



AN ASSESSMENT OF POLICY COHERENCE AND CONFLICTS FOR WATER AND ENVIRONMENTAL MANAGEMENT

A REPORT TO THE WATER FORUM

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1 CONTEXT AND RELEVANCE OF THE RESEARCH

The scope of environmental policy keeps growing

Public action to protect the environment is a relatively recent endeavour: it started to emerge in the 70's, resulting from a growing awareness that human activities' impact on the environment could be harmful for human health and the thriving of societies. The 1972 Stockholm summit, where environmental issues were first debated at global level, is recognized as a landmark in this regard: it prompted countries to create ministries and agencies dedicated to environmental management and to start developing legislation and regulations addressing the most pressing issues such as industrial pollutions.

From this starting point, the field of "environmental policy" has considerably expanded. Measures aimed at protecting natural resources and the various features of a "healthy" environment (a stable climate, clean waters, a flourishing biodiversity...) have been progressively incorporated into an ever larger swath of public intervention, both through dedicated environmental legislation and more generic, cross-cutting instruments – frameworks, guidelines, rules of operation, etc.

As a result of such development, **there exists today a myriad of policies and entities concerned, to some extent and at some level, with addressing environmental issues**, to the point where mapping them out exhaustively appears both out of reach and pointless. In fact, the mere categorization of environmental policies demonstrates the challenge of delineating its scope, given the many different criteria that ought to be considered.

► *An attempt at categorizing environmental policies*

Criteria	Categories
Scale of application	International – regional (EU) – national - local
Environmental component	Air, climate, water, biodiversity, soil, ...
Type of pressures	Physical pressures (soil sealing, infrastructure development...) Resources consumption (water abstraction, quarrying...) Emissions (solid/hazardous waste, sewage, toxic chemicals, etc....)
Actors targeted	Type : public bodies, businesses, general public Sectors : industries, agriculture, ...
Policy instruments	Governance arrangements Regulations : standards, authorisations, ... Market instruments : emissions rights, cap and trade,... Incentives : direct subsidies, support to innovation, ...

