

Why do we need an Earth System approach to guide the Global Pact for the Environment?





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1. The thinking behind the Global Pact for the Environment

The idea of having one Global Pact for the whole Environment (GPE), instead of individually addressing each one of its different components, (oceans, biodiversity, atmosphere, climate...), is by itself, a major conceptual challenge for International Law.

The initial impulse of GPE was to strengthen the implementation of Multilateral Environmental Agreements (MEAs) by giving coherence and effectiveness to the current sectorial and geographic fragmentation of more than 500 legal instruments. Thus, this new legal instrument should serve as a binding, universal “umbrella text” synthesizing the main principles and harmonizing environmental laws, with the goal of making available to States an international instrument to address gaps in international environmental law. However, this initial formulation raises a preliminary fundamental question, which shall be addressed before proceeding and to avoid this Pact to be only a long tentative list to fill gaps:

- If the goal of a Global Pact devoted to the “global environment” is to address gaps, and providing coherence and effectiveness, how could this be achieved without a structurally coherent scientific theoretical framework?

The identification and assessment of possible gaps that was requested to the UN Secretary-General by resolution A/RES/72/277 adopted on 10 May 2018 will necessarily have to be embedded in the present context of global change happening in the Anthropocene: the proposed new geological epoch in which humans have become a geological force and a major driver of change in the whole planetary system. The scientific community is warning that large-scale human impacts on the Earth System (ES) are taking us away from the Holocene, the geological epoch that started 11,700 years ago, which is characterized by its relative climate stability that has allowed contemporary human societies to strive and develop in a sustainable way. There is increasing scientific evidence of the existence of ecological and geophysical thresholds or tipping points at the planetary scale that, if crossed, would drive the Earth System to a different and unknown state, quite probably unfavorable to the well-being and development of human societies as we know them today.

Giving coherence to the current legal framework will depend on the ability to connect all the MEAs produced until now, with all the knowledge we have today about the functioning of this “Global Environment” (or, more appropriately, the “Earth System”). We can say that, in this context, legitimacy and coherence of the legal framework are deeply interdependent.

Until now the idea of one “*global environment as an integrated whole*” has only been mentioned in the preamble of several international legal instruments but it has never been present in defining substantive operational norms. Even if the goal is only to harmonize, to give coherence and effectiveness to the already existing legal environmental instruments, this “harmonization” will be meaningless if it is not founded on how the different elements of the “global environment” are interconnected to form a single Earth System with its well-defined states at the planetary level. If new concepts are not adopted to give a greater capacity to understand the global environmental system that functions as a single whole with all its interconnections, the initial objectives outlined for the Global Pact will not be achieved.

Thus, the issue of how to connect and harmonize a wide range of legal instruments leads to the structural question raised above, critical for of this initiative, namely, the definition of the ultimate

object of a Global Pact for Environment.

Furthermore, discussions around the definition of the object have already a long history of unsuccessful attempts: in the UN General Assembly Resolution UNGA 43/53 (1988), Climate change was considered as a "*Common Concern of Humankind*". After a long discussion during the 1980s around the legal status of a stable climate, the fact of this common good being an "intangible natural resource which spans across and beyond the national territories of states" (Borg 2007) prevented the emergence of a new international legal object, and the solution was the creation of an indefinite concept, as a mere "*concern*", a proclamation empty of practical meaning. In 1991, the Director of UNEP, Mostafa Tolba, stated: "It is very important that the concept of *Common Concern of Mankind* is further elaborated to make its contents and scope understandable and clear; it is also important to make sure how this concept can be interpreted in the terms of rights and obligations of States in the process of its implementation. It is understandable that, since it is a new concept in international law and international relations, it will develop further in the near future and its interpretation given today, will evolve."

Since then, all climate negotiations have bypassed this conceptual/structural definition, forgetting one very strong piece of evidence: it is impossible to solve structural problems without carefully defining the structure itself.

Remaining to pretend this structural change is not needed is, in our opinion, one of the key reasons for 40 years of negotiations that have been unable to solve the problem. As Alexander Kiss very well stated in 1982: "How can we admit that a good, which belongs to no one, can be governed by a specific law"? We clearly need to define what "global environment" is, what is the good/object that should be put under the protection of the law, and to whom it belongs.

