

The Great Transition Guide: Principles for a
Transformative Education

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The Great Transition Guide: Principles for a Transformative Education

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About this Edition

This book is an abridged version of *Le Manuel de la Grande Transition: Former pour Transformer*, edited by Cécile Renouard, Rémi Beau, Christophe Goupil and Christian Koenig, which was published by LLL (Les Liens qui Libèrent) in October 2019. See <https://campus-transition.org/le-manuel-de-la-grande-transition>.

It has been translated from the French by Josie Dyster. Its references have been adapted for an English-speaking audience by Séverine Deneulin (LSRI) and Emeline Baudet (Campus de la Transition).

This book is intended to be a start-up resource for curriculum transformation towards the Great Transition. It is to be used as a kind of 'ground zero', for universities and programmes to adapt and build upon. The guide is composed of six chapters, called 'gates', which can be read in any order. Each reading path corresponds to a way of approaching the ecological transition, from identifying the scientific, factual or ethical issues, to guidance for concrete action.

The aim of the book is to present the intellectual and practical resources necessary to build a community of change-makers, both at individual and collective levels. It aims to lay the groundwork for a transformative education for each reader, to be supplemented by their own experience.

As the coming transitions will need to be holistic, the book has an interdisciplinary focus. It is designed as a concrete tool to build a foundation of knowledge, skills, and attitudes necessary for the ecological and social transition.

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Introduction

What is a ‘transition’? In systems theory, a transition is a process of transformation, during which a system moves from one state of dynamic equilibrium to another. In a social and ecological context, a transition involves a society moving from a state that presents unsustainable trajectories to one characterized by sustainability and equity, both for current generations and generations to come. These objectives give rise to many questions such as: how can we achieve sustainability and equity in a reality filled with uncertainty, inequality and poverty, and marred by global warming, resource disputes and the destruction of the living world? At the time of writing, the COVID-19 crisis has already confined half of the world’s population to several weeks of lockdown, and in 2020 global CO₂ emissions will likely have dropped by an average 8.5%¹, but the number of people living in poverty will have greatly increased. There is nothing to say that reduced energy usage (e.g. a steep decline in use of air travel) during these few months will not eventually give way to a resurgence in pollution-creating activity.

In this uncertain and worrying situation, one thing is abundantly clear: we, as a collective, need to drastically change the way we live, manufacture, consume, travel, protect ourselves from the elements, and spend our free time. The ways of achieving this differ greatly depending on who you are; from an isolated Nigerian widow living in the oil fields of the Niger Delta, to a rag-and-bone-man in Indonesia, to a Colombian farmer, or a French restaurateur. Each year, the typical French person emits an average of 12 metric tons of CO₂, and this number needs to be reduced by at least 10 metric tons

1. Enerdata, 2020, <https://www.enerdata.fr/publications/analyses-energetiques/bilan-mondial-energie.html>.

if we wish to keep in line with targets to limit global warming under 2°C. The 'gilet jaunes'² movement has highlighted the problems that arise when environmental standards are imposed without considering the social consequences. Student protests towards the end of 2018 indicated the frustration of young people at the curricula, economic models, and lifestyles that are poorly adapted to tackle the social and ecological challenges at hand. Even as we examine our vulnerabilities and interdependencies, we are also affected by the modern depictions of the independent individual, free to decide, do and say what we want, constantly seeking more, and fascinated with growth, achievement, and expediency... Embracing the Great Transition is vital if we wish to favour a global, systemic approach to the problems at hand. No nation state or stakeholder can manage this challenge alone – it will require a cross-sectional approach, and will depend upon the efforts of every group and individual. This approach poses immediate ethical and political questions: how do we define quality of life? What do we understand by the term 'justice'? How will we divide up responsibilities? This intermingling of means and ends, of our aims and the steps we take to reach them, explains why it is impossible to define one single ideal aim for the Transition.

The term 'The Great Transition' echoes 'The Great Transformation', laid out by Karl Polanyi in 1944, which highlighted how liberal capitalism created an image of the Earth, labour and money as commodities – to be bought and sold at leisure in a largely deregulated market. Polanyi argued that liberal capitalism promotes a proprietary relationship with the entities that define the ways in which each society lives and operates (Desai and Polanyi-Levitt 2020, Polanyi-Levitt 2013). Some have also defined the Great Acceleration as the rapid increase in the dissemination of energy

2. Translator's note: the yellow vest, or yellow jacket movement, so called because protestors wore yellow high-visibility jackets, which all French drivers are legally required to carry in their cars. See Chancel (2020).

and material goods, which has been observable in socio-economic trends since the 1950s, as well as by its consequences for the Earth, notably in the extinction of species and the erosion of biodiversity. It is clear that humanity's hold on the planet has increased greatly and rapidly; the Anthropocene Era refers to the way in which, over the last two centuries, human activity has transformed the equilibria, upset the balance of the planet and endangered its living environments.

The Great Transition, therefore, refers to both the depth and the breadth of the transformation needed. Is the term 'transition' at odds with the term 'revolution' or 'rupture'? Does it express a more optimistic or less exacting concept than the discourse surrounding collapse, for example? The use of 'transition' alludes to the dispassionate nature of the assessment of our situation whilst evoking the radical nature of the change that is required. We seek to analyse the conditions of a transformation that could be achievable in the coming decades. If we can motivate everyone to be involved and contribute their skills to the cause, we will be able to limit social and ecological disaster. This will require adapting university curricula to collective needs. Given the enormous intellectual and cultural challenges we face, the path ahead will be long and difficult. Many students do not have access to the basic knowledge or professional opportunities that would allow them to understand, for example, how to construct economic models that are compatible with a respect for biodiversity and a reduction in carbon emissions. Furthermore, campus life often holds up a mirror to the inconsistencies of our daily lives – if the curriculum encourages students to gain experience abroad, why should they worry about the carbon footprint of their plane tickets?

Ultimately, we as a society, have not yet fully understood the scale of the transformation needed to bring about the change we want. This denial of reality indicates the need for a cultural overhaul of our collective imagination and a complete re-examination of the ways in which we teach the sciences, humanities, and appropriate technology.

The Great Transition will therefore need to be systemic; it is simultaneously ecological, social, economic, cultural, political, and civic. The Great Transition also seeks to be 'just' (Swilling 2020). It must therefore be based upon the analysis of existing phenomena and the establishment of different interpretations of current events. For example, Perez (2003) has described five eco-technological revolutions over the course of the last two centuries: steam power and the railway (1809); steel, electricity, and heavy industry (1875); petrol, automobiles, and mass production (from 1908); information and telecommunications (1971). These revolutions, which feed into one another, are connected to sociotechnical transitions, and also to profound structural changes in the energy and transport sectors, among others. These revolutions reconfigured markets, institutions, technologies, and expertise. The entire question of the Great Transition is one of knowing if, and how, alternatives geared towards sustainability and justice might play out. Some see these alternatives as part of a possible reform of capitalism, while others see them as part of post-capitalism; can renewable energies, for example, contribute to more decentralised forms of energy production and consumption, which could feed into smaller-scale democratic decision making?

Each student must have the opportunity to grapple with these questions, regardless of whether they study languages, plastic arts, management sciences, fluid mechanics, literature, law, sociology, or nursing. This Guide aims to give each and every student some analytical tools; we need to understand before we can act, and require training in order to transform. Although this text is addressed to any citizen who wishes to contribute to the collective effort, its main audience is teachers, researchers, the management of higher education institutions, and students and practitioners in various fields (the civil service, politics, business, associations, and non-governmental organizations).

Methodological choices

The *Manuel de la Grande Transition* (*Handbook of the Great Transition*), on which this book is an abridged version of, was conceived as a common foundation for knowledge and competencies, but it does not pretend to be exhaustive any more than it pretends to deal with all of the essential subjects. It seeks above all to present possible paths; it emphasizes a scalable, dynamic, flexible, plural approach. It aims to help set the reader in motion. This is why the Guide is first and foremost inspired by a desire to encourage a *process of questioning*; it aims to lay out the problems before finding solutions to them. These questions do not represent just one perspective but are drawn from dialogues, deliberations, and communal interpretations. It has been an *inter- and trans-disciplinary process*: some passages relate to particular disciplines and provide specific expertise and frameworks for analysis, but across the text there exists a constant desire to connect bodies of knowledge, as the majority of current developments require an interdisciplinary perspective. *This is a holistic process*. It involves all aspects of ourselves; not just the mind, but the body and heart, and requires an awareness of our connection to nature and other living beings. Transition and transformation require a holistic approach and draw on a great variety of contexts and cultures, beginning with a grounding in Western modernity, which has been marked by both democratic ideals and consumerist, extractivist capitalism.

We have granted particular importance to epistemological, anthropological, and ethical questioning, in order to deepen the ways in which we define 'well-being', as well as the ways in which we relate to the world, other humans and non-humans. A concern with the 'concrete universal' is ever-present: we value the richness of diverse cultural traditions while remaining grounded in a common humanity, a fraternity between the natural world and all living beings.

This Guide also serves as a position statement in relation to planetary boundaries and their social and political consequences. We are aware that we are walking a fine line in order to get to the root of the problems, rather than sticking to an axiologically neutral scholarly description. We intend to defend an engaged way of thinking that, while open to debate, is guided by ethical aims that must dismiss choices such as infinite growth of the Gross Domestic Product (GDP) or geo-engineering as solutions in the face of global warming.

This Guide puts an emphasis on care, on a concern for the common good and goods in common – or ‘commons’. At its core, the principal challenge the Great Transition faces is that of providing individuals and societies with resources that will allow them to take better care of their living environments, their biological and cultural diversity, and people close to them and further afield. It therefore aims to favour mechanisms and institutions that take the needs of and the relationships between others, nature, and themselves into account. This perspective leads to an interest in the goals identified by citizens and policies, as well as in the processes by which these goals are agreed upon and the ways in which they should be implemented. Therein lies our interest in the approach to governing the commons, theorised in particular by economics Nobel Prize winner Elinor Ostrom. The question is not one of knowing whether global natural resources must be managed by public powers or private agents, but one of seeing how shared decisions and actions are carried out at different levels. The objective is to allow all people, including future generations, to have access to the conditions necessary for a high quality of life – the ‘good life’, to coin a phrase used by Greek philosophers and echoed in many cultures, such as in Latin America, where the notion of *buen vivir* has emerged (Beling et al. 2018, Vanhulst and Beling 2014). The concept of ‘quality of life’ cannot, however, exist without consideration of and concern for non-humans and the natural world.

The formatting and editing of the Guide

The ideas presented here in this Guide have been chosen in accordance with the aims of the Handbook on which it is based; to provide its readers with some keys to understanding the problem, and the resources they will need to act. Alone, these keys are limited, and it is possible to feel disheartened when compiling the list of issues that ought to be addressed. We are conscious of this and feel frustrated by the need to limit ourselves to a narrower scope. Nevertheless, the Guide constitutes a singular effort, unique in the rich diversity of the disciplines represented by its authors and contributors. This diversity allows the Guide to offer unified paths, guided by the current ecological and social emergency. Furthermore, it is hoped that this work may be expanded upon in years to come, by future handbooks on global challenges in other fields: climate science, life sciences, engineering, human and social sciences, philosophy/law/political sciences, economics/finance, management, architecture/urbanism/design, literature/language/arts, health, pedagogy, and university campus life.

The Guide provides the reader with the necessary building blocks for programmes, courses, and curricula. It does not constitute a course model as such. It is organised in a way that encourages personal use, and individual and collective journeys. It draws on both knowledge and competencies, and explores different stages of the transition process, that we will call 'gates': acquiring the systemic vision needed to live in a shared world (Gate 1 - Oikos); discerning and deciding how to live well together (Gate 2 - Ethos); measuring, regulating, and governing (Gate 3 - Nomos); interpreting, critiquing, and imagining (Gate 4 - Logos); acting collectively to address the challenges at hand (Gate 5 - Praxis); and connecting to oneself, others, and nature (Gate 6 - Dunamis). The pedagogical vision of the Guide promotes a connection between the head, the body, and the heart. It seeks to expand our understanding of philosophy as an intellectual, existential, and practical exercise.

The Guide is the product of teamwork. Our team was built with a cross-disciplinary approach in mind and consisted of a physicist, a management professor, a philosopher who had once trained as an engineer, and a philosopher with training in both business management and theology. It brought together educators and researchers from a variety of disciplines, as well as professionals and students that were involved in thirteen working groups over the course of a year. Following two days of workshops in Forges in September 2019, on the site of the Campus de la Transition, we drafted an initial plan for the Handbook. The plan was discussed once more, in working groups, and then from an overarching and interdisciplinary point of view, in December, over two days of plenary meetings. The emerging public health crisis led to further meetings and exchanges taking place via videoconference.

Drafts of the Handbook were presented to various parties, most notably the working group for ‘teaching the transition’, at the request of the French Ministry for Higher Education. The purpose of meeting with this working group was to discuss recommendations for integrating the exploration of the Transition into existing organisations and programmes. Interviews were conducted with, among others, experts in their fields and intellectuals who work on ecological and social issues. The Handbook has therefore been subject to varied contributions and numerous re-readings. Following this participatory process, the co-ordinating team takes full responsibility for the conclusions outlined here. An abridged version of the Handbook was then later compiled by the co-ordinating team, and which we have entitled *The Great Transition Guide* so as to distinguish it from the longer Handbook version.

Various possible reading routes

You may choose to read the Guide from cover to cover, but there are other ways of reading it! On many occasions we discussed what

might be the best entry-point for students, researchers or the average reader. Different readers will need different routes, which is why we have chosen not to number our chapters: you may begin reading at any one of the gates without having read the others. Below are some examples of different routes or itineraries, for reading or for training, each of which corresponds to a different dynamic.

From diagnostics to decision-making for a common world

Oikos → Ethos → Nomos → Logos → Praxis → Dunamis

This route is the one the Guide takes and is the order in which the gates are presented. An examination of the planet and the Earth system demonstrates the destruction that human activity – with its heightened ecological impact of certain lifestyles, population explosion, and its primacy of non-ecological criteria – has brought upon ecosystems. This situation requires the use of ethical discernment tools in order to critically assess rules and institutions, and thereby encourage collective structures that are consistent with current ecological and social challenges. To succeed in this we must change the narrative, seek a plural approach to rationalities and perspectives on our existence. This will set in motion a chain of transformative action across all levels of society: these decisions made for the good of our shared world will be long-lasting, provided they are rooted in a strong commitment to implement them, hence the emphasis on reconnecting to oneself, nature, and others.

From action to contemplation

Praxis → Oikos → Nomos → Ethos → Logos → Dunamis

For some, the gate they may prefer to enter through is a practical one; they may wish to take action in their daily lives, or at their place of work in a city, university, business or local authority. This gate invites us to deepen our analysis of the barriers put up by ‘business as usual’ models. It urges us to deconstruct norms and habitual

mechanisms, and to create the conditions needed for careful judgement and collective accounts of the good life. This leads us to revisit the conditions necessary for responsible action, by reconnecting to ourselves, nature, and others, and in cultivating diverse forms of 'non-action' and receptivity.

From inner transition to engagement

Dunamis → Logos → Oikos → Nomos → Ethos → Praxis

An increasing number of people in Western societies, impacted by worries about performance and productivity, and concerns over the ever accelerating speed of life, seek to live alternative lifestyles and to develop practices that better serve their well-being (from yoga to mindfulness meditation). This quest can be deepened into a transition within ourselves – that is, an inner transition. This inner transition can help formulate new collective narratives of the good life, overcome the challenges posed by the construction of a shared world in a critical context, and redefine the current rules. This is how decision-making tools, which might inspire new forms of action – of economic, social, and political engagement – might be developed across different levels of society.