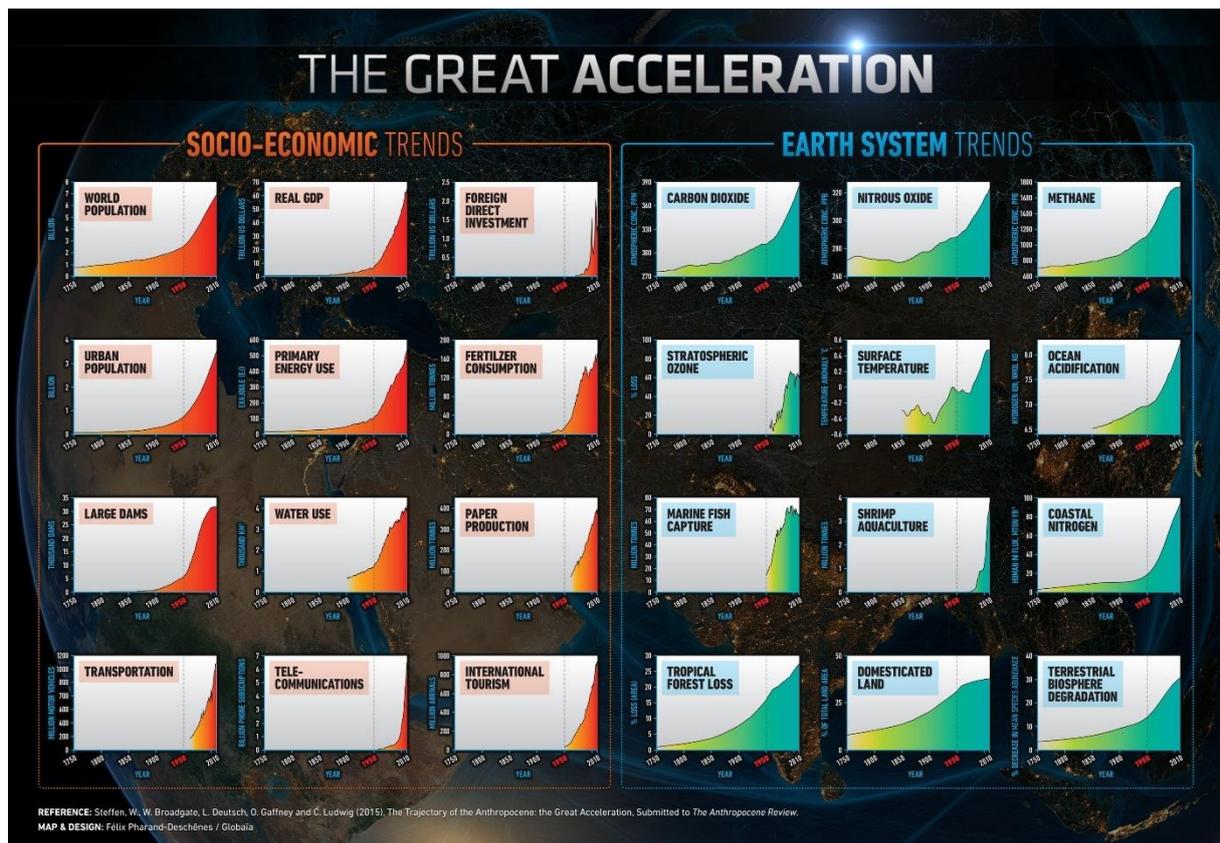
Yet our environment keeps deteriorating

In October 2021, the UN Human Rights Council's took a landmark resolution (48/13) recognising for the first time that having a clean, healthy and sustainable environment is indeed a human right; and

called on States to work together and with partners to take “bold actions” in order to give “prompt and real effect” to¹. This call was sadly an implicit indication that this is not the case to date.²

In fact, the take-off and **dramatic increase in human activities** since the second half of the 20th century has had profound and wide-ranging impacts on the environment. The transformation induced by what has become known as the “Great Acceleration” (Steffen *et al.*, 2015) and the pervasive crisis resulting from it are now widely acknowledged.

► **Evolution of key indicators of the functioning of the Earth system**



Source: International Geosphere-Biosphere Programme (IGBP)³

Yet there is a **growing discrepancy** between the calls for actions, the ambitions displayed by policymakers and the results achieved in attempting to reverse these trends. Abundant data illustrate that, despite a vigorous stance from international institutions and national governments on the need for environmental protection, pressures and impacts are still on the rise both at local and global level.

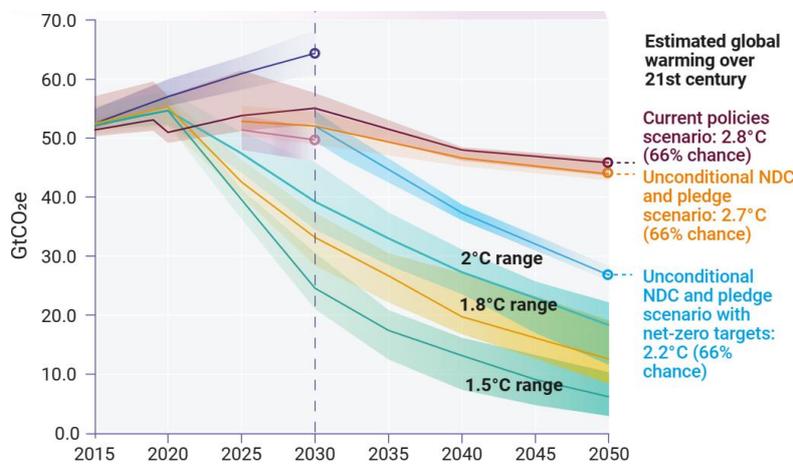
¹ <https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=27635&LangID=E>

² Even though, The Stockholm Declaration placed environmental issues at the forefront of international concerns half a century ago (1972), already making the link between economic growth, the pollution of the air, water, and oceans and the well-being of people around the world, cf. <https://www.un.org/en/conferences/environment/stockholm1972>