We argue that a Global Pact for the Environment can only accomplish its mission of creating coherence, effectiveness and harmonization of all MEAs, if we have the ability to introduce and represent in the international environmental legal system the necessary knowledge about how the global environment system functions – the Earth System. While the scientific instruments to define the global environment did not exist yet in the 1980s, but it is now possible to accurately identify and measure what this "global environment" is by using the concept of the Earth System.

Recent scientific developments defined and described the Earth System as a whole and provided a well-supported and coherent biogeophysical definition of the Holocene epoch, the only state of the Earth System that we know for certain can support advanced human civilizations. A strong body of scientific findings and proposals, like the planetary boundaries (PB) framework that was first published in 2009 and revised and updated in 2015, contain useful elements and concepts for better understanding the Earth System's functioning despite remaining scientific uncertainties. Designing a Global Pact for the Environment without incorporating the more recent developments of science and at the same time opening the possibility of future updates and developments of knowledge will produce something that will be outdated before it enters into force.

The planetary boundaries framework is based on nine key Earth System processes: climate change, stratospheric ozone depletion, land system change, freshwater use, change in biosphere integrity (including genetic and functional diversity), ocean acidification, biogeochemical flows (as phosphorus and nitrogen cycles), atmospheric aerosol loading and introduction of novel entities. There is already much research analyzing how Planetary Boundaries (PB) are covered by international conventions. In



addition to these international conventions, the UN Agenda 2030, a plan of action for people, planet, peace, partnership and prosperity, also includes some PBs in its approach. Under this Agenda the international community is required to “protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations” together with ending poverty and building prosperity. This agenda provides 17 goals and 169 targets known as Sustainable Development Goals (SDGs). However, without a favorable condition of the ES within the Safe Operating Space (SOS) for humankind, none of these goals and targets can be successfully achieved, nor can be those of the Global Pact for Environment.

In an overview of all existing conventions and their relationship with the PBs, we can say that legal regimes address some of the PBs but mostly in a very limited manner. In fact, some of the PBs are better covered by regional regimes. The following table shows the main legal instruments and SDGs covering PBs.

Planetary Boundary	International Treaty/Convention	Regional Treaty/Convention	SDG
Climate Change	UNFCCC/Kyoto Protocol/Paris Agreement UNCLOS	UNECE Convention on Long-range Transboundary air pollution and its Protocols	13 and 7, 9, 11, 12, 14, 15, 16 and 17
Change in biosphere integrity	CBD/ Ramsar/ CITES/Bonn Convention/ UNCLOS/		14 and 15 and 6, 9, 11, 12, 16 and 17
Stratospheric ozone depletion	Vienna Convention/ Montreal Protocol		12 and 9, 12, 16, 17
Ocean acidification	Climate change regime/Biosphere regime/UNCLOS		7, 13, 14 and 9, 12, 16 and 17
Biogeochemical flows: P and N cycles	UNCLOS applies to marine pollution through N and P	Some marine regional conventions apply to marine pollution through N and P Baltic Sea Convention deals with eutrophication 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone.	6, 11, 12 and indirectly 16 and 17
Land-system change	CBD/UNCCD		2 and 15 and 12 16 and 17,
Fresh water use	1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses	1992 UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes	6 and 16 and 17
Atmospheric aerosol loading		UNECE Convention on Long-range Transboundary air pollution and its Protocols	9, 12 and 16, 17
Introduction of novel entities ¹	Montreal Protocol Stockholm Convention on Persistent Organic Pollutants Rotterdam Convention on the Prior Informed Procedure for Certain Hazardous Chemicals and Pesticides in International Trade Minamata Convention on Mercury Basel Convention on the Control of Transboundary Movement of Hazardous Waste		9, 12 and 16, 17.

¹Plastics are considered a novel entity. Some Conventions tackle this problem with a restrictive approach, these are the 1972 London Dumping Convention, the 1973 Marpol Convention, the UNCLOS and the Basel Convention on Transboundary Movements of Hazardous Wastes. The need to adopt a Convention on Plastics is being under discussion within UN Environment.