From dilemmas to shared decision-making

Ethos → Oikos → Logos → Nomos → Praxis → Dunamis

The formulation of ethical dilemmas, both individual and collective, is a good starting point for deepening our knowledge of and analysis of major planetary issues. It promotes the creation of a more hospitable world, wherein we can transform organisational and social norms and metrics, and professional and collective practices. This goes hand-in-hand with a deeper, collective, inner questioning, which allows for decisions about the very foundations of our society and brings about radical change.

From norms to symbols

Nomos → Oikos → Ethos → Praxis → Dunamis → Logos

Some key social actors depend upon a system of norms, metrics, and economic and political institutions, which frame their actions and how they present themselves. In seeking to put these systems into critical perspective, we will be able to make way for fresh scientific knowledge, and to acquire new discernment tools, in order to help create practices to address the challenges at hand. This research goes hand-in-hand with psychological support towards a deep transformation, and collaborative creation of new narratives, new forms of entrepreneurship, etc.

From narratives to actors

Logos → Ethos → Dunamis → Oikos → Nomos → Praxis

The collective narratives about how our societies function – the narratives about better futures or catastrophic outcomes – feed into our individual and collective imaginations. Highlighting and interpreting them can help us perceive the ethical and cultural norms that support them, and guide us in seeking ethical and spiritual paths towards a systemic transformation. This research must be based upon sound existing knowledge of the state of the Earth system, leading to the analysis of the evolution of norms and institutions, and then to a transformation of the practices of actors, individual and collective, according to this shared vision.

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THE OIKOS GATE: INHABITING A SHARED WORLD



How ought we to conceptualise the relationship between the Earth and the World? It is in living on the Earth that we have constructed the World. The World, then, in this sense, is the product of human society living on the Earth. It is a social reality, while the Earth is a geophysical one. From this point of view the use of 'world' poses a challenge, particularly because it is often accompanied by the epithet 'shared.' Are there not diverse ways of living in the world? It would be more accurate to talk of a plurality of worlds, as so many social strata overlap across the surface of the Earth. But is the fabrication of worlds the prerogative of human beings? One facet of modern Western thought, for example, deprives non-human animals of a sense of world – an arbitrary deprivation that has long been contested. From Montaigne to biologist Jakob von Uexkull (2010), the description of animal worlds and societies has resisted this dualist approach. Yet at the same time, the distanced viewpoint of anthropology has shown how viewpoints can emerge that do not reproduce a division between humans and non-humans.

To postulate the existence of a world shared between all inhabitants of the Earth is to oppose the current viewpoint, according to which we exhaust our resources, producing not a shared world, but an individualistic unequal and divided world. The shared world has not been given to us; it remains an aim for all the Earth's inhabitants.

The living world during the Anthropocene

Planet Earth has entered an unprecedented era: the Anthropocene. The natural history of the Earth and the human history of the world have now become inseparable.

The Anthropocene is the proposed term for a new epoch of the Earth's history, a term that acknowledges the major role that humanity has played in the disruption of global dynamics, and which recognizes humanity as a predominant geological force. Popularised in the early 2000s by chemist Paul Crutzen and biologist Eugene Stoermer, the Anthropocene thesis argues that the sheer scale of environmental change brought about by humanity has brought the Earth system into a new era (Bonneuil and Fressoz 2016; Hamilton, Bonneuil and Gemenne 2015; Steffen et al. 2011a, b). This rapid acceleration of the consumption of the Earth's resources is largely due to a proportion of the population adopting lifestyles that use both a lot of energy and a lot of space, and to a lesser extent due to global population growth. We cannot, however, view the transformation of industrial societies solely as an 'energy transition'; rather, these changes are the product of a long history of socio-political power struggles, which led to what Gras (2007) called the 'choice of fire', and the industrial power of the 19th century. Energy choices, therefore, are subject to social, cultural, political, and geopolitical influences. The history of the Anthropocene is also the history of fossil-fuel capitalism.

Anthropogenic climate change, due to its scale, rapid acceleration, duration, and unique position within the Quaternary period, poses a major threat to the living world.

The Earth's climate is diverse, ranging from warm climates at the equator to cold climates at both poles. Climate is primarily characterised as temperature and precipitation, measured over a long period of time. This differentiates it from weather, which is measured over short periods of time. Temperature and precipitation differ between regions, both in their annual average values and their seasonal variations. The diverse range of climates on Earth is maintained by a permanent flow of energy throughout the planet, which sustains temperatures, water cycles, and updrafts. Using this measure of global energy, we can describe the global or average climate, that exists on Earth. This description consists of two principal components: the 'global' temperature, which is currently 15°C, and the average global rainfall, which comes to 1 metre per year.

The Earth's climate is the result of an essential process: the greenhouse effect. The amount of energy needed to maintain the Earth's normal surface (oceans and continents) temperature, rainfall, and windspeeds is on average 500W/m². There are many causes of climate change, but using a simplified framework, we can place these causes into four broad categories: 1) solar activity, which affects the flow of energy emitted by the Sun and changes over time; 2) the distance between the Earth and the Sun, which affects the flow of solar energy received by the Earth; 3) the composition of the atmosphere, which affects the movement of radiation, either from the Sun or the surface of the Earth; 4) the distribution of the flow of energy on the Earth's surface. If we wish to contextualise the climate change that is currently occurring, we will first need to give an overview of the preceding climate periods. For around 3 million years, the planet has been subject to glacial-interglacial cycles. Around 12,000 years ago, after the Last Glacial Maximum, when the average temperature of the Earth was around 10°C, the

current interglacial period began. This was the period that saw the development of human civilisation.

Recent global warming and the role of Man

The evolution of the Earth's climates over the last few decades has been characterised by an increase in average temperatures across the globe. Current models unambiguously indicate that this has been caused by human carbon emissions. These emissions currently amount to 40 GtCO₂, which is equivalent to 11 GtC, and of which almost half accumulates in the atmosphere – the rest being absorbed by the oceans (22%) and the continents (29%) (Global Carbon Budget, 2018).

Recent global warming differs from the climatic fluctuations of the Holocene in three ways: its scale, rapidity (+1°C to the global average in almost a century) and its long duration. The impact of humans on terrestrial ecosystems, the physical world, and on the living world are even more remarkable. For some ecosystems, the consequences of global warming are already proving to be irreversible. In particular, we can see major impacts on the cryosphere through the loss of ice cover, and on the oceans through rises in temperature and water level, and changes to ocean currents. The impact on land masses is characterised by a change in average temperatures and an increase in extreme weather events. This directly affects flora and fauna, and has an epidemiological impact on humanity. Coastal areas have also been directly impacted by rising sea levels, and the cycle of the seasons has been disrupted, marked by unseasonable temperatures that disrupt the functioning of ecosystems.

With regard to human societies and the ecosystems that serve them, melting ice and more frequent and intense heat waves have already had observable consequences in numerous areas, such as food security, access to water, living conditions, health, infrastructure, transport, and tourism to arctic and mountainous

areas. The costs and benefits of these consequences are unevenly distributed, and indigenous peoples have been particularly affected. Millions of human beings have been forced to migrate in order to survive. More than 600 million people across the globe live in threatened areas, and this number is sure to increase in the future. By the year 2060, due to extreme weather events, a rise in sea levels of some twenty centimetres alone will have affected more than 300 million people, largely in South Asia, the South-East, and Africa.

Aside from these climate issues, there is a growing concern around the emergence of new biological vectors that are being propagated by climate change. Global experts in the peri-arctic region affected by global warming (Parkinson et al. 2014) have suggested a possible increase in other zoonotic infections (bacterial: brucellosis, Lyme disease, leptospirosis; viral: rabies, hantavirus, tick-borne encephalitis, and West Nile encephalitis).

Where to now?

In the coming decades, the speed and impact of climate change will be determined by the choices that humans make about their greenhouse gas emissions. There are various possible futures that lie ahead, from a manageable, although far from negligible, change to ecosystems, to a complete change of the climatic and ecological era of the Earth.

There are two potential paths of action when it comes to greenhouse gas emissions, each of which would result in two possible outcomes by 2100. The first suggests a drastic and immediate reduction in global greenhouse gas emissions (the world would become carbon neutral by 2050), which would then be stopped completely in order to limit global warming to 2°C and stabilise the climate by the end of the century. The second is a 'business as usual' scenario. This would lead to an increase in global temperature of 5°C by the end of the century, with unprecedented consequences for climate stability.

The spectre of an increase of 5°C looms over the world. This eventuality is particularly worrying to the scientific community, due to the following factors:

a) the significance of the scale of change (+5°C) is comparable to the glacial/interglacial transitions that led to the almost complete transformation of vegetation in the mid latitudes of the continents, and significant changes to vegetation at high latitudes.

b) the rapidity (a century) of the change far outstrips the thousands of years over which glacial/interglacial transitions have taken place in the past, the slow pace of these transitions allowing species the time to adapt to climate change of that scale.

c) the duration of time needed to return the atmosphere to its initial composition after the cessation of human greenhouse gas emissions would be thousands of years.

d) the warming of the Earth by several degrees during an interglacial period (unique in the Earth's history) would throw off the equilibrium achieved after hundreds of thousands of years of oscillating between a glacial world (+10°C average) and an interglacial world (+15°C average). This level of warming would mean living in a world with an average temperature of +20°C, implying a rupture comparable to the greatest ecological crises of the last few tens of millions of years (Mélières and Maréchal 2015).

Disruptions to the functioning of the biosphere and the resulting general degradation of the living world.

The biosphere includes all living beings and their physical and chemical environment – the climate (atmosphere), the habitable surface area of the Earth (lithosphere), and the aquatic environments (hydrosphere). Its ability to function hinges on the interaction between living organisms, and that of living organisms and their physicochemical environment. Organisms depend on their environment, and in turn exert their influence upon it. This suggests

that the biosphere is controlled by both the flow of organisms and the flow of matter and energy.

For ecologists, the concept of nature itself includes the biotic (biodiversity) and abiotic worlds (rocks, but also planets, for example), as well as living organisms and how they interact with the abiotic world. In 2019 the report published by the Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES) allowed us to understand the extent of human dependence on the biosphere, in which more than 2 billion people use wood fuels for their primary source of energy (IPBES 2019).¹

Modes of production and consumption have had an immense impact on the functioning of the biosphere, as well as on ecosystems and biodiversity. The IPBES 2019 report highlighted a significant erosion of biodiversity that could justifiably be said to threaten a sixth mass extinction of biological life. Around 25% of vertebrate, terrestrial creatures have seen a reduction in population size (Dirzo et al. 2014) and, on average, half of the biomass of insects has disappeared over the last 30 years (Sánchez-Bayo and Wyckhuys 2019). This erosion of biodiversity also involves forms of social domination practised by farmers, most notably through the granting of patents to seeds (Mooney 1979, Shiva 2000). The same applies to species diversity loss. This process goes hand-in-hand with what Jarrige and Le Roux (2017) have called the 'contamination of the world.'

1. In the United Kingdom context, see also the Economics of Biodiversity: The Dasgupta Review, released in February 2021 at <https://www.gov.uk/government/collections/the-economics-of-biodiversity-the-dasgupta-review>

Towards an uninhabitable planet and an unliveable world?

'Planetary boundaries' are the thresholds at which the Earth becomes uninhabitable by humans. Several of them have already been crossed due to upheavals in the major processes that regulate the interactions between land, ocean, atmosphere, and living creatures.

Despite critiques and theoretical refutations of the theories of Malthus, population increase does lead to an exhaustion of natural resources (Boserup 2002, Meadows 1972). The development of societies was once largely dependent on the development of cultivated areas, and the quantity of energy and power needed was therefore limited (Kander et al. 2013). With the dawn of the industrial revolution, the situation changed drastically. In effect, the switch to the use of coal, and later oil, is tantamount to moving from a balanced flow of resources to the use of stock resources, with associated consequences. The first of these consequences has been increasing the maximum amount of power that humanity draws on. The powers that drive human activity have become largely dependent on the ability to extract, at increasing cost, fossil fuels from deep underground. This use of material goods is made possible by the easy and cheap availability of energy. The access to accumulated resources in the past created an overcapacity, which exploited the available material with an intensity far greater than the capacity of the natural regeneration of these resources. This means that the planet's ability to recycle energy is now entirely outdated.

From an historical point of view, we can see that energy sources are not replaced by one another but are used in addition to one another (Massard-Guilbaud and Rodger 2011). It is therefore necessary to remove ourselves from this simplistic 'transitionist imagination'. The 1972 report by Meadows proposed a quantification of planetary boundaries with regard to the impact of economic

development. It led to indicators inspired by biology and climate sciences, such as *carrying capacity* (the level of maximum pressure that can be exerted by humans on the biosphere) or the *impact of population footprint* (Ehrlich et al. 1971). The early nineties saw the birth of the idea of an ecological footprint (Rees 1992). More recently, scientists have proposed that we characterise the exceeding of 'planetary boundaries' by identifying the nine processes and systems that regulate the stability and resilience of the Earth system (Rockström et al. 2009). These limits are therefore based on the interactions between land, ocean, atmosphere, and living creatures, that together provide the conditions for existence on which our societies depend. These limits represent thresholds that must not be crossed if we wish to avoid destabilising the Earth's system.

The world is becoming uninhabitable for a growing number of human beings. The availability of sufficient food, healthcare, mobility, and housing is no longer guaranteed for a significant part of the global population.

In 2018 Kate Raworth proposed the *Doughnut Theory* and identified 11 societal objectives through which we might define the minimum boundaries at which social justice can be assured.² They included:

- Food security
- Water and sanitation
- Energy and clean cooking facilities
- Housing
- Health and education
- A minimum wage and decent work
- Access to information and social support.

The *Doughnut Theory* draws an ecologically and socially

2. See <http://www.kateraworth.com/doughnut>.

sustainable line and allows us to measure how far the world is from satisfying these conditions.

Food: Concerning the question of food, we can establish a contrasting array of agricultural areas lost over the last few decades. The agricultural sector is a huge producer of greenhouse gasses and although this sector consumes little energy, environmental upheavals pose a new threat to agricultural systems, as well as presenting health and energy instabilities.

Health and wellbeing: This is determined by numerous factors, such as socio-economic conditions, lifestyles, political orientations (at different levels) and ecological conditions. Sanitary and environmental risk factors, through diffuse and silent contamination, bring with them a trail of injustices, of which 'climate refugees' are just one example. One of the indicators of these risk factors is the 'global burden of disease,' which is used by epidemiologists (Marmot 2016, Wilkinson and Pickett 2011). As seen in the current epidemic, the epidemiological consequences that stem from ecological issues have become a crucial concern for humankind.

Mobility: This is intrinsically linked to questions of governance. What Blainey (2001) called 'the tyranny of distance' has long been a major limiter for political power to exert its influence on a world marked by the pace of 'equating metres to seconds' (Ollivro 2006). This limit has greatly increased with the industrial revolution and the tendency has been facilitated by a historically low real cost required to cover the same distance, although it remains the preserve of more educated populations living in cities served by public transport.

Housing: Access to secure housing for all is one of the objectives for sustainable development by 2030.³ This goal will not be attained, and there are ever-increasing inequalities between housing

3. See the list of the Sustainable Development Goals at <https://sdgs.un.org/goals>.

conditions, as rising urban populations increase the size and number of shanty towns across the world.⁴

Science has an essential role to play in explaining and understanding current environmental upheavals. The study of the interaction between human activity and biophysical processes presents an opportunity for a decompartmentalization of disciplines through the development of multi-, inter-, and transdisciplinary approaches.