³ Retrieved from <http://www.igbp.net/news/features/features/apersonalnoteonigbpandthesocialsciences.5.950c2fa1495db7081e18757.html>

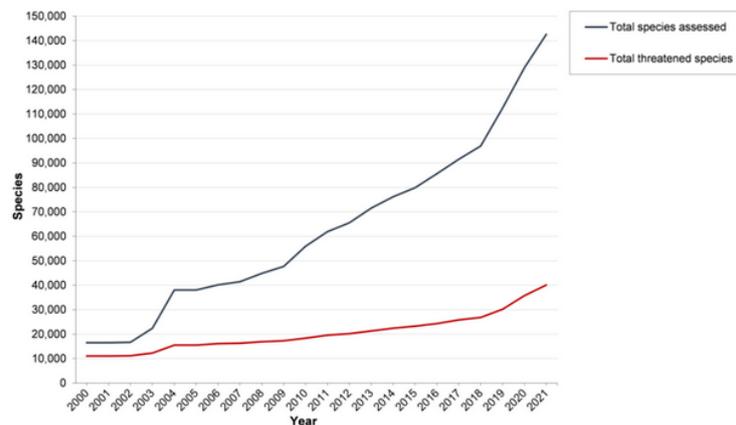
- Close to twenty years after the adoption of the Water Framework Directive, only 41 % of European rivers presented a high or good status⁴; while Ireland is in a better situation than most countries in this regard, the status of its waterbodies is showing a negative trend.
- The UN Emissions Gap report (UNEP 2021) raises alarm, year after year, about the fact that the commitments to curb emissions are not ambitious enough; and much worse, are not honoured by most countries so that emissions are still rising. Yet, setting and meeting near-term targets is critical to effectively embark on the path towards carbon neutrality while further delay in taking action amounts to deferring the efforts to contain global warming (and/or the consequences of failing to do so) on future generations.
- Scientists have alerted for years that a 6th mass extinction of biodiversity was looming, and most likely underway (Ceballos, Ehrlich & Raven, 2020; Cowie, Bouchet & Fontaine, 2022), driven by destruction and fragmentation of habitats, direct exploitation (fishing and hunting), pollutions and invasive species, all aggravated by global warming; yet the rate of threatened species has never ceased growing.

► **The challenge of reversing trends**



Trends in emissions are way off the trajectories to meet carbon neutrality commitments

Source : (UNEP 2021)



The increasing number of threatened species will result in more extinction to come.

Source :

