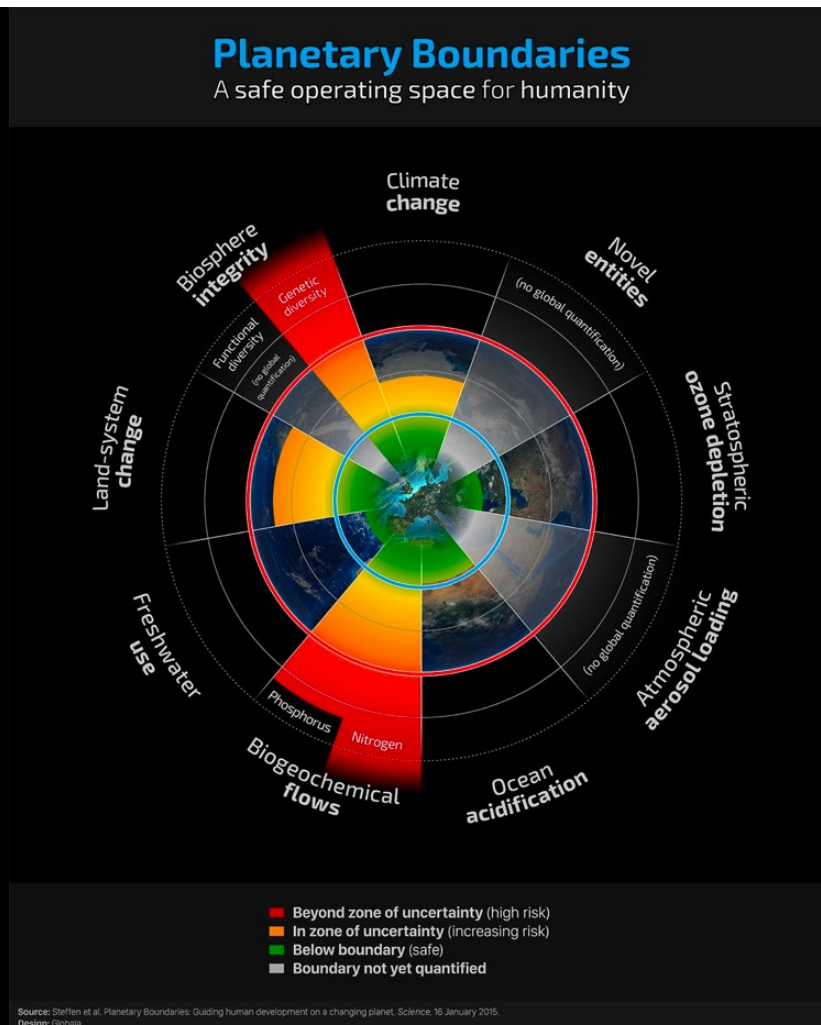


Figure 5. (A) Trends from 1750 to 2010 in indicators for the structure and functioning of the Earth System. Details on each of the individual panels and the sources for the data are given in Steffen et al. (2015b) ³⁷

³⁷ Steffen, W., Broadgate, W., Deutsch, L., et al. (2015b) The Trajectory of the Anthropocene: The Great Acceleration. *The Anthropocene Review*, doi:10.1177/2053019614564785

5. What are the Planetary Boundaries? What is the Safe Operating Space?



Recent scientific advances have defined and described the Earth System as a whole, and have tackled the challenge of understanding and measuring this non-territorial, intangible and functional “*environment as a whole*”. One of key advances in linking Earth System science to governance is the concept of Planetary Boundaries (PBs)³⁸. The PB framework is grounded in resilience theory, in which the Earth system in toto is considered as a complex, adaptive, social–ecological system.³⁹ The characterization as a complex adaptive system implies that the

³⁸Rockström, J. et. al.. (2009) A Safe Operating Space for Humanity. *Nature*, 461(7263), 472. doi:10.1038/461472a.

³⁹Carl Folke et al.(2002) Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transformations. *AMBIO*, 31:5, p.437

Earth System can self-organize within certain limits.⁴⁰ Within those limits, the system is resilient – that is, it has the capacity to absorb shocks while maintaining function. When these limits are exceeded the system no longer tends to recover towards its original ‘identity’, but instead moves towards a different configuration.

These boundaries are a combination of science-based limits to nine core processes (e.g., climate change, ozone depletion, biosphere integrity, ocean acidification, and others) that together describe the functioning of the Earth System. The PBs are a scientifically based framework, the *Safe Operating Space for Humankind*, with a control variable assigned to every boundary process. The control variable monitors human pressure on the process, and the boundary itself, below which lies a safe zone, is assigned to a value beyond which the risk of destabilising the Earth System rises rapidly.

6. Is it possible to successfully manage common goods?

The global interconnectivity of the Earth System has become one of the most daunting challenges for a globalized society that has so far mismanaged our common goods, inevitably resulting in a "Tragedy of the Commons", and that considers the regime of division and private property rights as the sole way to solve this apparently inevitable tragedy. According to this belief, each individual will act independently in the pursuit of self-interest, motivated by the goal of maximizing individual benefits, despite the fact that the collective result of such individual action is the sub-optimal use of resources and overexploitation of the commons that in turn impacts everyone. This dominant underlying reasoning continues to misrepresent the concept of the commons as an open-access regime, operating in a free-for-all scenario where there are no boundaries to the usage of a common good, no tools for monitoring such use or rules for managing it, and no cohesive representation of the community of users.

Moreover, being a “common”, it requires the existence of a community willing to act as a steward of its own common good.

⁴⁰Rakhyun, K. and Bosselmann, K. (2015) Operationalizing Sustainable Development: Ecological Integrity as *Grundnorm* of International Law. *RECIEL Review of European Community & International Environmental Law*, 24 (2) DOI: 10.1111/reel.12109



COMMON HOME
OF HUMANITY