Science is defined as the sum of all knowledge obtained through the scientific method, with the aim of understanding reality in the most effective manner possible. The development of scientific knowledge has been the subject of numerous studies in human and social sciences (Krige and Pestre 2003). Science has a right to make mistakes. The process of scientific research, in the course of constructing knowledge, can err. Error is an integral part of the method, and error can be corrected. As a result, uncertainties about the precise knowledge of the future of the climate do not call into question the global scientific process of climatologists. Scientific debate is part of the scientific process.

The environment became a subject of scientific study from the second half of the 20th century. At an epistemological level, a focus on the relationship between ecological and human systems (social, economic, and political) has, since the 2000s, led to the development of research on socio-ecosystems and socio-ecological systems (Ostrom 2009a). The quality of the process of an 'engaged research' can be judged by its fruitfulness (its ability to raise new questions and doubts); its diversity (its ability to accommodate pluralism in all its dimensions); its implied impartiality (its ability to report the truth, to scrutinise it, and to explain its context) and

4. See UN Habitat for latest statistics on cities and informal settlements worldwide, <https://unhabitat.org/>

the accountability of the lead researchers (the fact that they are responsible for and to others).

The notion of 'engaged scientific research' also invites us to depart from a linear model, which tends to put the fundamental ahead of the functional (Barot et al. 2015). This has led to the emergence since the early 2000s of 'sustainability science' (Clark and Dickson 2003), which aims at greater sustainability and openness to 'non-scientific' involvement from political and economic sectors in particular (Daly and Cobb 1989, Dedeurwaedere 2014). Reflected in the expression 'transformative change', this approach is at the heart of the 2019 IPBES report, and the observations presented by the World Bank⁵ and the Global Forum on Agricultural Research.⁶ The adoption of sustainability science has also led to reforms underway within the Consultative Group on Internal Agricultural Research⁷ and the creation of the High-Level Panel of Experts under the UN Committee for World Food Security.⁸

5. The 2008 World Bank Report was the first in 28 years to be on the subject of agriculture. See World Development Report 2008: Agriculture for Development, <https://openknowledge.worldbank.org/handle/10986/5990>

6. See the Global Forum on Agricultural Research at <https://www.gfar.net>.

7. See the Consultative Group on International Agricultural Research at <http://www.cgiar.org>.

8. See <http://www.fao.org/cfs/cfs-hlpe/en>.

Commons during the Anthropocene

The socio-economic history of the Anthropocene is also the history of the increasing control that private property has managed to achieve over the world. This grand-scale appropriation has led to the progressive disappearance of the commons.

The environmentalism of the 1960s and 1970s was formed, in part, around the idea that ecological threats were an invitation to recognise the 'common destiny' that linked all of the Earth's inhabitants. After the first works of Barbara Ward and René Dubos were published in 1972, the Brundtland Report, published in 1987, popularised the notion of 'sustainable development', using the term 'Our Common Future.' The intellectual context of this is in part characterised by the 1968 publication of American biologist Garrett Hardin's article *The Tragedy of the Commons* (Hardin 1968). This text led to significant debate, as Hardin's work opened up two diametrically opposed analyses on the question of the commons. In particular, it became the rallying cry of economists who affirmed the superiority of managing public resources by property rights allocation over managing these resources by public administration. This argument goes back to antiquity, when Aristotle defended the argument that the work of private owners adds value to the land, an idea then refined by Locke (Dardot and Laval 2019). This line of thought was further developed during the colonial era – a clear example being the Enclosure Movement, which pertained to the English countryside and began in the late 16th century, and was characterised by the organised destruction of the commons in order to increase private land ownership (Thompson 1963). This land was initially thought of as *terra nullius* ('nobody's land') rather than *res communis* ('common thing') (Milun 2016). This approach played on the confusion between 'that which belongs to everyone' and 'that which belongs to no one', and had major implications for the non-recognition of the rights of indigenous peoples.

In his book *The Great Transformation*, published in 1944, Hungarian historian Karl Polanyi noted that throughout history the desire to shift or displace the border between the private and public, through the privatisation of goods that fall outside of the commercial sphere, has given rise to violent counter-reactions to authoritarian and nationalist states. According to Polanyi, the process of privatising the world has never failed to bring about violent counter-movements in response. In fact, over the last forty years we have seen new forms of alliance across the world, which economist Gaël Giraud (2018) calls 'public-tribal'. The path to a more shared, communal approach is therefore today far from clear.

The commons is not a regime of uniqueness or homogeneity. It is a multiplicity principle that resists the homogenisation of the world. The defence of the commons is the defence of cultural and linguistic diversity, and more generally the defence of the different forms of life on Earth.

Calls for unity in the face of ecological threats and the return to the commons are opposed to private interests that work to maintain unequal power dynamics in today's globalised world. The overall scale of the concept of 'global commons' has not yet been politically constructed, and when it is, it must respect cultural diversity. It is, however, notable that the cultural diversity principle in sustainable development discourses is disappearing, given that ecological issues are reduced to economic considerations. Alongside environmental historians, anthropologists are contributing to the recognition of the diversity of worldviews and the environmental challenges the world is facing (Ingold 2013). They contribute in particular to the identification of the different cosmologies that construct relationships between humans and non-humans, and call for respect towards an 'ecology of others' (Descola 2013). The long history of disaster response that different peoples of the Earth have developed allows us to look beyond the limits of the Western-

centric thinking of the Anthropocene. The development of decolonised thinking (Escobar 2020) echoes this idea in the domain of ecology, as exemplified by historian Dipesh Chakrabarty's (2009) rallying cry to 'provincialize Europe.'

The return of the commons would provide hope for the world. There is yet much to be done to reinstitute the commons and usher in democratic modes of governing them.

A return to the commons would provide hope and would be capable of upholding cultural pluralism. We are greatly indebted to economist Elinor Ostrom, the first woman to have received the Nobel Prize in economics, for proposing the theoretical basis of this approach (Ostrom 1990). She disagrees with those who support the tragedy of the commons, and who believed that private ownership of natural resources was the best guarantor of their protection. She argues that this private model is not the only way of thinking about property and considers property not to be defined by the owner's absolute and exclusive rights. Instead, property is to be defined as a bundle of user and governance rights that may be distributed among numerous people. She also defines the commons as no longer being the opposite of property. According to Dardot and Laval (2019), commons are land that cannot be appropriated.

But what about the world's shared resources, like the atmosphere or the oceans? In the absence of sufficient global governance, they cannot be defined as 'global commons', but as indivisible assets, access to which remains free and open. Is it possible to apply the idea of a 'bundle of rights' (Ostrom 2009b) on a global scale? When applied on a global scale, this idea invariably comes into conflict with the principle of sovereignty, which forms the basis for the legitimacy, autonomy, and equality between sovereign states.

However, movements in favour of a return to commons, accompanied by drives for education at the broad social level and participatory democracy, have led to a regained interest in the idea

of territory. Many see this as an important lever for 'remaking the world', in stimulating the renewal of public action (Caron et al. 2017). This dynamic requires us to rethink these legal categories, including state sovereignty, with a view to protect humanity's common interest, and stresses the importance of solidarity.

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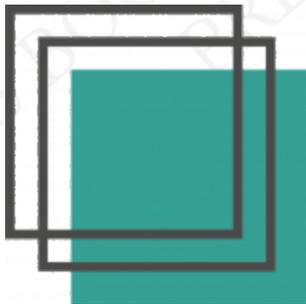
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THE ETHOS GATE: DISCERNMENT AND DECISION-MAKING FOR COLLECTIVE AND COOPERATIVE WELL-BEING



Living well for and with others in the Anthropocene

Concern for others

Local and global environmental changes pose a risk to all human and non-human inhabitants of the Earth. In the face of these changes, we are discovering that we are 'all vulnerable', in a situation of

general interdependence (Laugier 2012). The spatial and temporal scope of climate change is, in some sense, creating a de facto community among all of its potential victims. This community, however, remains a negative community, in the sense that the only attribute that its members share is this climatic and environmental burden. The idea of generalised interdependence therefore reveals a group of people that could be described as excluded from the shared world (Agier 2008). They fall outside both law-based communities (i.e. nation states) as well as this negative community. Among these excluded from the shared world, three groups are of particular concern: non-human living beings, future generations, and migrants.

Non-human living beings

Over the last two centuries the scale of the damage wrought on the non-human living world by the development of human societies is utterly unprecedented. There have been multiple sources of harm: political, social, economic, and cultural. On a political level, the theoretical foundations of modern society have historically excluded other living creatures from political institutions. The exclusion of non-humans from the political sphere may have led to their marginalisation from the ethical community (Callicott 1989, 1999; Deane-Drummond 2019). This statement encompasses moral theories that draw a clear line between human beings and other living beings, a distinction which Emmanuel Kant clearly makes in affirming that only human beings have an intrinsic value (Kant 1998). This humanism that excludes other living beings, and which regards them as having no intrinsic value, only use value, has been the justification for the theory that humans only owe justice to other human beings.

Future generations

The long-term effects of the transformations that are currently underway mean that 'caring for others' includes those future generations who will suffer the impact of actions past and present (Jonas 1984). Generally speaking, a preoccupation with the future asks questions about the types of legacy that ought to be left by one generation for another and how this legacy might meet the demands of intergenerational justice. Contrary to the belief that natural resources can be substituted by physical or human capital, true sustainability requires that a real stock of natural resources be passed down to future generations, so that they will have all the resources they need.

Migrants

Environmental change has caused population migration on a local, national, and transnational scale. The causes of these migrations are many: floods, drought, fire, heatwaves, hurricanes, rising sea levels, etc. These different phenomena have the potential to temporarily or permanently impact these populations' access to food, drinking water, and secure housing, and can drive them to move to other regions. According to some estimations, around 25 million people have already migrated for climate-related reasons since the beginning of the 2000s (Brown 2008). These numbers are set to increase sharply as climate change continues. Even if estimates remain uncertain, the figure often cited in various articles and official reports is that there will be 200 million climate migrants by 2050 (Forman and Ramanathan 2019, World Bank 2018). This situation has given rise to moral and political obligations with regard to environmental migrants. Beyond the mere ethical duty of hospitality, the recognition of the political rights of these migrants is part of a demand for environmental and climatic justice.

Caring for the World

An understanding of environmental challenges has seen the rise of varied expressions of ethical concern for the world. It is notable that indigenous peoples have found ways to live in relation to the world around them. The Kichwa expression *sumak kawsay*, translated into Spanish as *buen vivir*, refers to the idea of a dignified, balanced, and happy life, in harmony with nature (Acosta 2012, see also Introduction). This relates to other beliefs founded upon respect for Mother Earth, known as Pachamama in South America. For the Mapuche people of Chile and Argentina, *küme mongen* refers to a well-rounded life in harmony with the environment and other humans. The Nishnaabeg, one of the most significant First Nations of Quebec, use the expression *mino bimaadiziwin* to describe a socially and ecologically good life (Simpson 2011). Rooted in a systemic understanding of life and the integration of humans with their environment, these diverse concepts are presented as philosophical alternatives to Western concepts such as development (even when sustainable) and its accompanying economic policies.

Contemplating the worldviews of indigenous people, then, allows us to distance ourselves from the old prejudice that developing countries will become the greatest polluters because they are too preoccupied with their own economic development (or the conditions of their own survival) to care for their environment, as opposed to developed countries which might now be considered more environmentally 'respectful' (Nixon 2011). Ethical thinking can be found in both Western philosophy and the philosophy of indigenous people. In this sense, it clearly represents a way of 'building connections' and uniting our efforts, with a view to care for the world.

Caring for ourselves

The environmental and social context of the Anthropocene similarly raises questions about the meaning of the quest for an ethical life. Is it possible to live an ethical life in the context of the Anthropocene? This question calls to mind, in the context of environmental upheaval, the problem posed in 1944 by German philosopher Adorno (2005), 'how can we lead a good life in a world structured by inequality and the exploitation of human and non-human lives?'

Among the diversity of theories that explain moral decision-making, virtue ethics seeks to describe the character traits or dispositions for actions that individuals must cultivate if they wish to lead an ethical life. In the current context, these dispositions are in part defined by their response to environmental issues. They can therefore be described as 'ecological virtues.' These virtues might include discipline, an ability to cooperate with others, and a respect for nature (Jamieson 2008, 2014; Gardiner 2017).

At the same time, leading a good life for oneself is inseparable from the social structures in which that life takes place. In this sense, a moral life is above all a social life, one that unfolds at the heart of the institutions that need to be examined. This is why the quest for an ethical life begins with an examination of disregarded lives, those lives which are not valued by society or which take place in the shadows of public life. From this perspective, moral conduct in the Anthropocene consists of working to reveal those lives that have become precarious because of environmental and social upheaval. This also implies refusing to take part in the social structures that have allowed this to happen.

Environmental injustice and responsibilities

Environmental injustices

The degradation of the environments in which humans live is deepening already-existent inequalities, disproportionately impacting poor individuals and communities. This has led to the birth of a movement in favour of environmental justice (Di Chiro 1996, Fitoussi and Laurent 2008, Schlosberg 2007). In several regions of the world, from neglected areas of American cities to the countryside of some South American countries, these movements have existed since the 1980s, denouncing the way in which the burden of environmental crisis has fallen with disproportionate weight on the shoulders of the poor (Guha and Alier 1998).

Climate change is doubly unjust; it is often the populations who are the least culpable that suffer the worst effects (Anguelovski and Martinez-Alier 2014, Jamieson 2014, Martinez-Alier 2002). As early as 1992, the parties who met at the Rio Earth Summit stated the principle of a common but differentiated responsibility: 'Acknowledging that the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions' (UN 1992: 2). Nonetheless, the issue remains. There is, as yet, no fair distribution of the costs associated with mitigation and adaptation to climate change, and the ecological debt of the countries of the North towards the countries of the South has not yet been taken into account (Goeminne and Paredis 2010, Simms 2009, Timmons and Williamsburg 2009).

Ecofeminism

Global changes have disproportionately impacted women, and therefore reinforced existing gender inequalities. This problem is at the core of the development of the ecofeminist movement and ecofeminist thought (Merchant 1996; Mies, Shiva and Salleh 2014; Plumwood 2002). Forged in 1974 by French feminist Françoise d'Eaubonne in a book entitled *Feminism or Death*, the term *ecofeminism* alludes to the overlap between feminist and ecological thoughts and struggles (D'Eaubonne 1999, Goldblum 2017). This movement has generally focused on highlighting the historical links between the subjugation of women and of the natural world. These intersecting oppressions take concrete form in the daily activities required to feed people, heat homes, and educate and raise children. This traditional division of labour disproportionately exposes women to environmental risks, notably those risks that are associated with climate change: exposure to heat, hypothermia, and water related illness during extreme weather conditions (Nagel 2016).¹ Furthermore, as they are largely responsible for childcare and caring for the elderly, women face the problems and violence that come with migrating to escape environmental disasters.

Linguistic inequalities

If we are to bring about global change, it is not only necessary to rethink the conditions of a common world, we must also not ignore the different forms of cultural and linguistic domination that this construction of a shared world may produce. Linguistic diversity is linked in several ways to the current environmental upheaval. It was originally linked by the unfortunate connection between these

1. See also the Gender and Environment Resource Centre at <http://genderandenvironment.org>.

phenomena and colonial imperialism, which is the primary historical cause of linguistic domination (Phillipson 1992). The post-colonial world is still characterised by an unequal treatment of different languages of the world. These inequalities are replicated in local, national, and international institutions. The defence of 'hotspots' of biodiversity and linguistic diversity often entails the protection of the same areas (Gorenflo et al. 2012). The defence of linguistic diversity is therefore just one of the many struggles for the survival of the diversity of life on Earth.