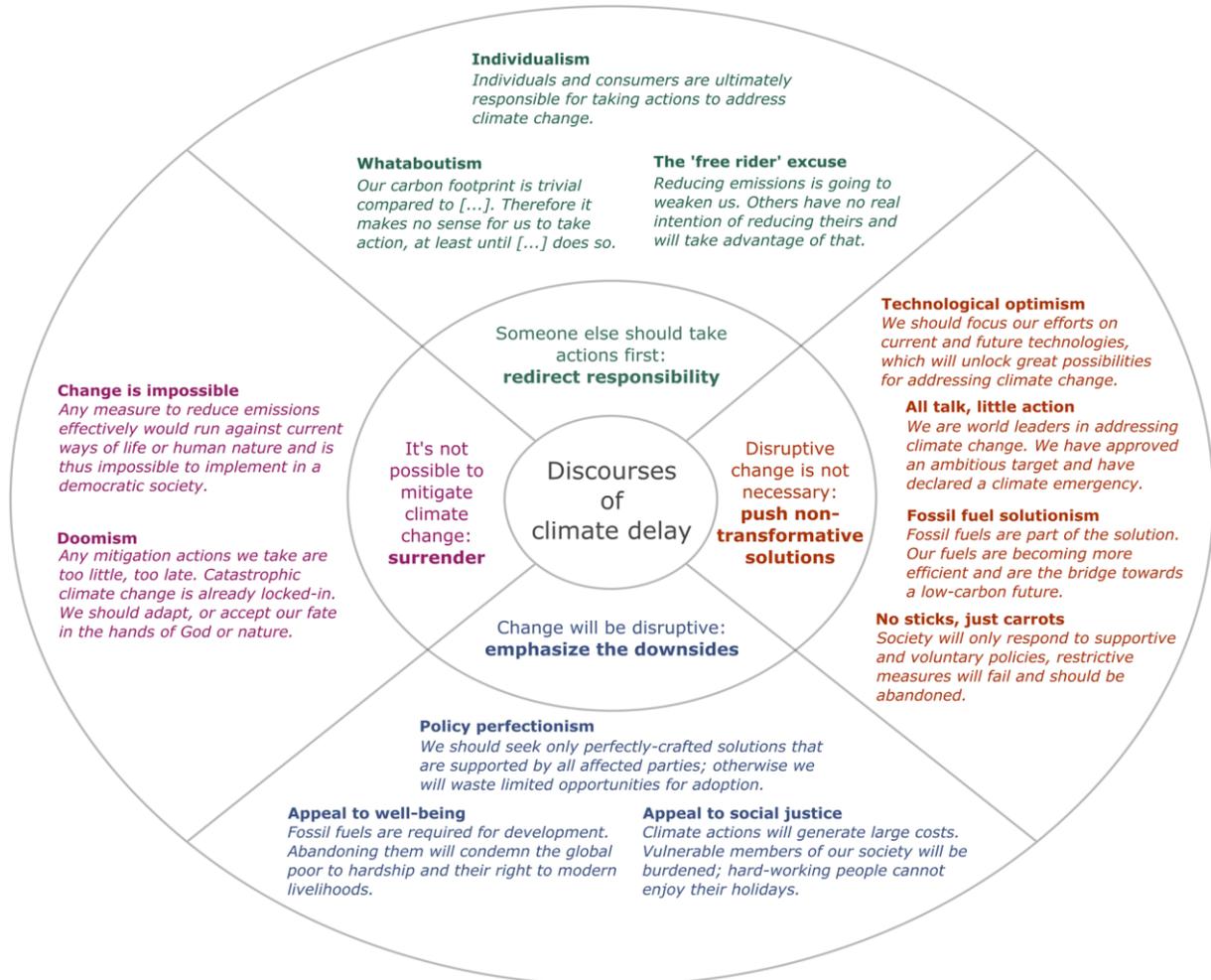
<https://www.iucnredlist.org/resources/summary-statistics>

⁴ According to the data reported in the second the River Basin Management Plan, available at <https://www.eea.europa.eu/themes/water/european-waters/water-quality-and-water-assessment/water-assessments/ecological-status-of-surface-water-bodies>

Questioning the public action failure

The collective failure to effectively prevent or mitigate environmental degradation, despite its effect being manifest and its causes well understood, results from a combination of causes, ranging from cognitive biases and social norms (Grandin, Boon-Falleur, & Chevallier, 2021) to the intricacies of geopolitics⁵, through a number of avoidance or denial strategies.

► A typology of discourses of climate delay



Source : (Lamb et al., 2020)

Looking at it with a “policy lens”, the discrepancy between ambitions and outcomes can be related to several factors, including :