In support of both the legal regime but also of the scientific aspects of the Earth System, Space programmes with their satellite applications and services help and support the observation of the Earth in all its components: the land (with its forests, deserts, water bodies, its human settlements and cultivated areas), the ocean (with its salinity and currents, winds and waves, and colour variations), the ice (with its glaciers and ice sheets), the atmosphere (with its chemical composition and meteorological variations), and the biosphere, which makes the Earth, with all its living species, unique in the universe. Now with the recent Earth observation programmes, such as Copernicus observation programme (with the Sentinels satellites), more data, available in an open source mode, enable us to have a much more comprehensive picture of our planet's elements and their state of health as well as the other consequences of climate change (such as climatic refugee flows). This allows a sound and continuous monitoring of the Earth System condition and suggest associated concrete actions in favour of the environment. Planetary Boundaries are the science-based limits to key process that determine Earth System functioning; if the PBs are transgressed, the risk that the Earth System is driven out of the Holocene stability domain increases rapidly. It is important to highlight that the most critical scientific principle that underpins the PBs framework is that the **ES functions as a single integrated system** at the planetary level. If we address a single PB process in an isolated way, we will be ignoring all the other critical elements that interact with this one, as well all the feedbacks and domino effects that will happen throughout all the system because of the interaction of PB processes. This means that, more than sectoral, geographic or implementation gaps, we have a structural and “systemic gap”, i.e., the absence of a global systemic approach, which then leads to a global legal gap. Because the objects of all the current legal sectorial approaches are deeply interconnected across scales in the natural world, the goal of giving coherence and effectiveness to all of these MEAs can only be achieved if they are harmonized in an integrated way. And this can only be possible with a strong scientific foundation.

Approaching the Earth System in an integrated way will be the first step to move forward, since it represents a conceptual evolution that opens new possibilities for global cooperation and creates the basis for connecting already existing legal documents, as well as building new instruments.

2. The Global Pact for the Environment: A great opportunity to bind together the legal and scientific foundations of a sustainable society in the 21st Century.

The draft text of the Global Pact for the Environment contains several references to the “integrity of the Earth’s ecosystem” with regard to some general duties of “respect” (Preamble), “care” (Article 2) and “cooperation” (Article 18). The integrity of the Earth’s ecosystem is, in fact, referred to not only in the report of Secretary General on the resolution A/RES/72/277, but also in over twenty international soft and hard law agreements. However, neither these nor the current text of the Global Pact for the Environment define “integrity” or “Earth’s ecosystem” in a way that would allow their operationalization. Furthermore, the duty to conserve, preserve and restore the integrity of the Earth System has yet to be recognized as an overarching objective of international environmental law (despite scholarly legal literature suggesting to do so). Among the reasons for the absence of an overarching objective to protect the Earth System are a lack of political will, a lack of institutional arrangements, but also the lack of recognition of the Earth System as a new legal object. Against state sovereignty as the bedrock of international law, areas outside national territories - the global

commons (oceans, atmosphere, biodiversity...) or the Earth System as a whole – have not yet found the legal recognition necessary to provide for the legally binding duties of states and international institutions. Earth System science, however, makes a strong case for changing this.

It is already possible to delineate with precision the biogeophysical conditions that characterize the Holocene epoch, which define the boundaries that we must not transgress in order to keep the Earth System within the "Safe Operating Space for Humanity". This qualitative and quantitative space is intangible, non-territorial and legally indivisible. Because an Earth System outside the intangible favourable conditions cannot serve as our planetary "Common Home", the great challenge of our common future is to build a social organization, that is able to manage in a permanent way the use of favourable state of the Earth System – our intangible Common Home.

The favorable state of the Earth System arose in an evolutionary process involving the interactions between the living biosphere as well as the geophysical component of the system. In this sense, the unique period of climatic stability of the Holocene was a result of the work of "Nature", or more appropriately, the natural evolution of the Earth System.

While all planets have a physical territory, bigger or smaller than the Earth, what the other planets do not have, as far as we know, is a system that has been created by life and can continue to support life. As we continue to regard the planet as a territory with 510 million square kilometres, where the global commons are only the leftovers of the territorial divisions of nation-States, all the work that nature does to provide these favourable conditions does not exist for the Law, and therefore is also invisible to policy making and to the economy.

The legal sciences have for long recognized the existence of intangible legal assets as the solution for the protection of certain interests or assets that have become relevant to human societies. Why not recognizing that Nature is not only what is touched and seen, and that its most valuable dimension is intangible? The legal non-existence of the Earth System makes it invisible to the community of nations and to our economy - thus legitimizing its unregulated use.