Rethinking responsibility

In order to bring about global changes, we must redefine responsibility on a number of levels: we must broaden its moral scope to include new types of actions, extend its range to the past and the future, and connect individual and collective levels of responsibility. This overhaul is already underway in the field of law. Defined generally as the duty to respond to the damaging effects of an action or inaction, *responsibility* as defined in a judicial context assumes the existence of a rule of law in which non-compliance incurs a sanction or demand for compensation. Yet, in the context of economic globalisation, characterised by interdependence and global risks, and in which the harm caused is collective and not limited by borders, this definition of responsibility is being put to the test.

It is also important that different degrees of responsibility be taken into account. Thibierge (2004) affirmed that 'just as civil responsibility has become detached from penal responsibility, a new legal responsibility could now detach itself from civil responsibility, allowing for the creation of a preventative action against major risks and in the essential interests of humanity.' She used three verbs: punish, repair and prevent, which translate into three functions of legal responsibility into criminal/civil or administrative/universal

responsibility. Universal responsibility refers to the responsibility of each person for the sustainability of the human race.

As well as considering future generations, legislation on environmental responsibility must also be driven by a sense of solidarity. Responsibility must be shared between different nation states and global forces; businesses, international organisations, civil societies, and NGOs, each according to the power they hold and the risks they generate.

What kind of society do we want?

Far from being limited to individual conceptions of a good life, ethics is also concerned with achieving a just and fair collective way of life. Ethics is, according to Ricœur's definition (1992: 178), 'aiming at the good life, with and for others, and in just institutions'. The construction of the values that inform the definition of a good life is directly linked to the social structures in which they take place. These social structures are in part shaped by successive reorganisations of the productive and reproductive activities at the heart of our society. Thinkers have reflected on the role and importance of different values and ideas, in the transformations of the productive apparatus in the history of social change. The division between the two concepts is inherited from 19th century 'idealist' and 'materialist' conceptions of history. This framework has given way to monolithic interpretations of Western history. 'Idealist' conceptions describe Western history as one of political revolution, founded on the emergences of 'modern' values (individual liberty, equality, property, etc), which crystallised into the idea of individual rights. 'Materialist' conceptions highlight material transformation, technical innovation, and 'energy transitions'. They understand modernity as a historic change from one metabolic regime to another; from an agrarian regime founded on the exploitation of the Earth and biomass energy, to an industrial regime that is

characterised by access to cheap and seemingly limitless energy. The separation of these two accounts of Western history is an obstacle to understanding how the political, economic, social, technical, cultural and ecological forces that make up modernity are intertwined. Since the end of the 20th century, the interdisciplinary field of environmental humanities has sought to unite these two perspectives in an attempt to understand how the striving of modern societies for both material comfort and the political idea of individual liberty led them to where they are today (Charbonnier 2020).

Liberal democracies were founded on the metaphysical conception of a world without limits. They were based on the theory that we live in a world without end, with seemingly limitless resources, thus allowing for a wide range of aspirations and creating similarly limitless desires in people. The connection between the development of democratic societies in the 19th century and access to fossil fuels has been the subject of numerous studies in recent years. Historian Timothy Mitchell (2013), for example, has suggested that contemporary democratic regimes depend on access to coal and carbon.

From this perspective, the end of abundance, imposed by the need to rewrite economic systems according to planetary boundaries, would represent a major challenge to democracy. With their material foundations pulled out from under them, democracies would need to reinvent themselves, and abandon the productivist engine, driven thus far by abundant and affordable energy. Since the 1970s, authors have written about the 'Herculean task' of the return to scarcity that awaits democracies (Ophuls 1977). This task requires a break with the modern conflation of liberty and limitlessness. It cannot, however, resort to pre-modern social structures, in which human needs were limited by necessity. The separation of the concepts of liberty and abundance could well be based on a reinvestment in the ecological critique of artificial needs created by productivist, consumerist societies (Kasser 2002, Kasser and Kanner 2004).

If we follow Henry David Thoreau's (2001) critique of the superfluous needs of American society in the late 19th century through to André Gorz's (1980) defence of a 'standard of sufficiency', they chart a path that leads to a democratic outcome when abundant supply of energy and resources comes to an end. It is finding renewed interest today through multiple local initiatives designed to promote voluntary simplicity.

Equity, ecological limits, and cooperation with nature

Although we must set aside the values that have based social emancipation on the exploitation of natural resources, the great ecological and social transition does not mean rejecting all modern values. These values must find a new place in the collective construction of ecologically and socially desirable structures. In this new environmental context, we can redefine ethics as the aim of the good life, with and for others, in new, just institutions, and with respect for ecological limits.

Furthermore, this reflection on new definitions of a just society must include a reflection on the place society gives to non-human living beings. What model of social and political organisation can we invent or rediscover in order to better live alongside non-humans?

With the publication of his 1992 essay *The Natural Contract*, Michel Serres was the first in France to explicitly state that the global ecological crisis called the founding social contract of modern societies into question. This crisis clearly revealed the way in which this contract failed to consider the power of nature and its impact on human society. According to Serres, the non-recognition of the active participation of nature in the process of the co-construction of the world was an 'objective violence' against nature, which ultimately caused harm to human beings. Historian and politician Achille Mbembe (2020, 2021) recently gave a more differentiated analysis of this contract, using the word 'brutalism', highlighting the intensity of this violence.

The recognition of the active alterity of nature has recently found a solid foothold in theories of relational autonomy, most notably in feminist critiques of liberal individualism and in care theory (Gilligan 1982, Young 1990, Tronto 1993). This conceptual framework recentres the interdependent relations that connect humans and non-humans and allows us to consider our 'domination of nature' by drawing attention to the unequal balance in dependent relationships. It offers a new perspective for ecological thinking; not one of disconnection, or the progressive domestication of the world, but rather one defined by a search for ways of inhabiting a shared world with other species (Haraway 2003).

The emergence of the SARS-CoV2 virus pandemic in 2020 called into question relations between humans and the nonhuman world in various ways. COVID-19's animal origin, its global transmission, and the social distancing that followed, drew attention to the dynamic balances between humans and non-humans, and how they can be established and destroyed. The global destabilisation that the pandemic caused has highlighted the blind spots of globalisation. Ecological schools of thought have sought to bring the following blind spots into the public eye for decades: the massification of the poor treatment of animals, the shrinking of space given to wild animals, and the fragility of globalised human interdependence. With these ecological issues at the forefront of our minds we now need to embark on an individual and collective quest for an ethical life in the 'world of tomorrow'.

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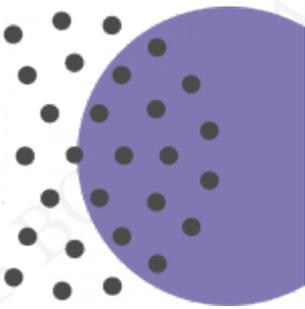
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THE NOMOS GATE: MEASURING, REGULATING, GOVERNING



Economic, ecological, and social transitions demand that we rethink our objectives for development. The pursuit of these objectives requires that we use new knowledge. We need to analyse the metrics and indicators of these new models from which new forms of knowledge emerge regarding our ways of creating wealth, and measuring what is required to live well and sustainably together. There is currently a lot of research underway which aims to produce new indicators for development, to change economic and financial rules and practices, and to promote institutions and governmental models adapted to new climatic and environmental regimes.

Which metrics, models, and indicators?

We must promote and teach models that take into account the non-linear dynamics of our economies, the social complexities, and the radical uncertainty that weighs on the decisions made by the majority of actors. An emphasis on performance indicators meant to measure the efficacy of a decision, device, or even a business in terms of wealth creation, efficiency and/or possible productivity, leads us to forget the importance of natural and human factors, and the ecosystems and people impacted by these activities. There is a reductionism that conflates the valuable with the quantifiable, and which has led to a governance by numbers (Desrosières 1998, Supiot 2017). This perspective has become so dominant that market logic has become the primary criterion for examining how well public institutions work.

Growth is often presented as a condition for human development, and has become an indisputable dogma (Jackson 2017, Kallis et al. 2020). The growth invoked by economic and political decision-makers is the growth of the Gross Domestic Product (GDP), the wealth produced within a specific territory. How GDP is calculated is a point of discussion, in and of itself: it does not reflect the total of wealth created by human activity; for example, it does not account for non-market, non-monetary activities like domestic labour.

Markets are unable to protect societies from financial and ecological risk.

This understanding of growth is based on the illusion that there is a seemingly infinite quantity of planetary resources, and which markets are assumed to allocate effectively.

The function of the market is to manage the allocation of financial capital and the risks at the heart of our economies. Household savings are collected by financial operators and redistributed in the form of investment and credit. In doing so, the market transfers

capital from those who possess it to those who need it to develop projects and businesses. The people and organisations who use this capital are supposed to increase it and return it to its initial owners, contributing interest or sharing a proportion of the accrued wealth with them. The relative risk of economic activities is borne by those who accept them in the hope of remuneration. The financial market therefore plays an important role in society; we must impose certain rules upon it. As it currently stands, the valuation of assets by financial mathematicians is unable to establish a 'fair price', one which would reflect the true economic value of the assets underlying the derivatives traded on the markets.

The proper functioning of markets therefore relies on their regulation (Giraud and Renouard 2012). What should the market's driving principles be? As explained by Mark Carney (2015, 2021), former governor of the Bank of England and now UN special envoy for climate action and finance, the economic risks caused by the financial markets, in connection with the environmental crisis, fall into three categories: physical risks, such as the damages caused by extreme weather conditions; transition risks, notably the loss in value of carbon assets; and legal risks. The 'tragedy of the horizon', as Carney (2015) calls it, is linked to the systemic effects of a mass and generalised depreciation of value in the carbon sectors. In the short term this has manifested as systemic financial crises, while the effects of public climate policy will not be felt for some decades. These three types of risk outline what an intelligent regulation of the financial markets should prioritise.

We need new metrics and models in order to bring together financial and extra-financial logic. The challenge is to promote an approach to prosperity that is defined as a capability for development rather than as material opulence or utility, as measured by GDP. 'Capability' in this context refers to an understanding of human development suggested by economist Amartya Sen (1999, 2009), philosopher Martha Nussbaum (2000,

2011), and other social science researchers since the 1990s.¹ This conception considers the capabilities of individuals and groups 'to make/do and to be', the resources needed for a person to translate their potential into effective realisations, as well as the rights of people to access these resources in their political society. For example, if a child is physically and intellectually able to attend school, do they have the right to access schooling, as well as the logistical and financial means to do so? This perspective relies on an interrogation of personal choice in different dimensions of existence, and a political exploration of the suitability of institutions, and their ability to create the conditions needed for the deployment of these capabilities. This approach also calls for a different economic model, no longer centred on property and the results of material production, but on an economy of services.

Over the last thirty years several different indicators have been proposed. Most notably, the UNDP has put forward the Human Development Index (HDI), inspired by the works of economist Nobel Prize winner Amartya Sen. The Index takes into account the GDP per inhabitant, life expectancy at birth, level of primary school education, and adult literacy rate. The UNDP (2020) has recently proposed a Planetary-Adjusted Human Development Index, which takes into account planetary boundaries. There is also the Multidimensional Poverty Index, which replaces income poverty (measured by the \$1.90 /day poverty line) with multidimensional poverty (measured by deprivations in at least a third of the dimensions that compose the index).²

An important challenge is to get people at all levels to recognize the importance of the indicators that shape our ways of representing the world, a desirable life, and what really matters in

1. See the Human Development and Capability Association at www.hd-ca.org, as well as Chiappero-Martinetti, Osmani and Qizilbash (2020), Robeyns (2017), Sen (2017).
2. See the Oxford Poverty and Human Development Initiative at www.ophi.org.uk.

our societies. Fresh visions of primary production and distribution of wealth can be translated into new investment choices, tax rules, international accounting standards, and prudential rules governing banking activity. The subject of accounting standards is a significant one, since accounting determines the ways in which projects and activities are deemed profitable, sustainable, etc. There have been various proposals aimed at the long-term structural integration of the effects of economic activity on natural and human ecosystems. The aim is to transform the accountable relationship with nature, currently understood by humans to be an exploitable asset, and to instead account for the cost of the maintenance of natural and human capital (Rambaud and Richard 2015).

We can separate public intervention in matters of climate and the environment into three categories: 1) regulation, including setting emissions standards; 2) taxation, to integrate the cost of external social and environmental factors into market price; and 3) a carbon market that places a higher price on carbon emissions. Macroeconomics shows that in order to successfully influence carbon emissions and preserve some chance of not exceeding a +2°C increase in global temperature by the end of the century, carbon tax must be as much as \$300/ton by 2030 (Bovari, Giraud and McIsaac 2018).³

The reform of the aforementioned accounting standards plays a key role in the effort to reinstate an economy built with a respect for the environment in mind. This also leads us to analyse the evolution of how corporations and their responsibilities have been conceptualised over the last two centuries.

Taking a citizen's perspective on corporate social responsibility allows us to understand current ecological and social issues, and to prioritise conditions for life on Earth over the activities of businesses by conceptualising responsibility as both an imputation (or obligation) and a mission (Ricoeur 2000). This imputation relates

3. See also Chancel and Piketty (2015).

to an accountability for causally identifiable direct effects: a business is accountable for the impact of its core business on its direct stakeholders, and it is possible to determine what it is directly responsible for – for example, the pollution of waterways caused by a factory, or the amount of packaging used in its products. The mission describes the way in which an organisation recognises the effects of the joint actions of different individuals and groups, including companies. Thus, a Small and Medium Enterprise's (SME) carbon footprint may be limited with regard to the general emissions of a region in which it operates, but it can contribute to limiting that footprint in the name of shared responsibility with other actors. These environmental balance sheets constitute an entryway to eco-conception: the conception of products that reduce their environmental impact as much as possible over the course of their lifecycle.

A system approach also requires us to examine the effects of income inequality and wealth in the functioning of societies and enterprises. It requires us to reflect on wage distribution and senior management remuneration,⁴ in order to see whether or not they contribute to the quality of the link between society and the ecology. Income inequality has increased in most countries over recent years, partly due to financial globalisation (Milanovic 2002), and wealth inequality has had an even greater social and ecological impact than income inequality.

Studies have shown that, in the long-term, an increase in income and wealth inequality leads to a reduction in growth, and even a decrease, in national income (Giraud and Grasselli 2021). Other studies show how strengthening social cohesion depends on reducing wealth inequality; as these inequalities increase, the less

4. In the UK context, see the research on managers remuneration by the think tank the High Pay Centre at <https://highpaycentre.org>. Between 1st January and 1st April 2021, it estimates that the average FTSE 100 CEO has earned £913,538, that is, already more than 30 times what an NHS nurse may earn the whole year caring for COVID-19 patients.

cohesive society becomes (Stiglitz 2016; Wilkinson and Pickett 2011, 2019). Furthermore, the preservation of ecosystems requires a reduction in carbon consumption in the wealthiest populations, as well as an increase in purchasing power for those in poorer conditions, with a view to greater consumption of 'green' products (Laurent 2018, 2019).

What should the regulations for the Transition be?

The Great Transition leads us to revise the legal and economic norms by which we define the pathways towards achieving social and ecological objectives.

In 2019, France passed a law in relation to business growth and transformation, the so-called *loi Pacte*. The law introduced the new legal concepts of *raison d'être* and *société à mission*, which require businesses to align their purpose with social and environmental objectives. These new legal concepts do not, however, ensure that wealth creation is subordinate to considerations of planetary boundaries, or that a concern for social justice is put at the heart of businesses.

In order to reduce greenhouse gas emissions, the European Union has put in place an exchange system of emission quotas, founded on a payer-polluter model, which forms the basis of the EU's climate policy. However, the goals for reducing greenhouse gas emissions have not been met. This reproduction of liberal market mechanisms in order to fight climate change only serves to reenforce the pitfalls of the system.