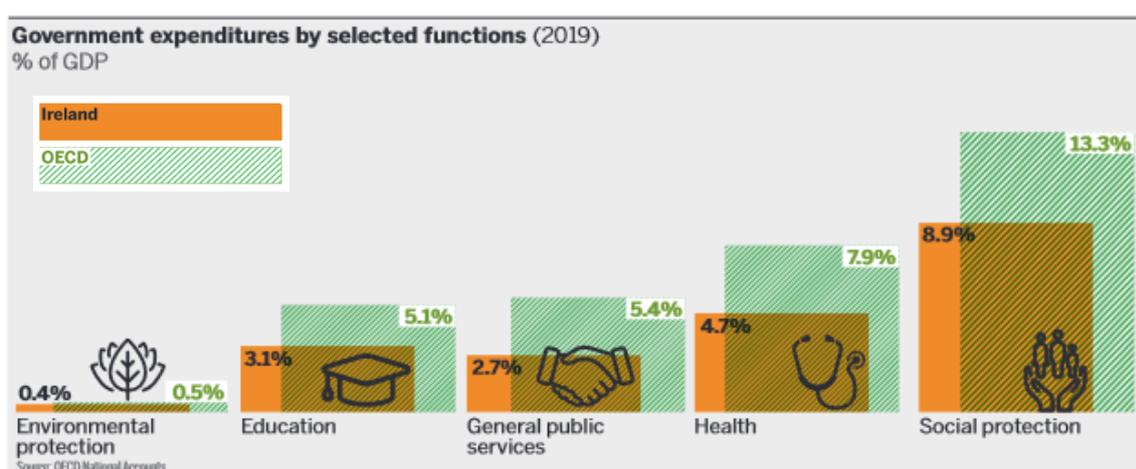
- an **insufficient “stringency”** of policies, reflected in “easy to reach” targets, delayed deadlines to achieve them or the multiplication of exemptions (Boeuf, Fritsch, & Martin-Ortega, 2016)⁶

⁵ <https://www.e3g.org/publications/the-geopolitics-of-climate-change-unsq-climate-action-summit/>

⁶ Exemptions reflect the influence of some groups both in policy agenda setting and in the policy process itself (Boeuf, Fritsch, & Martin-Ortega, 2016) to ensure that their interests are given greater or equal consideration to environmental goals.

- **implementation challenges** (Bondarouk & Mastenbroek, 2018), that is the inability to apply or enforce measures that have been decided, in particular due to the limited (financial and human) resources dedicated to control their application (Hudson, Hunter & Peckham, 2019).
- Among the key issues of the Swedish water governance system, Söderberg, (2016) includes “the difficulties in making municipalities (and to some extent also state authorities) implement the Programmes of Measures without providing financial resources for the implementation process (both regarding the costs for actual measures and the administrative costs at municipalities/agencies for implementing them).
- In its September 2020 report⁷, the Water Advisory Board noted that compliance with the requirements of the Urban Waste Water Treatment Directive were still low and that the timeframe to provide treatment for many for the towns and villages that continue discharging untreated waste water has been further postponed, more than 15 years after the initial deadline.

► **An illustration of the limited resources dedicated to environmental protection**



Source: OECD⁸

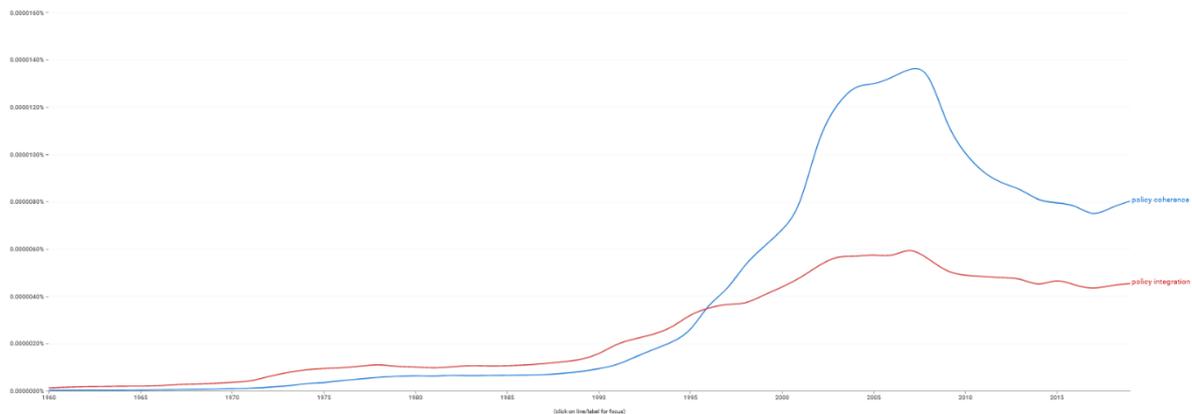
However, as can be derived from the brief overview provided supra, a major challenge also lies in the fact that the vast body of environmental policies has been developed in a piecemeal fashion, with their design and implementation taking place in a fractured, multi-level institutional landscape and involving a very diverse array of stakeholders. An increasing attention must therefore be given to the relationships and influences that the various “levers” of public intervention on the environment can have on each other, to the point where the search for coherence has been deemed a “sheer necessity for more effective environmental governance” (Visseren-Hamakers, 2018).