An Earth System in a favourable condition is much more than a concern, it is a heritage that all generations have the right to receive from the previous ones, as well has the obligation to leave in a well-functioning state for the next. With the knowledge now available that enables us to define and measure these conditions of stability, we have the necessary knowledge to legally define and recognize the favourable state of the Earth System as an Intangible Common Heritage of Humankind and to initiate a process of regulating its use.

Social sciences have already defined the necessary conditions for successful management of common goods: these include not only the observation of rules in relation to their use or appropriation, but also a permanent system of maintenance and restoration to ensure its long-term functionality. That is, there must be congruence between the rules of appropriation and the rules of provision that are required for producing and maintaining the benefits derived from the common resource.

At a global scale, the inclusion of the positive contributions that ecosystems make to the state of the Earth System as a whole may be the key evolution that could shift the rules of the game that underlie the dysfunctionality between the economy and the favourable state of the Earth System. Today, for example, we know the central role that forests play in climate regulation and in the maintenance of global biogeophysical cycles that support life. However, the value of a forest only becomes visible in a country's GDP on the day it is turned into timber. If we are not able to change this economic dysfunctionality and introduce the monetary value of the intangible work of nature into our economy, we will never be able to build a society capable of maintaining the favourable state of the Earth



System. This requires a legal framework in which the provision of positive contributions (both from natural or human infrastructures) to the stability of the Earth System becomes visible and generates rights or revenues.

Therefore, an accounting system tracking positive contributions and negative pressures is needed in order to change the dominant rule of destruction and consumption as the sole driver of economic growth. This is only possible if the intangible nature enters into our accounts. For all intents and purposes, what is of vital value to us? The transient usefulness of timber and of land for other purposes or the long lasting and pervading intangible benefits that forests are able to provide?

Because the Earth System is not just climate, nor is change in the climate only influenced by CO₂ (although it is certainly the dominant driver of change at present), the challenge requires integrating the various "drivers" of the Earth System with the way how human societies are organized. The recognition of a new international legal object – the favourable state of the Earth System as a Common Heritage of Humankind, where all the intangible positive and negative “externalities” could be captured and accounted for, could be the theoretical framework to harmonize in a coherent way all the existent MEAs, as well as be the basis for building a society capable of creating the necessary conditions for being sustainable.



Why we need an Earth System approach to guide the Global Pact for the Environment - FAQ

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 allow, and are regulated by, life on the planet. In essence, it is the integration of the geophysical properties of the planet with the living biosphere that forms the intangible Earth System, a single global system incapable of any legal abstraction of division. A key process of the Earth System is self-regulation, which consists of feedback loops formed by its component parts of the system (both inside and outside of all sovereignties) that work synergistically to keep the system within well-defined states. Humans and human activities are an integral part of the Earth System.

Are Planet Earth and the state of the Earth System the same thing?

Throughout the history of Planet Earth on a geological timescale the Earth System has always existed in a process of ongoing transformation, in which each period had different biogeophysical structures that corresponded to different states of the functioning of the Earth System. Recent scientific developments defined and described the Earth System as a whole, and provided a well-defined biogeophysical structure and functioning characterized as the Holocene epoch, the last 11,700 years. The Holocene is the only state of the Earth System that we know for certain that can support advanced human civilizations on Planet Earth – the Safe Operating Space of Humanity.

Why should the Earth System be the humanity’s ultimate Global Common?

Operating beyond all countries and borders, the global cycles that typify the functioning of the Earth System are shared by all living beings on the planet, including humans. The Earth System as a single, integrated system is indivisible and cannot be segmented conceptually, materially or through any legal abstraction into discrete part. Therefore, it must be considered our ultimate Global Common, because it unites us all.

What are the Planetary Boundaries? What is the Safe Operating Space for Humanity?

A favourable Earth System state is identifiable today through the Planetary Boundaries framework (first introduced by Rockström, Steffen and colleagues in 2009), which defines nine critical Earth System processes (e.g., climate change, ozone depletion, biosphere integrity, and others) whose effective management is key to the maintenance of a resilient and accommodating state of the planet. The whole collection of these nine processes and their interactions, as well as their maintenance within scientifically defined boundaries, is what is defined as the Safe Operating Space for Humanity.

What is our Common Home?

A planet with an Earth System outside a favourable state cannot serve as our "Home". To build our Common Home is to build a human organisation capable of reconciling the individual interests of States with the common interests of all humankind, to preserve the state of the Earth System in order to ensure that the present and next generations have a stable, habitable Earth System on which to survive and thrive. Our Common Home is a human construction set up to maintain the Safe Operating Space.