In addition to environmental regulations, all legal disciplines should be transformed in order to deal with environmental issues. If changes in law are to be effective, we must reconsider the entire system of economic development as supported by capitalism and the liberal state.

The theory behind the revolution of law is made up of three key points: 1) legal theory must become green and thus develop new paradigms to counteract dominant discourses; 2) legal analysis must be decompartmentalized in order to address, among other things, classical categories such as capitalism, sovereignty and the notion of the state itself; and 3) legal reforms must not be the cure-all, as they do not meet current demands and only serve to reinforce the conflicts they are supposed to resolve.

As well as adapting the law to account for environmental issues, we are also witnessing the emergence of new legal rights. These include procedural rights as well as substantive rights, such as the human right to a healthy environment or the principle of non-regression (Vordermayer-Riemer 2020), both of which are now enshrined in French laws regarding biodiversity. We have also seen a recent increase in legal decisions that have accorded special legal status to natural entities (Kramm 2020). The law is thus evolving, allowing itself to be influenced by debates on the place of humans within nature, and the value of non-human life and their ecosystems.

In the field of economics, the failed regulation of multinational enterprises demonstrates the insufficiency of a recourse to 'soft law' in implementing ecological objectives (Ruggie 2013).⁵ The power to shape the norms that influence ecological transition is no longer the sole prerogative of state actors: different actors (notably economic ones) are increasingly participating in the development of regulations. 'Corporate Social Responsibility' is the phrase which best captures this phenomenon. It has been the subject of several international texts by public and private bodies, such as the United Nations, the OECD (Organisation for Economic Co-operation and

5. See also the Business and Human Rights Resource Centre at <https://www.business-humanrights.org/en>. An international treaty on business and human rights is currently being discussed at the United Nations.

Development), the World Bank, the European Union and the ISO (International Organization for Standardization). However, the dangers of self-regulation and the flexibility of Corporate Social Responsibility have not escaped criticism, especially in the way that they present policies as 'voluntary' that are in reality imperative, most notably in matters of fundamental rights. Even if international CSR standards are mainly 'soft law', the normative force of CSR continues to grow, particularly under the influence of international human rights law. The notion of due diligence or duty of care is becoming central to CSR. The adoption of the duty of care law in France in 2017 is evidence of this movement.⁶

The combination of 'hard' and 'soft law' is at the very heart of duty of care law, as it relies largely on 'soft law' for its implementation. The tools of 'soft law' are thus utilised in the application of 'hard law', and traditional legal tools can then be used to give legal status to commitments that are perceived as voluntary, particularly through the judicialization of CSR.

What kinds of institutions are needed for the Transition?

The metrics by which we evaluate the wealth at our disposal and the trajectories of our societies have an impact on how our institutions function. This invites us to reflect on the way our democracies contribute to ecological and social questions in all spheres of existence, in order to create a matrix from which decisions are made.

6. In March 2021, the European Union adopted a mandatory human rights due diligence law, see https://www.europarl.europa.eu/doceo/document/TA-9-2021-0073_EN.html

Democratic regimes must reform themselves in response to global change, particularly in the face of long-term challenges.

Political institutions were created without concern for the integration into nature. Although the nation state has traditionally been the site of fundamental democratic expression, ecological phenomena know no borders. This undoubtedly explains why environmentalist movements first found expression in protests and anti-establishment movements, at both the European and global level. This also allows us to understand why government policies regularly consider environmental issues as secondary to other, more strategic issues (foreign trade, security, defence, taxation).

Environmental disruption has become more visible and widespread. We cannot avoid the fact that our social and economic structures must be transformed from an ecological perspective. But we must also reflect on how this transformation can be carried out democratically. How can we gather the opinions of our citizens? How should we make decisions, and on what timetable? What role should science and expertise play in our decision-making? The environmental crisis requires us to consider new complexities and unprecedented collaborations between public and private actors, individual and the collective, at all levels of society. It requires us to rethink the whole system of responsibility. Bringing together ecology and democracy means that we must strengthen our democratic way of life, and invent new democratic forms. This includes creating new forms of direct and deliberative democracy or ensuring that our current democratic mechanisms better represent those affected by the environmental crisis.

Climate and environmental governance require, beyond individual nation states, different infra- and supra-national institutions.

The change in institutions has occurred as a response to a combination of factors and processes that have taken place at local,

national, regional, and international levels. While it is necessary to promote initiatives that can be set as examples or be used for decision-making in other contexts, the real challenge of the Transition is to come up with, and promote, a multi-level conception of governance that includes local and territorial iterations, innovations, and learning, as well as national policies and international frameworks. Overall, governing the climate requires the creation of links at different levels, both local and global, the effective implementation of which will require infra-state actors to play a key role.

If the global character of climate issues is not subject to debate, questions of biodiversity demand that we interrogate the relevant level of decision-making, both for legitimacy and efficacy reasons. The governance of biodiversity also challenges the vertical and simplistic division of responsibilities: local actors directing local resources, national actors guiding public policy, and nation states negotiating international standards. Moreover, a change in scale determines the nature and availability of knowledge to inform decision-making (Soberon and Sarukhan 2009, Soberon and Peterson 2015).

Linking issues of (global) commons to both the common good and the commons, in order to foster the search for equity between territories.

The efforts to introduce new metrics, regulations, and modes of governance are linked to the search for institutions that might cohere more closely with wider planetary issues. From this perspective, the approach of commons (see Gate Oikos) favours the connection between environmental, cultural, and political dimensions, across all categories of common goods, common good, and commons. We must remember that *common goods*, in the sense used by economists, are non-exclusive. These are the goods and services, material and immaterial, to which all human beings ought to have access, now and in the future. The original character of

what was considered to be a *common good* must be recognised. It points to the need for collective deliberation and interpretation of the nature of *common goods* (cf. Gate Oikos).

The *common good* corresponds to the ideal that regulates the quality of life a society strives for. The principles of the *common good* and justice (cf. Gate Ethos), are what must be present in all our social projects. The approach of *commons* allows us to highlight the political dynamic of emancipation. This dynamic allows a community to determine which common goods must be preserved, shared, and passed on, and highlights the methods of democratic governance by which this process should take place (Renouard 2017). This perspective exists in tension with the commodification of life – with public and private land grabbing, and the financialization of economy and power – which denies the rights of local people. Despite this tension, this common good perspective is a call to deepen the link between justice and social agreements. This raises several questions: who has these resources, and who has the capacity to define and share goods? How do we reach an agreement?

This approach is particularly relevant for territories where local, national, and global issues intersect. Territories are useful frameworks within which we might recognise and administrate global common goods. They create a link between collective and public action. They offer, under the right conditions, the opportunity to reenforce the capacity of multiple actors to cooperate, and to define directions for integrating environmental, social, and economic objectives.

The importance of certain territories for maintaining the ecological balance of the planet is such that we must consider whether to grant them the status of universal common goods. The Amazon rainforest is being considered for this status, as it has suffered massive deforestation, partly due to soy and meat exports. Although the conferral of the status of universal common good to the Amazon rainforest can be used as a tool to collectively manage this area of international interest, it will not be sufficient: we must

also collectively work to transform the economic, social and transnational forces responsible for the exploitation of the rainforest, at all levels.

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THE LOGOS GATE: INTERPRETING, CRITIQUING, AND IMAGINING



There are many ways to express the science behind the changes currently taking place, the risks of disasters to come and their ensuing fears, current and future suffering, and the energy and passion at work in building a desirable future. Amongst all this it is not always easy to identify the stories that might motivate us all.

We need works of fiction not only to describe different phenomena and situations, but also to realise the extent to which our knowledge depends on our representations, perspectives, and interpretations of our world. The silence in our collective stories is deafening. Historian Mike Davis (2000) has highlighted how famine has claimed between 31 and 61 million victims (according to estimations) between 1876 and 1879, and 1896 and 1902, in India, China, and Brazil. These famines are not only linked to the climate events that are described as 'El Niño', but by the negligence of colonial administration. These tragedies could have been avoided were the populations not impacted by the global economy,

victimised and impoverished by the price of grains which they could not afford, as Amartya Sen (1981) has pointed out in the case of India.

First, we must analyse development narratives. The interrogation of the development model through economic growth and the great narrative of modernisation go hand-in-hand with the creation of new transition narratives, which mobilise different types of rationality. This is the subject of this 'logos' gate. Citizen reflection on the role of science and technology is essential. It allows us to highlight the need for collective debate on the influence of science and technology on our imagination and practices, and the promises and limits of the digital economy.

Interpreting the narrative of sustainable development

The terms we use to describe current global challenges carry varied representations and meanings. These can give rise to what 'social imaginaries' (Taylor 2004) that are poorly suited to the gravity of current situation. This is particularly true of the notion of sustainable development. In 1980 the International Union for the Conservation of Nature wrote a global strategy on the 'management of human use of the biosphere' (IUCN 1980). In 1987 the World Commission on Environment and Development provided what has come to be a generally accepted as the almost canonical definition of sustainable development: 'Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs. [...] Yet in the end, sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs' (WCED 1987, paragraph 27). The report described the issues of

biggest concern for humanity today: deforestation, soil erosion, the greenhouse effect, population increase, the food chain, access to water, energy, urbanisation, extinctions, over-arms, protection of the oceans – and the risk of irreversible damage to the ecosystem.

Sustainable development cannot, therefore, be understood without an appreciation of the need to build inter- and intra-generational solidarity, in order to make the Earth habitable not only for us, but for generations to come. It includes setting limits, but within a dynamic horizon of economic growth. Although economic growth must be controlled, and even slowed, it must not be condemned outright. Multidimensionality is an essential aspect of sustainable development. It is a matter of considering the social, economic, and environmental aspects of human activity as a whole. These three pillars, mentioned in a number of texts published since the 1992 Rio Earth Summit, must not obscure other important aspects of development. It is significant that the work leading up to the Rio Summit contained two other pillars of development (Sachs 1993), as well as the three already mentioned: the spatial pillar, which relates to the evolution of urban and rural space, population migration, and infrastructure; and the cultural pillar, which relates to the connection between technoscientific rationality and symbolic rationality that lies at the heart of the diverse range of human traditions.

Furthermore, the political dimension of development is present at a range of levels, even if not mentioned as a dimension in its own right. Sustainable development is, in effect, ultimately the result of political projects. It requires examining relations between countries as well as the balancing of different national concerns, as it implies examining the capacity of different nation states to implement programmes of equal magnitude regarding the task at hand. The principles of sustainable development demand that we reflect on how different populations participate in the decision-making that directly or indirectly affects them, and their responsibility towards future generations and distant populations. However, the discourse

on sustainable development is often partially connected to grand neoliberal narratives that seek to demonstrate the possible reconciliation between the economic, social, and environmental aspects of human existence, and aim to minimise issues of power relations and conflicts of interests, silencing those who suffer at the hands of the system.

It is this perspective that allows us to analyse the 17 Sustainable Development Goals (SDGs) – broken down into 169 targets and 244 indicators – that were voted in by the UN General Assembly in 2015. These goals account for multiple areas of human development.¹ They seek to express concern for plural, universal objectives and a desire to take into account a range of contexts. They have tried to avoid the errors of the Millennium Development Goals, which were mainly quantitative and compartmentalised indicators. However, the SDGs are not without their shortcomings. Some objectives exist in tension with one another, and there are some that would not meet the demands of the 2015 Paris Agreement. For example, the aim of growth in all countries contradicts the aim to give all people access to clean energy (Wackernagel et al., 2017).

This example shows how necessary it is to adopt an interpretative and critical approach vis-à-vis the ideas that are used to address the great ecological and social transition. Such an approach cannot be separated from a reflection on the roles of and the synergy between different types of rationality.

Scientific Rationality

Scientific rationality plays a key role in our understanding of ecological and climate issues. The term ‘science’, referring to deductive reasoning as we now understand it, only came into use

1. See <https://sdgs.un.org/goals>

in the beginning of the 19th century. Today the scientific process is supported by rules that lead to public recognition of scientific findings: publications follow a process of peer review (in many disciplines, anonymous), which are then followed by presentations and discussions. The entire process is supposed to respect certain ethical rules (the declaration of conflicts of interest, citation of sources, the pursuit of truth, etc.).

The reports of the Intergovernmental Panel on Climate Change, which are published every five to eight years, are examples of the rigorous processes that bring together teams of select researchers from different disciplines to produce reports in response to comments from experts or governments. These reports provide the foundations for discussions at climate conventions.² This model has led to a similar process for questions regarding biodiversity with the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.³ It is nevertheless important that scientific processes be approached critically and inclusive of different forms of rationally.

Historically, scientific research has always been closely linked with economic issues. This relationship between science and the economy can lead to scientific research being used to serve financial interest, without the environmental consequences being properly identified. It can even be used to resist those decisions in the name of the climate or biodiversity that threaten short-term profit margins. This lobbying practice is far from uncommon (Keen 2011, Oreskes and Conway 2010).

As a science, economics has tended to develop within the narrow framework and dogmatic presuppositions of neoclassical economics. It is telling that, of the 77,000 articles ever published in the 9 most influential economics reviews, only 57 have been about climate change (Oswald and Stern 2019). Furthermore, blind faith in

2. See <https://www.ipcc.ch>

3. See <https://ipbes.net/global-assessment>

science as the bearer of solutions can cause scientism, an excessive belief in the power of scientific techniques. This can encourage a providentialist view of human society and lead to perceiving the market and free enterprise as factors of human progress. Finally, not all scientific research has a desirable impact on humans or the planet. It is therefore essential that scientific thought, proposed technologies, and the conditions and constraints under which research is carried out, are all submitted to ethical and political questioning.

Symbolic rationality: literature and the arts

The rationality of literature and the arts is just as important to a diverse and wide-ranging transition as the rationality of the sciences. Literature and the arts share a common tool: that of (re)presenting, whether through language, colour, or materials, different aspects of 'reality'. They represent the environment, nature, the links between humans and their forebears, the diversity of the world of yesterday, today, and, above all, of tomorrow. The filters used by the arts to give a partial image of reality make literature and the arts particularly effective tools for highlighting the fact that climate change and environmental disaster pose an existential threat to humanity (Clark 2015). In doing so, literature and the arts promote an environmental consciousness and collective, poly-sensorial shared experience (Rancière 2006). They bring attention to phenomena that might otherwise have gone unnoticed (Nussbaum 1995).

The emotions that art stir within us and the representation of environmental reality through word and image create a greater emotional connection between the reader/viewer and the world. The indignation, anger, and fear that such artistic representations can produce make the public aware of ecological challenges, and help them to develop an idea of not only how catastrophic the

future will be if we continue with business as usual – as in science fiction and other tales of future catastrophe – but also of how a desirable future might look like – as in transcultural eco-poetic projects (Morton 2012). In so doing, and in creating encounters and relations with the other and allowing us to share in the knowledge of other worlds and cultures, literature and the arts can allow us to build empathy for distant beings and unfamiliar situations. We know that the environmental and social transition demands the ethical consideration of diverse voices, including those that have been silenced or forgotten, so that nothing and no-one is left behind (Abram 1996).

Languages, cultures, literature and the arts, all have a long and complex combined history. We have seen the creation of a language that permits dialogue and empathy between human and non-human worlds, creating fertile conditions for ethical, social, and political engagement. Through their reflexive, interrogative, and critical dimensions, literature and the arts call us to rise up and fight for a world that might otherwise slip between our fingers.

Utopian literature deserves particular attention when it comes to the Transition. We can divide this genre into two stances with regard to planetary resources (Geus 1999): utopias of abundance (Bacon, Owen, Saint-Simon, Fourier, Bellamy) and utopias of sufficiency (More, Thoreau, Kropotkin, Morris, Howard, Skinner, Huxley, Callenbach, Bookchin). With regard to ecosystems, utopias of abundance do not consider the limits of collective action, while utopias of sufficiency invite us to recognise the limited nature of human material needs and promote more frugal lifestyles.