Such attention to policy coherence initially emerged among practitioners, mostly international organisations who have developed a variety of tools to foster coherence in national policies or improve their own practices in this regard (Lenschow, Bocquillon, & Carafa, 2018; Tosun & Leininger, 2017). The notion of coherence has also attracted widespread interest in the academic field, in disciplines such as policy science and quite specifically in the subdomain of environmental policy. The chart below illustrates how it has significantly gained traction over the past decades.

⁷ Available at <https://wateradvisorybody.ie/wp-content/uploads/2020/09/WAB-Quarterly-Report-2-2020-Final.pdf>

⁸ Government at a Glance 2021- Country Fact Sheet, available at <https://www.oecd.org/gov/gov-at-a-glance-2021-ireland.pdf>

► **Percentage of publications with the mention of “policy coherence” or “policy integration”**



Source : Google NGram Viewer

It is highly relevant for An Fóram Uisce, given its position at the interface between policy and science through its role as a “think tank”, to gain and diffuse insight into the matter of policy coherence in relation to water and environmental management; hence the commissioning of this research.

In spite of what its title could imply, the assignment does not fall within the field of policy evaluation, which would have required meeting two conditions:

- To delineate and narrow down the object of the assessment - given that, as highlighted before, the scope of environmental policy considered “at large” is virtually limitless;
- To define “normative” criteria for assessing coherence – given that, despite its relevance, the notion of coherence remains “fuzzy”, with little in terms of positive definition to objectify what it is or methods to measure it.

Instead, the research must remain exploratory in nature, with a view to broadening the interpretation of coherence and use it as a lens to analyse some of the challenges, obstacles and “contradictions” that have made efforts to protect the environment largely fail so far, in spite (or because) of policies piling up. It aims to offer An Fóram Uisce robust insight to produce thought leadership, stimulate dialogue between its members and with public authorities as well as to support future policy recommendations.

It relies on an extensive review of academic papers, implemented through a “snowball method” (each document potentially leading to some related literature). The review is not meant to be exhaustive nor statistically representative, but rather to provide an overview of the key debates and arguments pertaining to the subject of coherence in environmental policy; supported with relevant examples and illustrations.

The document is structured in four sections. It begins by exploring the research topic in detail, concerning both the contours of public action on the environment and the notion of coherence. The next section seeks to evidence the key drivers and obstacles to having a “coherent” action on environmental issues. Section 3 outlines some perspectives on how to address the challenges that have been identified.

2 SCOPING THE RESEARCH

2.1 PUBLIC INTERVENTION ON THE ENVIRONMENT

2.1.1 An evolving perspective on “the environment”

The perceptions that human societies have of “the environment”, along with their relationships with it, can differ and have evolved over time, as research in environmental history, environmental psychology or sociology⁹ have demonstrated (Angelo & Wachsmuth, 2020). Several key notions are succinctly described in the table below to help capture these differences in representations, which have had a significant influence on the rationale and approaches to environmental management.