Why is the state of the Earth System intangible?

The state of the Earth System, which manifests itself through its structure and functioning, depends on the biogeochemical composition of the atmosphere, land and the ocean, which in turn influence

global physical processes and global thermodynamics - the so-called biogeophysical cycles. This system can be affected but cannot be appropriated by any sovereignty because it is materially and legally indivisible. These changes give rise to different ways of functioning. The "Safe Operating Space for Humanity" is a non-territorial space, but rather a functional and dynamic space of measurable quality that corresponds to a stable functional state of the Earth System. In other words, the state of system functioning is intangible v. Because international law is still based on an exclusively territorial approach, all these phenomena, although real, remain invisible to our legal system.

Why should the Safe Operating Space for Humanity have legal implications?

The intangible, but measurable, control variables of Earth System functioning are the constituent heritage that holds the key to describe the necessary conditions that support life. In this sense, the discovery of what science has called the "Safe Operating Space for Humanity" must have legal implications, since these favourable biogeophysical conditions are of vital relevance for all present and future human generations. If the functioning of the Earth System undergoes significant change, life as we know it will be severely affected. The protection of life and human rights are widely recognized as one of the foundations of law.

What is proposed is a natural evolution of international law?

Law and science have a long history of mutual influence with dynamic interactions. By incorporating concepts from modern science, law can become an integral part of the creation of a better world, rather than facilitating its destruction. Therefore, what is proposed is no more and no less than to integrate into international law a significant scientific evolution, which is the recent identification of the control variables of the Earth System state, that is, of the core drivers that determine the state and functioning of the Earth System as a whole.

Why is it only now possible to recognize a global legal object with no territorial boundaries?

Earth System science is still a new, recently developing field of knowledge. The identification of the control variables that act as indicators for the condition of the structure and functioning of the Earth System - with a precise boundary value and zone of uncertainty for each of these variables make it possible to identify and define the favourable state of the Earth System and the good that the law must recognize as legally relevant, for the good of the human species and for all life as we know it.

Why should the Safe Operating Space for Humankind be recognized as a Common Heritage of Humankind (CHH)?

The initial formulation of the concept of CHH was one that "*attempted to show how the common heritage concept could be implemented in the marine environment as a whole*" (Pardo 1993). We can say that CHH concept already considered intuitively the idea of global interconnectivity and the impossibility of the global commons being restricted to territories outside state jurisdictions and governed in a system of artificial divisions. However, as at that time the scientific knowledge needed to define this global good as a whole had not been acquired yet, the concept of CHH was confined to the size of the remaining territories beyond the states' jurisdictional divisions, never fully realizing its initial potential. Nowadays, the concretization of the concept of CHH implies abandoning the approach of the planet as being exclusively a physical territory, and the acceptance of the quality of the environment that today can be now defined and measured in its only true dimension - the global

dimension. This definition of the favourable state of the Earth System and its qualitative boundaries are the tools that allow us today to identify the most remarkable heritage that humankind has received from Nature.

Why is it possible to harmonize the legal status for the Earth System with the sovereignty rights?

By distinguishing the intangible global biogeophysical cycles that continually circulate around the planet and define its state, it is possible to create a new global legal good that will be constituted as a new global governance object - the favourable state of the Earth System. This distinction allows us to propose to a legal division between the jurisdictional space of a State territory and the intangible functional dimension of the Earth System as a whole. In other words, it will be necessary to distinguish the geographical space over which a given country exercises sovereign powers and the biogeochemical quality of the water or air that is momentarily within this space, but which is actually common good of to all humankind (all States) once it is integrated into the global biogeophysical cycles. No country can exercise sovereign powers over the biogeochemical quality of the territorial waters of the ocean or its airspace, although all countries affect them positively or negatively. Because the intrinsic characteristics of these two legal objects are distinct, one tangible and local (territory) and the other presumably intangible and global (Earth System), it is possible to harmonize these two legal regimes within the concept of a planetary condominium (first conceived by Magalhães in 2007), where the common functional system is legally recognized as common heritage that belongs to all humankind, and is governed by a specific legal framework that ensures the maintenance of its functionality through a shared management system.

What is the Planetary Condominium?