Images of an ideal or desirable world can help us to come up with creative ideas, understand our own position, and orient ourselves. If we consider them as ways to shake up our habitual thought patterns rather than as static images, they encourage us to prioritise pragmatism, flexibility, and intelligent, context-sensitive adaptive behaviour, as well as to orient ourselves towards a shared goal. In this way, images of the ideal can be vectors for social integration

and are a useful complement to ideologies for directing political and social action (Ricoeur 1991).

Technical rationality

Technology intersects with both logico-mathematical rationality (the sciences) and symbolic rationality (the humanities), sustaining scientific research methods, our social imaginaries, and our practices. We must recognise its influence, limits and contributions, and question its sustainability with regard to the dwindling resources entailed by the manufacture of technology, especially digital technologies.

We have entered a new technological revolution, a technoscientific transition. We have moved from a linear, hierarchical model to a more horizontal, cooperative flow of shared, rather than centralised, information. Many tasks that humans once carried out are now done by machines. The digital economy and automation technology have ambivalent consequences. The digital revolution has allowed for fluid knowledge transmission, allowing networking, cooperation, and dialogue between cultures. This technoscientific revolution allows us to develop 'cooperative, interwoven networks' in a range of sectors (transport, energy, etc.). We are witnessing a new phenomenon of face-to-face relationships that transcend distance.

The revolution of energy and computing during the late 20th and early 21st centuries has been called the third industrial revolution. A key characteristic of this revolution has been distributive capitalism. According to Jeremy Rifkin (2009), the four elements of the ideal of distributive capitalism are: a) the development of renewable energies (solar, wind, hydraulic, geothermal, wave power, biomass); b) the construction of energy-producing building; c) hydrogen-based energy storage methods (electricity-producing renewable energies that allow the separation of hydrogen and oxygen in water

by electrolysis; hydrogen can also be directly extracted from organic, animal, and forestry waste (biomass); d) the reconfiguration of the power grid. This positive depiction does, however, contain multiple uncertainties and possible abuses. Automation and artificial intelligence (AI) could lead to a downturn in possible technical solutions, due to our limited understanding of the benefits on offer, the minimisation of potential risks, and an obscuring of both direct and collateral damage, notably to the most fragile living beings. Jacques Ellul (1980, 1990) pointed out how technology, which has become systemic thanks to computing, has a tendency to become an independent force, disconnected from ethical concerns, and is far from a source of emancipation.

Artificial intelligence also presents the risk of people spending increasingly significant parts of their lives interacting with robots and digital clones, to the detriment of relationships with other living people. Furthermore, according to some studies, close to 40% of existing jobs are due to disappear in the next ten to fifteen years, while many societies are already impacted by unemployment (Frey and Osborne 2017).⁴ Digitisation can lead to wealth accumulation by a minority and a deepening of inequality. The smallest aspects of our lives are recorded and leave a digital trace; huge databases are being used by private entities to maximise profits and by governments for the purposes of control. In China, the state has created a 'social credit' score for each citizen, which can be monitored thanks to the digital industry (Liang et al. 2018), and which changes in relation to the behaviour of each person and how exemplary that behaviour is.

The possibilities the internet offers seem infinite: from online shopping to artificial intelligence, to the cloud, big data, and even cyber-physical systems. They have given new life to those who find hope and even conviction in the exponential function of the 'laws'

4. See also the Future of Work initiative of the International Labour Organization at <https://www.ilo.org/global/topics/future-of-work/lang--en/index.htm>.

of Moore, Kryder and Nielsen (Bihouix 2019). These 'laws' assert that we will be able to find cures for the modern ills of humanity through disruptive technical progress and perpetual growth. This view of technology as the answer to everything goes so far as to project a path to a transhumanist future, where the process of the exo-somatization of humanity would reach its peak in the externalization – already in progress – of our cognitive capacities (delegated to the extracorporeal organs that we call 'intelligent machines') (Postman 1993).

Even though the course of innovation and the promotion of 'smart technologies' and 'high tech' seem to be currently paving the way for our futures, it is important to remember that this view of digital technology is not universally held – other discourses exist. These discourses constitute alternatives to the current dominant technocentric paradigm. One example is the free software utopia (Stallman 2002), which was born in the 1980s from a revolt of hackers against digital code, and has continued to evolve today in the forms of Fab Labs and 'open hardware' communities. These digital tools – classed as 'intermediary' (Schumacher 1973), 'liberating' (Bookchin 1971), 'democratic' (Mumford 1964), 'convivial' (Illich 1973), and 'open' (Gorz 1979) tools, contribute to the questioning and repoliticization of the societal impact of technology in the face of the current monopoly enjoyed by digital giants (GAFAM, NATU, BATX)⁵ and the potential expert-technocratic pitfalls of surveillance and control systems.

We must consider this alternative of a social and ethical rationality alongside physical considerations. Cognitive exo-somatization is in essence a materialisation of the mind and cannot keep growing forever. In other words: the digital cannot exist *ex nihilo*. It relies on a collection of infrastructures and consumer networks of limited, non-renewable metals and energy resources,

5. Respectively: Google, Amazon, Facebook, Apple, Microsoft (GAFAM); Netflix, Airbnb, Tesla, Uber (NATU); and Baidu, Alibaba, Tencent, Xiaomi (BATX).

and therefore must inevitably decrease. Indeed, according to a synthesis report by a Transition thinktank, The Shift Project⁶, rapid digital development is generating a significant increase on our energy footprint. This footprint includes the energy needed for the manufacture and use of equipment (servers, networks, terminals) and has increased by 9% each year. Direct energy consumption per Euro invested in digital technology has increased by 37% since 2010. The impact of digital technology on ecosystems is not neutral either: making up 4% of global greenhouse gas emissions, it contributes almost as much as the aviation industry does to climate change (Climate Care 2018).

Metals, which are vital for the manufacture of digital equipment, are no longer renewable, as we have already exhausted the mines with the highest concentration of ores (Bardi 2014). This forms a vicious cycle of fossil fuels and finite minerals: less concentrated metal deposits require more energy (fossil fuels) to be mined, and less accessible fossil fuels require more metal to be extracted. The belief that a circular economy might resolve the problem of the availability of metals is misleading. It appears that not everything can be recycled; over the course of three use-cycles an average of 80% of resources are lost; the dispersive uses of metals (notably present in electronics) also prevent their re-use.

The issue, as Philippe Bihouix points out, is not of choosing between de-growth and growth, it is fundamentally about choosing between a sudden decrease or a selective decrease of our material consumption. The emphasis lies in reducing our needs, in decreasing demand. Taking the opposite approach Bihouix has popularised the term 'low-tech' (2020)⁷: for indispensable needs, we must create robust, reusable, non-polluting products, which are as simple and little polluting as possible. In this context, smart

6. See <https://theshiftproject.org/en/home/>

7. See also the Low Tech magazine at <https://solar.lowtechmagazine.com/2019/12/the-printed-website-is-complete.html>

cities, smart grids, and self-driving cars seem incompatible with a drastically reduced consumption of resources.

The above analyses lead us to a twofold diagnostic regarding the effect of technoscientific rationality on our institutions and collective choices. Firstly, it is necessary to discern which technological innovations correspond to our shared hopes for a desirable society and the well-being of all. This leads – or could lead – to the subordination of technological and economic solutions motivated by equity, durability, etc.⁸ Nevertheless, such a perspective may largely avoid the second part of this diagnostic, which draws attention to the high risks associated with relying on future high-tech solutions. Planetary limits force us to question the unsustainable ideology of techno-centric rationality, which is unsustainable and ignores the scarcity of resources. Transformation is culturally, economically, and politically necessary. This transformation requires lifestyle changes that will only be possible if we transform our collective representations of the good life. Therefore, we must connect our reflection on new professions in different sectors not only with technical and scientific competences, but also ‘soft’ competences, that is, competences that relate to shared transition narratives and demand developing the relational and collective capacities of a large range of actors.

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8. This relates to the ‘technocriticism’ embodied by thinkers as Lewis Mumford, Jacques Ellul and Neil.

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THE PRAXIS GATE: ACTING ON THE ISSUES AT STAKE



What should we do to bring about the Great Transition? What sort of action ought we to prioritise? There are many ecological paths before us, and each leads us along a different transition trajectory. We can find a non-exhaustive typology of these paths in the distinctions between: a) a reformist ecology, which brings progressive transformation to institutions and ways of life; b) a more radical political ecology, which pushes for revolutionary change; c) an ecology of individual gestures; d) a political ecology of social movements; e) a majority ecology, which aims to bring cohesion to a society and secessionist hopes for a reversion to autonomous bio-regions, etc. These distinctions are useful as they contribute to a reflexivity at the heart of their mindsets. In ecology, as in wider politics, pluralism is virtuous and must be defended. Pluralism does not necessarily imply a division of the efforts towards the Great Transition.

The ecological question is not an invention of the late 20th century; it has roots in the profound social transformation brought

about by the thermo-industrial revolution and colonial imperialism. Ecological movements exist, in a social and political landscape, shaped by a long history of political conflict and social movement struggles, through which societies have defended themselves from whatever trauma has been inflicted upon them. The emergence of ecology as a science in the 1970s brings with it a desire to change that landscape. The transformation of ways of life called for by environmental movements represents a radical upheaval at the core of modern society. This radicalism is nevertheless contested by certain trends in social criticism. The environmental question has thus created a political landscape in which different forces are at play. It is in this landscape that reconfigurations and new alliances between actors in the Great Transition will unfold.

If we wish to facilitate cooperation, we must first identify the different types of collective and individual actors, and their respective potential for transformation. We must also consider how to connect different levels of local, global, regional, and national action. Furthermore, the restructuring demanded by the ecological emergency does not begin with political abstraction, but is firmly rooted in profound changes to social and labour organisation. Although they place constraints on human activity, the aims of greater sustainability may present an opportunity to reevaluate the subjective and collective dimensions of labour, and to redefine the criteria by which we give social recognition to different professions. This redefinition is underway in contemporary social movements, which face the challenges as well as the possibilities posed by the convergence of social and environmental interests.

Actors and levels of action

The diverse range of actors can be classified in various ways: by levels of governance, both individual and collective, and by types of business, institution, and organisation. Identifying the different types of actors is, however, less important than analysing the new

alliances and cooperation that might bring these actors together with a view to moving towards the Great Transition. Which interactions and synergies can we establish between those actors who seem unable to work together? How can we change the nature of interactions between large institutions such as nation states, markets, or United Nations organisations? How can we circumnavigate the fractures within individual private and public identities, or the tensions between political and ethical convictions, and people's professional lives?

In France, the drafting of the duty of care law (2017) hints at the success – even if it is limited compared to original expectations – that can be found in the combined actions of different actors (e.g., NGOs, trade unions, and parliamentary organisations) in dialogue with universities and employer organisations. More generally, other new types of interaction are taking place between actors who previously communicated little. Activist organisations, NGOs, trade unions, political parties, and other collectives (such as environmental groups, universities, etc.) are working together and redefining the landscape of collective action in aid of the Great Transition. These groups of plural actors, both visible and emerging, represent a wide range of political aims and include: the 'gilets jaunes' movement (see Introduction) and environmental movements; student movements such as 'Pour un réveil écologique' ('For an ecological awakening'); interuniversity organisations such as the Campus de la Transition,¹ which created unprecedented links between higher education institutions, professionals, activists, public figures, and think tanks like *The Shift Project*.² The coordination of actions across different levels is met by three different sets of tensions, which we must attempt to resolve: tension between the local and global, the meeting of public and private, and the sectorisation of public policy and governance.

1. See <https://campus-transition.org/en/our-project>

2. See <https://theshiftproject.org/en/home>

Bringing together the local and the global

Given the slow nature of global environmental policy-making, some actors are tempted to focus on the local. The dynamism and diversity of local initiatives towards environmental and social transition stand in stark contrast to the inertia of global governance. The Great Transition is embodied in a wide range of complementary forms of collective action: places in transition, the Association for the Preservation of Rural Agriculture, participative habitats, cooperatives, farmers' networks, permaculture, etc. The opposition that exists between the global and the local is, however, untenable. This is because the respective evolution of levels of engagement and relationships between political powers are interdependent, both at local and global levels. In particular, the transformative potential of local and regional initiatives is contingent on national or global governments not opposing the formation and long-term implementation of these local reorganisations of modes of production and consumption.

The meeting of public and private

In contrast to 'government' (which exercises executive power through public institutions) 'governance' can include a range of private actors: businesses, NGOs, lobbies, foundations, etc. International environmental policymaking and regulation are therefore shaped by the negotiations and power relations between nation states and representatives from the private sector. When it comes to the environment, the relationship between the private and public spheres is largely shaped by mechanisms that defend private industrial interests. The opposition posed by industrial lobbies against environmental policy is a well-documented process across a range of sectors, such as climate, agriculture and health (Oreskes and Conway 2012).

Within environmental policymaking, the common interest is

largely represented by a pluralistic civil society, composed of groups of citizens, NGOs, indigenous peoples' rights movements and movements for climate justice. We might overcome the negative aspects of the alliance between private and public through construction of new cooperative initiatives with the civil society sector and companies that serve the common good, and for which we will need to draft new, internationally consistent regulations and constraints (cf. Gate Nomos).

De-sectoring without weakening

We have laid out the negative impact of a sectoral, compartmentalized approach in international and local governance. The schisms between climate, energy, and trade governance; the disparities between environmental and agricultural policy; the tensions at local level between economic development and the conservation of green spaces – all of these disparities and tensions cry out for a more coherent, intersectoral approach to environmental and climate politics.

Since the 1990s, sustainable development has carried the promise of de-sectorisation, aimed at achieving consensus between social, economic, and environmental objectives. The Sustainable Development Goals laid out in the 2030 Agenda made the necessity of an intersectoral approach clear.³ However, this has not come to pass. In the case of biodiversity governance, the move towards a greater intersectoral approach actually constituted a weakening in regulatory protections, and yet in spite of these difficulties, the return to purely sectoral politics could not give a proportional response to current global socio-ecological challenges. Cooperation between public political forces in the areas of climate, biodiversity,

3. See <https://sdgs.un.org/2030agenda>

energy, health, education, and agriculture is vital to the Great Transition.

Forms of social organization of labour

If we are to build the world of tomorrow through our labour, we must study in more detail how this labour might lead humanity to plant the seeds for a desirable future. We might consider three possible intersecting dimensions of work: a) the objective dimension, i.e., the nature of the product of labour and its impact on the world; b) the subjective dimension, i.e. how this labour is experienced and how it contributes to the human development of the worker; and c) the collective dimension, i.e. analysing how labour aids in building community. With regard to the objective dimension of labour, we need to re-evaluate forms of social organisation in light of social and environmental sustainability. Objectives generally set by businesses are not likely to resolve any key issues, not least of all because they do not aim to. It therefore seems essential to give new meaning to companies' ultimate ends. They must focus on the challenges currently faced by humanity. They must be centred around a coherent and well-argued narrative, which places businesses at the service of these ends (rather than the other way round).

The subjective value of labour must furthermore take a central role in the evaluation of its forms of social organisation. There are several elements that contribute to the subjective quality of labour. The sense of usefulness plays a large role, which explains the suffering of waged employees who are prevented from providing high-quality products or services because of the imperatives placed on speed and financial objectives. This also explains the suffering of those who work as 'planners' (Dujarier 2015) or are subjected to 'bullshit jobs' (Graeber 2019) – that is, jobs that can be both extremely well-paid and time-consuming but are not useful to

society or do not allow workers to express or develop their talents and flourish as human beings.