A condominium is a legal object with a unitary structure and common functional systems, which belongs to multiple co-owners and in which different legal regimes coexist: each co-owner has private rights of ownership over determined parts (e.g. apartments), while sharing ownership over structural elements of common use (e.g. foundations) and functional systems (e.g. electricity). A Planetary Condominium is the result of scaling up the condominium model to planetary level. Under this model, the functional and spatial divisions between apartments and communal elements and systems are parallel to that of the State's territorial jurisdictions and the functional indivisibility of the Earth System.

Why should the Earth System be recognised as an 'intangible' heritage?

In comparison to State territories or physical global commons such as the High Seas or the Seabed, the Earth System, along with the processes that define its Safe Operating Space, is an intangible object. Fortunately, human societies have a long history of recognising intangible assets and granting them legal protection. Examples include Intangible Cultural Heritage (UNESCO), good will value of companies, and intellectual property rights.

Why should States make such a challenging commitment?

The work of Elinor Ostrom (2009 Nobel Memorial Prize winner in Economics) points the way towards the necessary factors for a stable multipolar collaboration: transparency of information regarding who perform actions with an impact on the system, and an accounting system that considers both appropriation of common resources (through charging) and provision of common resources (through rewarding). Collective action is impossible if the structural conditions for it are not created. The creation of these conditions must be the central goal for global governance within the new legal framework of a the Planetary Condominium.

How can we measure the impact of human activity on the various Planetary Boundaries?

We propose that the best way is an indirect one, through Planetary Quotas, which are indicators of pressures on the system, and thus directly measurable. Scientific work is already published relating 10 Planetary Quotas to the 9 Planetary Boundaries (Meyer and Newman 2018). It is also known how much pressure can be applied annually to each of the 10 Planetary Quotas to stay within the Safe Operating Space. The Planetary Quota system requires that we have to measure the pressures exercised not only by humankind actions but also by natural systems.

How can a system be put in place for splitting the Planetary Quotas across the countries of the world?

This has to be a collective exercise of convergence based on a new theoretical framework towards a legally binding solution that is acceptable by all as fair. Multiple options can be suggested as the starting point for the discussions, but in all cases a transition period must be considered to go from "what is" to "what should be". If an agreement on the organizational framework can be quickly found, the question of the shift from Planetary Quotas to National Budgets should be a priority. Similar to what happens with national financial budgets, each country should feel responsible for respecting its budget by managing not only the negative pressures (i.e. resource consumption) but also the positive pressures (i.e. resource provision) in each of those ten drivers. This new vision of sovereignty responsibilities should be envisioned not as a limitation but as an upgrade of the State powers, given the enlargement of its intervention from the old terrestrial and rigid scope to the new horizon of co-management and co-ownership over the Earth System as a dynamic whole.

Managing the change of direction of the Earth System so that it stays within its Safe Operating Space seems a very complex endeavour. What are the substantive and institutional frameworks this proposal endeavors??

In substantive terms, the priority must be to create the necessary legal conditions that allow for the intangible work of Nature is brought within the our economy, and, in this way, an economy that is capable of recovering and ensuring the maintenance of the Earth System arises. This process requires a strong institutional capacity. Currently, the only relevant institution with global membership and legitimacy to host such a mission is the United Nations. In order to act upon the whole Earth System rather than its individual components through multiple UN agencies, and taking into full consideration the known difficulties in amending the UN Charter, we propose, instead, to revive the UN Trusteeship Council (TC) with a mandate to serve the mission of humanity's Common Heritage. A revived 'Trusteeship Council for the Earth System and the Global Commons' would be the chief forum for dealing with the administration of existing environmental treaties and the management of the use of global biogeophysical cycles; it would define priorities, compensations, incentives and budgets among all users of this newly recognized Common Heritage.

What would happen to the multiple narrow-focus environmental MEA's currently in place?

As argued above, considering each of those environmental issues separately is based on a scientifically incomplete and ultimately ineffective. But all the research and monitoring work done in each of those fields is of great value for a better knowledge of how they behave when facing different types of external stimuli. What is missing is a significant set of feedbacks and interactions among those various environmental domains, as well as between the impacts resulting from of all legal instruments



already in place. Those communities that focus on each of them must be respected and welcomed into the larger family of the Common Home of Humanity and be involved in the exchange of information across scientific and legal domains. It is possible to preserve these agencies in place for the interests of a broader "Common Home", with a permanent effort to avoid a silo behaviour and instead ensure that each of them is informed of the efforts and results of the others and how they interact and influence each other.