We must modify and reaffirm the social protection we afford to workers in response to neoliberal individualism. The last thirty years have seen the development of a more neoliberal, individualistic idea of labour, as well as a financialization of economic life and increasingly profit-driven businesses. This neoliberal individualism has been reinforced by digital tools that allow goods and services to be offered in an unmediated way. Under this principle, in which the worker no longer participates in collective progress and seeks only to maximise their own interests, a system of incentives and individual bonuses has been put in place to ensure maximum contribution. In a world in which the complexity and devolution of tasks is ever increasing, there is a growing risk that we will no longer be able to recognise the real contributions people make, and that we will instead favour mercenary attitudes to the detriment of more collective, sustainably minded, attitudes. At the same time, the wage gap has increased dramatically. A disproportionate wage gap (in business and in society at large) threatens to destroy the possibility that different social strata, who live in very different worlds, might feel part of the same community (cf. Gate Nomos).

A re-evaluation centred on the relational quality of labour would allow us to restore the primacy of 'living labour', as opposed to 'dead labour' (organizational rules, machines, compatibility systems, etc). This re-evaluation would require us to redefine the fixed objectives of workers and businesses, integrating sustainability, the beauty of products, and a balance between the needs and expectations of workers and product users, rather than solely focussing on profit (Coutrot 2018).

Transforming the social organisation of labour in favour of implementing the Great Transition demands re-evaluating and redistributing all the activities encompassed by the label of *care*. This includes any activity that maintains or preserves the lives of others, helps them to meet their basic needs, such as eating, bathing, resting, sleeping, feeling safe, and having time to pursue

their own interests. Re-evaluating and redistributing activities that relate to care will allow us to respond to the dependencies that impact us all and not only the most vulnerable within our society. Carrying out these activities, which are not held in high social esteem, often fall unequally on the shoulders of women, poorer people, and migrants (Folbre and Bittman 2004; Folbre 2012).⁴ By considering all the activities discussed, we would be able to get an idea of the scale of change needed for evaluating and valuing labour.

Professional skills

Not all professional activity is compatible with a respect for planetary boundaries. Some sectors and professions will need to be subject to an environmental conversion. This process will not only require the transformation of some jobs, but also the creation of many new jobs that serve the social and environmental transition. This vital reformation of education and work will have three key benefits: improving the ecological situation, creating jobs and improving working conditions.

New professional skills will be required. Carbon reduction in our economies and an increasing concern for the preservation of our ecosystems demand a prioritization and decompartmentalization of expertise and techniques. It demands a systemic approach and cooperative action guided by a common ethical goal. The aim is to create social cohesion, as well as goods. Professional skills are not limited to know-how, they are rather a combination of 'knowing how to act' (including expertise, know-how, and soft skills), 'wanting to act', and 'capacity for action' (Grandjean and Le Teno 2014). The notion of 'skills' therefore encompasses ability, personal qualities,

4. See also the work of UN Women about unpaid work, and how the COVID-19 pandemic has put a higher burden on women, <https://data.unwomen.org/publications/whose-time-care-unpaid-care-and-domestic-work-during-covid-19>

and the expertise acquired through education. We ought to teach the skills needed for the environmental and social transition not only to children, but to workers of all ages who, voluntarily or involuntarily, participate in the process of professional conversion.⁵

Individual and collective action

The Transition is built upon different types of action which target distinct sectors of society. These types of action can be individual or collective, but isolated individuals cannot constitute vectors for change. In this sense, these different types of action can only be fully understood by considering the intersections between individual and collective responsibilities, and locating individual actions within the social structures and institutions in which they take place.

Within this framework, one of the first issues we encounter is that of identifying the potential of individual actions versus the potential of the actions of large institutions (i.e. nation states and businesses). A nuanced approach is needed due to the different scale of transformation required in different sectors with regard to climate change. If we are to identify general objectives, we might first look to individual carbon footprints. In 2019, the average carbon footprint of a French citizen was 10.8 tCO₂e, spread over the five sectors of travel, housing, goods and services, food, and public services and investment. In order to meet the Paris Agreement objectives, the average carbon footprint for each French citizen must be reduced to 2 tCO₂e.

Individual actions have a considerable role to play in all this, even if they are not sufficient to bring about the Transition by

5. See for example the UNESCO project 'Education for Sustainable Futures' at <http://www.unesco.org/new/en/rio-20/educating-for-a-sustainable-future>. For a discussion on Education for Sustainable Development, see Tikly (2020).

themselves. The estimates established by the Carbone 4 consulting firm are easy to understand:⁶ a change in individual behaviours could represent 25% of the reduction in greenhouse gas emissions needed to meet the Paris Agreement. In terms of individual actions, there is a third, striking order of scale, concerning the relationship between carbon emissions and standard of living. According to Chancel and Piketty (2015), the correlation between living standards and CO₂ emissions in France varies from 1 to 4 for the poorest 10%, to 8 for the richest 10% – that is, the higher the living standard, the higher the CO₂ emissions.

From a global perspective, the measurement of large-scale indicators of energy consumption and greenhouse gas emissions allows us to identify individual and collective action in wider trends and to make strategic adjustments according to changing circumstances. The year 2020, marked by the COVID-19 pandemic, could turn out to be decisive in this regard, as the reduction in economic activity in 2020 was clearly linked to a reduction in energy consumption and greenhouse gas emissions. Viewing this as a silver lining to the crisis would, however, be premature, as this reduction is the direct result of a decline in activities that, without profound economic transformation, may rebound in 2021. Nevertheless, these figures highlight the decisive nature of the years 2020–2025, as current plans for a resumption of economic activity present an opportunity – perhaps our last opportunity – to limit damage to a 2° C increase in global temperature.

Researchers' engagement

In the face of environmental upheaval, scientists have become more aware of their social responsibility. This recognition of the position of science in society is leading scientists to examine the ethical

6. See <https://www.carbone4.com/?lang=en>

issues and epistemological assumptions of their research. The acceleration and worsening of environmental degradation, particularly in the cases of climate change and biodiversity loss, only served to reinforce this conundrum. In the face of climate regulation, to borrow an expression from Bruno Latour (2017), climatologists are 'on the warpath'. While the suitability of the military metaphor might be debatable, it is accurate in the sense of mobilisation it portrays. More widely, this metaphor encompasses all disciplines of life, including natural, human, and social sciences.

Ecologists are not excluded from this, due to the accelerated loss of biodiversity, and they are in fact, examining how to best carry out ecological research and action in defence of ecosystems and biodiversity. This period of scientific reflection is also a chance to question some epistemological dogmas (Kotcher et al. 2017). Is neutrality the sole guarantee of good science? Should we not rather prioritise impartiality, which does not preclude action, and can then lead to forging new connections between academics and activists. Scholars and activists have always co-existed, but the explicit engagement of researchers as merely researchers (rather than as individuals) in activist movements like *Extinction Rebellion*, is a notable phenomenon.⁷

The current institutional landscape does not provide fertile ground for researchers to reflect on their roles in society, structured as it is by a top-down model of science. When faced with ecological challenges, the role of scientists would be to find technological responses that are developed through fundamental research. This 'technical solutionism' is a powerful, hard-to-break habit, as it carries with it the promise of recovery from a crisis without questioning the means of production and consumption at

7. See <https://extinctionrebellion.uk>. See for example the involvement of academic and philosopher Rupert Read in the movement at <https://rupertread.net>; or the academic and psychology Colin Davis at <https://extinctionrebellion.uk/2021/02/01/colin-davis-50-professor-of-psychology-from-bristol>.

the heart of the problem. These technological promises are central to debates around energy transition and climate change, suggesting solutions in the areas of geo-engineering, agricultural transition and health (bio- and nanotechnologies and transhumanism).

This technology-centred ideology is far from being politically neutral, as it is couched above all in a belief in the virtues of competition. The idea that humanity's salvation lies in its ability to innovate legitimizes public policies, particularly education and research policies, that disproportionately allocate financial resources to some research clusters rather than others. This doctrine is incompatible with a strategy that relies on broad cooperation between scientific actors and, more generally, all members of society.

Disputes, conflicts and social movements

Environmental action requires new cooperation between different actors and at all levels. However, this often leads to discord between activists and those with conflicting vested interests. Action can thus transform political institutions at a constitutional level, or through creating and implementing institutional tools that favour participatory democracy, such as shared initiative referenda, citizens' proposals, and citizens' conventions on climate (Devaney et al. 2020; Santos 2007). Some collective action comes in the shape of an affirmation for self-determination, embodied by the formation of collectives to explore new ways of living together in shared territories. Other types of action might seek to use traditional political and social methods, like roadblocks, strikes, or advocacy. These various paths are embodied in disputes, socio-environmental conflicts, and social movements.

The current default mechanisms of our political systems and economic markets are inadequate when faced with the scale, gravity, and irreversibility of the risks faced by our planet. Thus, a growing number of civil society actors have become invested in

legal forms of dispute, leading to an increase in lawsuits filed against nation states, local authorities or multinational corporations, reproaching them for their inaction or insufficient ambition in environmental policy, and sometimes demanding reparations. Flagship cases, such as the *Erika* in France, the *Bello Monte* in Brasil, *Deep Water* in the US, *Shell* in Nigeria and Holland, the *Probo Koala* in the Ivory Coast, *Chevron* in Ecuador and the US,⁸ and *Exxon* in the US, demonstrate the number and range of environmental lawsuits that take place across all jurisdictions.

The world today is a battlefield in which several interest groups are pitted against one other, from the 'super rich' minority to the poorest on the planet (Keucheyan 2016). These conflicts are an expression of the global fragmentation that stands in the way of research for the common good. Nevertheless, these struggles can give way to groups that defend the Earth or lead to new ways of living in protecting the commons.

As these groups largely work on a local level, their struggles are not always in the public eye. The Atlas of Environmental Justice project is a tool that maps all the places on Earth where communities are fighting to defend their land, water, air, and forests, which are threatened by large-scale projects or extractive activities with social and environmental impacts (Temper, Del Bene and Martinez-Alier 2015).⁹ The data collected from this project highlight the diversity of types of action, and show whether or not these communities have legal support. However, it seems that these socio-environmental movements are often violently suppressed, particularly when they involve indigenous communities.¹⁰

Social movements in favour of environmental action have existed for over fifty years. These movements have primarily relied on legal

8. See the 'Campaign for Justice in Ecuador' at <https://chevrontoxico.com>

9. See <https://ejatlas.org>

10. See <https://www.globalwitness.org/en/campaigns/environmental-activists/>

action to oppose harm to the environment. Although these methods have obtained results, the general feeling regarding activist movements is that they have been insufficient. This failure highlights the key but often little explored question of employing strategies such as – the use of non-legal action (roadblocks, sabotage, destruction) or the role of (non)-violence within environmentalist movements.

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THE DUNAMIS GATE: RECONNECTING WITH THE SELF, OTHERS, AND NATURE



The Great Transition forces each and every citizen to confront the implications, impact and meaning of their personal choices. What sort of food should we eat? Which means of transport should we use? Which careers and leisure activities should we pursue? How can we live and act justly in a world with an uncertain future without being overwhelmed by a sense of crushing responsibility, a feeling of powerlessness, and a realisation that the measures we are taking are not enough? These questions are different for those who are already impacted by instability or poverty, and are susceptible to being more severely impacted by the consequences of socio-ecological crises – the COVID-19 global pandemic has demonstrated this clearly. Given that current responses to address and reverse global socio-ecological trends have failed there is the risk that individual and collective action may lose meaning. The Transition demands that we re-examine our relationships with the world, with others, and with nature.

Our increasingly urbanised lifestyles have made us collectively interdependent and fragile. We must now more than ever recognise the vulnerability of our existence, and of our ecosystems and institutions, in order to find pathways to resilience at a global scale. This recognition leads us to explore these interdependencies, from eco-psychological angles, through ethical reflection and practice, and through spiritual experience in a broader sense. This is also an invitation to open ourselves to interiority and otherness in a world marked by absurdity, violence, suffering, power struggles and conflicts of interest. The recognition of our interdependence demands a collective ethical and political reflection in order to inform the economic, social, and cultural transformation of our societies. This perspective is fundamentally educational, as it guides all of us from this state of instability and imbalance towards more certain, viable paths, leaving no one behind.

Contemporary societies have been subject to several forms of technological and social acceleration, which have impacted the rhythm of daily life (cf. Oikos Gate). For example, it now only takes two hours to reach Bordeaux from Paris by rail, when fifty years ago it would have taken a full day. We can communicate instantly with our colleagues, friends, and family members for free, even if they are thousands of miles away. We are bombarded by emails which demand increasingly rapid responses. This acceleration has had consequences for our relationships with space and our living environments.

The idea of progress inherent to a culture that places a high value on human transformative action has led to the domestication, even domination, of nature. Growing urbanisation has led to the further control of space and living environments. UN Habitat (2020: 11) estimates that 54% of the global population lives in urban areas today. This figure is expected to rise to 62% in 2036. The environmental transformation that has been brought about by humans has disrupted our societies and exacerbated existing structural injustices. Numerous ongoing conflicts across the planet are linked to the grabbing of coveted natural resources: water, fossil

fuels, minerals, etc. In Ethiopia, for instance, competition for access to land and water has exacerbated ethnic conflicts. Many countries that are rich in natural resources are undemocratic and fraught with vast inequalities. This reality, especially in the case of countries rich in oil and rare minerals, like the Democratic Republic of Congo, Angola, and Nigeria, has been referred to as ‘the resource curse’ (Bebbington et al. 2018; Humphreys, Sachs and Stiglitz 2007; Sala-i-Martin and Subramanian 2003). In addition to the socioeconomic and political issues that result from the exploitation of natural resources, these nations also suffer harm to their environment as well as to their citizens, which Corporate Social Responsibility policies do nothing to address (Frynas 2009). The exploitation of natural resources causes suffering and negatively impacts the quality of life of the poorest and most vulnerable in society.

From resilience to transformability

These disruptions, which impact both human and non-human lives, point to the need to prioritize forms of collective resilience. In mechanical physics, ‘resilience’ designates the elasticity and shock resistance of a material and the ability to endure change. Defined literally as ‘an ability to bounce back’ or to ‘return to its original state’, the notion of resilience was first used in engineering, ecology, and developmental psychology in the 1960s and 1970s. It is today widely used in international development and policy circles (Béné et al. 2013) and the concept of resilience has become a sort of catchphrase, used for a variety of purposes. Resilience can only be measured by clearly identified disturbances that occur within a short period of time (‘Resilience of what to what?’). As a result, it is impossible to study long-term resilience to processes, such as climate change, outside of extreme, definite, disturbances that happen over time (droughts, floods, heat waves). In this context, resilience is being progressively replaced by a new notion: that

of *transformability* along with a variant of the same notion, *transformative capacity* (Bermejo 2014). Originally seen as an extension of the concepts of robustness, resilience, and homeostasis (i.e. a system's ability to maintain internal balance), this new term suggests a reorganisation of complex systems in response to heavy impact, and the resulting internal change of its own systems.

Resilience should not only be thought about in relation to the countries and socio-ecosystems of the global South, as is often the case, but also applies to regions in the global North. We must look at the conditions for transformation and adaptation underway in our own countries in order to avoid remaining in a logic centred on the effects on the poorest developing countries, as this could be used to justify an inertia towards necessary lifestyle changes. Methods for change exist across different levels of society, notably through networks created by actors across the planet, of which the 'transition towns' movement is just one example (Hopkins 2011).¹

Ecopsychology

Our economic models and their associated ways of life overstimulate some aspects of personal development, to the detriment of others. *Homo economicus*, which maximises its utility and possesses seemingly infinite needs, is encountering its own limits, both individually and collectively. The desire to accumulate material goods and the thirst for more (symptomatic of the ills of our societies) are ways of masking the twofold anguish of human existence – the anguish of death and the anguish of finitude (Arnsperger 2011). This addictive habit of capitalist societies creates unsustainable dependencies and lifestyles, all while contributing to

1. See the Transition Towns Network in the UK at <https://transitionnetwork.org>

the weakening and damaging of the common good (Sandel 2012, 2020). The usual psychological approaches that centre on the healing and well-being of the individual as an autonomous being do not address the root issues. They do not account for the fact that a patient's symptoms are often symptoms of the structural ills of self-centred, consumerist societies, and a poorly adjusted, destructive relationship to nature.

Ecopsychology is today a well-developed field of study (Macy and Johnstone 2012, Roszak 2001, Sabini 2002, Shepard 1998). It was preceded by Jung's studies in the relationship between humans and nature, and in the great myths and symbols that construct our shared conceptions of what it is to be human. As sociologist Michel-Maxime Egger (2016) writes, 'for ecopsychologists, maturity [...] assumes the ability to live at once in unity and plurality. It suggests three complementary elements. *First*, an acute consciousness of our personal identity and that which distinguishes us from others. *Second*, a sense of belonging to the fabric of life, intertwined with the lives of all other beings. Identity is not only the increasingly defined emergence of a personal singularity, but an increasingly elaborate composition of relationships between the person and others, both human and non-human. *Third*, an understanding and acceptance of our own limits, in particular in our relationship to nature. Nature exists as both partner and fundamental complement to our social relationships, and not simply an exterior reality, a stock of resources, or a refuge.'

The concept of 'resonance', recently developed by Harmut Rosa (2019), refers to the search for a life in tune with nature and others, notably in the form of a rapport with the world that is deprived of true relationships or significant interaction with others, whether profession, family, or social life, etc.

Reconnecting with the living world through the ethics of nature

Numerous philosophical schools of thought have insisted on a firm

distinction between humans and all other living beings. Kant invited his readers to recognise the intrinsic dignity of individual human beings, who differ from 'things' on which one can confer a price (cf. Ethos Gate). This approach allows us to criticise the ways in which human beings can be manipulated, marginalised, and reduced to servitude, etc. However, such an approach contains a predatory and destructive logic and does not serve us when trying to combat the exploitation of nature and living beings. An ethics of nature has emerged over the last few decades, which focuses on the relationship between humanity and nature and considers the moral duty we hold to all living beings (cf. Ethos Gate). This ethical system ascribes a moral value to: non-human living beings – sentient animals (for those who favour a patho-centric approach); living beings – humans, animals, plants, micro-organisms (for those who favour a biocentric approach); and biotic communities, including the very cosmos itself (for those who favour an eco-centric system, and who demand that all living beings are considered not only as individuals, but as indivisible parts of a whole).

All of these approaches reject the anthropocentrism of Western religion and philosophy. There remains a tension, however, among debates concerning the dualism of humanity and nature. Must we invert this dualism in order to ascribe more value to nature? Or must we do away with it altogether and consider instead humans as simply part of nature? Less anthropo-centric ethics, as well as bio-centric, patho-centric, and eco-centric ethics, propose different responses to this question. But they share a common goal of encouraging more respectful practices towards living beings and their environments.

The aforementioned ethical systems lead us to criticise the modes of production and lifestyles, and the idea of a substitutability of means for social and economic development that underpin them. These criticisms call for a 'strong sustainability,' as opposed to a 'weak sustainability,' as theorised by economist Robert Solow and inspired by utilitarian logic (Neumayer 2010). In fact, one form of utilitarianism, centred in the idea of maximising utility, can lead

to a focus on monetized, aggregated figures, but does not account for the damage to the environment which might result from wealth creation. If we adopt the idea of strong sustainability, we can recognise the constitutive value of nature and the physical, biological, and ecological resources of a given place. This concept has direct consequences for our actions and lifestyles: the only wealth creation that is possible is the one compatible with the preservation of ecosystems and the living integrity of the natural and cultural environments that humanity inhabits.

Towards a new relationship with nature in the West?

We can see that the present-day debates around the philosophy of nature and ecology in the West are a result of our existing intellectual traditions. As anthropologist Philippe Descola (2013) demonstrated, these debates are an expression of a worldview and a naturalist ontology which is only one among many possible worldviews. He defines four large-scale schemas by similarities and/or differences between what he calls the *physicalities* (physical characteristics) and the *interiorities* (spirit, psyche): animism, totemism, analogism, and naturalism. Each of these schemas represents a general mode of classifying creatures. Naturalism connects us to non-humans through material continuities, and differentiates us from them due to our cultural aptitudes. Animism gives non-humans human characteristics, but differentiates us from them because of our bodies. Totemism emphasises the material and moral continuity between humans and non-humans. Analogism suggests that all elements of the world are connected through a network of discontinuities, structured by relationships of correspondence.

These concepts give rise to different cosmologies, i.e., understandings of the origin and structure of the universe, different models of social bonding, identity and alterity, and different theories about the relationship to the self and to the other. Each

of these large-scale schemas can also contain diverse types of relations between beings, whether the relationship is one of exchange, predation, giving, production, protection, or transmission. The Western naturalist understanding tempts us to draw a clear line between what is deemed rational or irrational within the context of the same culture. Descola (2013: 159) gives the example of a magical incantation sung by Achuar hunters in the Amazon basin of Ecuador during the hunt: the hunters sing a plea, intended to lure their intended game and dispel its mistrust. This could be interpreted in a range of ways: 'It is not operative as it would be performative [...] it is operative in categorizing and effecting the relationship which exists in that given moment between a specific man and a specific animal: it calls to mind the existing connections between the hunter and the members of a species, [...] it highlights the connections between the parties present.' Naturalist ontology would understand this animist perspective as irrational, and yet it communicates a particular understanding of the relationships between living beings, which take on a range of modalities. Some are intrinsically violent and predatory, and others oriented towards cooperation and solidarity.

The cultural and spiritual tools of the Transition

The environmental question therefore requires us to reconsider the relationship between human beings and nature. Environmental issues demand a critique of the naturalist tendencies of our representations, which seek to develop a coherent and unified vision of the world through knowledge gained from the natural sciences. The naturalist perspective is linked to a fixed understanding of nature, founded on scientific findings disconnected from all hermeneutic or metaphysical perspectives. Such a perspective shows little awareness of the diversity of narratives and interpretations of the world, life, the living environment, etc. Approaches that are cognisant of the

interdependencies at the heart of the cosmos lead to criticism of the artificialisation of nature through, for example, geo-engineering, which does away with limits and only seeks to solve part of the problem while ignoring the consequences for the whole.

Ethical questioning can encourage us to better identify ways of overcoming the predatory attitudes linked to this dualist understanding. Perhaps, then, it is through considering ecological issues and the desire to save humanity that we might come to a convergence between different cultural and religious traditions and human wisdoms. These traditions and wisdoms could well come together in a common effort to resist the destruction of ecosystems and to respect life and living beings.

Concentrating on ethical questioning invites us to explore how societies might mobilise the symbolic, critical, and practical resources of their traditions to bring about necessary changes to economic models and unsustainable ways of life. The foundations of liberal democracies must be called into question. They are in 'eschatological breakdown' and make no reference to the principles that guide our collective actions and give them a sense of meaning: we do not trust any grand narratives that may carry potential totalitarian aspirations. Our reliance on science and technology has contributed to what Max Weber calls the 'disenchantment of the world'. The ecological crisis confronts us with our responsibility for the maintenance of hospitable living conditions for humans and all living beings for centuries to come. Actions and projects of ecological transition, in all societies, bring to light the spiritual and ethical means and ends of our political project, thus opening up new, fruitful avenues for civic engagement. There is no one ethical system specifically suited to ecology. Such an ethical system can be sought in diverse forms, in diverse traditions, religions, and cultures.

Humanity's diverse traditions, open to both internal and external critique, allow us to define a relational anthropology, capable of supporting the political project of transition. These traditions provide us with both symbolic and critical tools. Meaning is not

fixed. Interpretation of these traditions can allow for the invention of new, more frugal, and united ways of life, in accord with the demands of the ecological transition.

In almost all human spiritual traditions (Judaism, Christianity, Islam, Hinduism, Buddhism, Taoism, Confucianism) there is a critical component, a shared golden rule: 'Treat others as you would wish to be treated', or 'Do not do to others what you would not want them to do to you'. This rule invites us to consider others as we do ourselves, and to constantly consider the effects of our words and actions on others by putting ourselves in their shoes. In its prohibitive formulation, this rule corresponds to the principle 'do no harm'. Its positive formulation is open to wider interpretation of a duty towards others. In either case, the golden rule places a relationship to the other at the very heart of the human condition.

No religion guarantees a relationship with nature suitable for assuring the survival of future generations; non-denominational perspectives can make powerful contributions to the meaning of human existence. In a world in which religious beliefs are often polarising – largely non-confessional in the West and firmly structured by religious leaders in other regions of the world – the common ethical and spiritual struggle for solidarity and a respect for creation might serve to unite individuals and groups of different faiths and convictions.

How can we move into the future?

How can we take steps towards the future when it is marked by radical uncertainty, as well as risks and threats to the survival of portions of the global population? Thinkers like Günther Anders, Karl Jaspers, and Hans Jonas have all made reference in their work to the Apocalypse (Afeissa 2014). They consider the era of the atom bomb as the beginning of the end times, marked by the unprecedented possibility of total war and the annihilation of humanity. The term 'apocalypse' is used frequently nowadays to

describe the chaos that will come if our societies continue with the madness of extractivism, productivism, and consumerism. These perspectives are particularly notable in writings on ‘collapsology’, the study of collapse. Collapsology has gained a lot of traction in Western countries in recent years, particularly in France. It is defined by Servigne and Stevens (2015) as ‘the transdisciplinary practice of the study of the collapse of our industrial society, and of that which might follow it, based on the cognitive modes of reason and intuition and on recognised scientific works’ (see also Servigne, Stevens and Chapelle 2021).

This movement is plural and open to different interpretations. Some conceive of collapse as imminent and consider it to be too late to avert the deadly trajectories of our societies. Yet this catastrophism is just as likely to lead to withdrawal, collective inertia, and an outpouring of egocentric passions, as it is to lead to initiatives that anticipate and prepare for a chain of disasters (see above on resilience). There have been several publications in support of an anthropological and ontological conception that prioritises the resources of solidarity and mutual aid inherent to all human beings (Servigne and Chapelle 2019). This position stands in stark opposition to the idea that competition is a primary force in all human relations.

Collapsology has been criticised both for its lack of foundation and certitude regarding the nature of the collapse to come (Orlov 2011), as well as for its largely apolitical character. Faced with this critique, many thinkers of collapsology defend their position by arguing that other ways of living together, and other societal projects, economic models and existential attitudes are possible (Servigne, Stevens and Chapelle 2021), and that we must understand ourselves as being simultaneously at a point of rupture and at a crossroads when it comes to our current ways of life (Wright 2010, 2013). Another proposal is that we look at existing institutions in order to see what reforms can be made to change course as much as possible: to direct investments towards the sectors that are vital

to the ecological transition and to support/compensate the most threatened populations.

These reflections and proposed actions remind citizens of their collective and individual responsibilities. They also raise a question: how can we envision both possible disaster and future hope in a way that allows us to avoid or mitigate disaster and bring about a desirable future (Sharpe 2013)?

The issue of collective discernment

We have chosen to use the term *discernment*, which comes from the Greek term *krisis* (judgement) and the Latin term *discernere* (to separate). Discernment, as we can see from these two initial meanings, is about distinguishing, discriminating, and making sound assessments. The term is used in ethics and spirituality to refer to a critical thinking exercise, and in some religions, notably in Christianity, to refer to an active and receptive search for the work of God's will in the context of History (Liebert 2008, Orsy 2020). In a non-denominational context, 'discernment' is a process that demands the analysis of a situation, the formulation of a question or a problem in need of judgement or decision, a process of deliberation, and a final decision. We will need to develop an individual and collective discernment if we are to make the shared decisions that are needed to implement an ecological and social transition. Exercising discernment at a smaller scale might also train citizens to make larger-scale discernments and thus stimulate the search for the conditions needed for ecological democracies (cf. Gate Nomos).

In social contexts characterised by injustice, inequality, and power struggles, the liberal perspective seeks to ensure that everyone can participate in discussion, and orient decisions towards a fairer distribution of resources or a greater contribution to the collective good. There are three conditions needed for collective decision-making: 1) a deliberating body; 2) the preclusion

of reneging on a decision (one needs to commit to what has been decided); 3) an appropriate process for examining and selecting options.

This raises the question: which methods are best suited to decisions that guide collective behaviour at different levels (Sen 2017)? An insistence on deliberation prioritises analysis and debate. It recognises the interdependence at the heart of the human condition and rejects the illusion of an all-powerful overseer dictating collective choices. This approach does, however, pose other problems: actual decision-making processes do not reflect ideal decision-making processes. Decisions are often made by one part of the population (e.g., national debates on some subjects largely involve white, educated men of a certain age); not everyone has the same capacity for debate, and multiple biases exist. Furthermore, these processes are often linked to a perspective that relies on the aggregation of individual decisions – it is not clear whether these processes are able to account for issues of collective belonging. There is also no guarantee that the meeting of individual intelligences will lead to collective intelligence.

There are also many group effects to account for. For example, the poor mobilisation of French public powers at the start of the COVID-19 pandemic may in part be explained by the precedent set by the 2002–2003 SARS crisis. Societal and political commitments that promote structural transformation are not simply matters of good dialogue practices, they are impacted by multiple issues of shared living and individual and collective passions.

How can we, therefore, prioritise collective approaches that are well-adapted to institutional transformation? These approaches ought to be guided by the following principles that reflect the aims of a social and ecological transition: a) the desire to recognise collective responsibility (Young 2011); b) the search for individual emancipation and collective empowerment (Walzer 2015); c) the desire to empower the most vulnerable members of society at all stages of the process (Freire 2013), and finally, d) the desire to allow wider participation through more just structures.

The vision of education for the Transition

The ecological and social transition requires collective education, and new approaches to both formal learning and life-long civic education. The broad vision presented in this Guide promotes an education that allows each person to choose their own path for partaking in and contributing to shared ends. This vision is anchored in a relational understanding, that considers every person as an individual and in relation to others, immersed in natural and cultural living environments, within a wider universe.

We have defined six different pedagogical axes and competencies, as represented by the six gates of this common framework:

- *Systems thinking (Oikos)*
- *Ethics and responsibility (Ethos)*
- *Changing mental models (Nomos)*
- *Shared images and narratives (Logos)*
- *Collective learning and action (Praxis)*
- *Sense of self and connection to others (Dunamis)*

The six gates of this Guide aim to set out competencies, knowledge, and actions in connection to principles and attitudes. From a pedagogical research perspective, and in light of transformations in our institutions and lifestyles, they can be read alongside works of other forums working towards education for sustainable development such as UNESCO's Future of Education: Learning to Become, which is 'a global initiative to reimagine how knowledge and learning can shape the future of humanity and the planet'.²

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2. See <https://en.unesco.org/futuresofeducation>

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Inhabiting a shared world

The Oikos gate discusses our common home, planet Earth. We need to understand how it works, and measure its limits in order to explore new ways of living together on a shared planet.

Discernment and decision-making for collective and collaborative well-being



The Ethos gate invites us to consider the ethical and political challenges of the Great Transition.

Measuring, regulating, governing

The Nomos gate examines questions of how to measure, regulate and govern the Great Transition.



Acting on the issues at stake

The Praxis gate discusses fields of action, the variety of actors involved, and collective and individual courses of action.

Reconnecting with the self, others, and nature

The Dunamis gate explores ways of reconnecting with oneself, others and nature.