► **Several perspectives on the “environment”**

Concept	Description
Nature	The term is attached to many different interpretations depending on the language, the culture or the philosophical traditions within which it is used; and actually lacks a precise, scientific definition (Ducarme & Couvet, 2020). In its most generic acceptance, the term refers to the areas or elements (animals, forest, beaches...) that have not been substantially altered by human intervention or persist in spite of it. This traditional view implies a distinction between natural and artificial elements, the latter having been produced by human activity. This <i>“great divide between nature and culture in European academics [has long] locked natural scientists in nature, working on a material reality artificially devoid of human influence. Even 20th century academic ecologists have long tried to pretend not to consider mankind in their models, entailing a deep division between scientific and political ecologists”</i> (Ducarme & Couvet, 2020).
The “natural environment”	The expression refers to a scientific vision of Nature, broken down into distinct spheres: hydrosphere, atmosphere, geosphere and biosphere and apprehended from a double perspective: it provides natural resources - water, soil, minerals... that can be exploited and must be "managed" for this purpose; it is the support of living species (biota) that must be protected.
Environmental services	As the relationships between its various spheres and its biotic/abiotic components have been better understood, the environment has been increasingly considered in a more holistic manner; and in particular from the perspective of the “services” it provides, which contribute to protecting human health, reducing the risk of disasters, mitigating climate change, improving water and food security...

⁹ “Environmental psychology has helped to shed light on the very close links between humans and their environment, between the representation they develop and the interaction strategies that they implement, consciously or not” (Garnier & Sauvé, 1999). It is in fact a critical factor in why scientific warnings about environmental crises can be met either with indifference, apathy or concern: “Nature and the environment are constructed and framed in sociocultural processes from which they cannot be separated. Different representations of nature and the environment entail different understandings of potential threats against these entities. Thereby some aspects are made salient while others are downplayed or ignored” (Boström & Uggla, 2016).

	The concept of Ecosystem Services has in fact, since the publication of the Millennium Ecosystem Assessment in 2005, become “one of the most prominent ways to conceptualize the interdependency between ecosystem processes and functions and societal and human well-being” (Hysing & Lidskog, 2021). It is now widely used into policy documents and strategies at all levels of governments and across many disciplines, in particular through the application of the wider Economics of Ecosystems and Biodiversity approach (TEEB) (Verburg, Selnes, & Verweij, 2016).
Earth system	Along with unprecedented biodiversity loss, uncontrolled climate change and pervasive pollutions, the rise of zoonotic diseases fuels a growing awareness of the “ <i>symbiotic relationship between human and nature</i> ” ¹⁰ ; and thus, of the fact that the environment and human societies cannot be considered separately anymore as they form a unique socio-ecological system. As the dichotomy between humans and nature has become blurred, outdated and even irrelevant (Biermann, 2021), “ <i>the environment itself no longer exist as an object distinct from societies</i> ” (Kim, 2021). This observation supports the fact that we have entered the Anthropocene era, defined as a “ <i>new division in the Geological Time Scale (...) [in which] the human imprint on the global environment has (...) become so large and active that it rivals some of the great forces of Nature in its impact on the functioning of the Earth system</i> ” (Hamilton, 2016).

The notions presented in the table supra do not only reflect evolving worldviews, values and perceptions but also the development of scientific knowledge as well as of ethical reflections around the imperatives of environmental management and protection. In fact, new disciplines and academic fields such as environmental history (Pooley, 2014), landscape ecology or Earth science have emerged and provide **new perspectives and innovative conceptual tools** to better apprehend environmental issues, analyse their causes and suggest new ways to address them (J. Meadowcroft & Fiorino, 2017; Steffen *et al.*, 2020).

► **Some examples of the multifaceted nature of environmental issues**

- Both climate change and Land Use – Land cover change are major stressors on biodiversity (Santos *et al.*, 2021) with potential compounding effects, requiring to act both at global and local scale to try and reverse negative trends towards a potential 6th extinction.
- Wetlands epitomize the relationships between various natural components: they are defined by the interaction between soil and water, they host an extremely rich and unique biodiversity, they provide for climate change mitigation (through carbon capture) as well as adaptation (through retention/release of water in case of extreme events: floods or droughts)
- Many protected wildlife habitats are also (or include) water bodies so that the objectives/measures relating to nature conservation (pursuant to the Nature Directives) and to water management (pursuant to the Water Framework Directive) have a strong interplay (DG Environment, 2016).

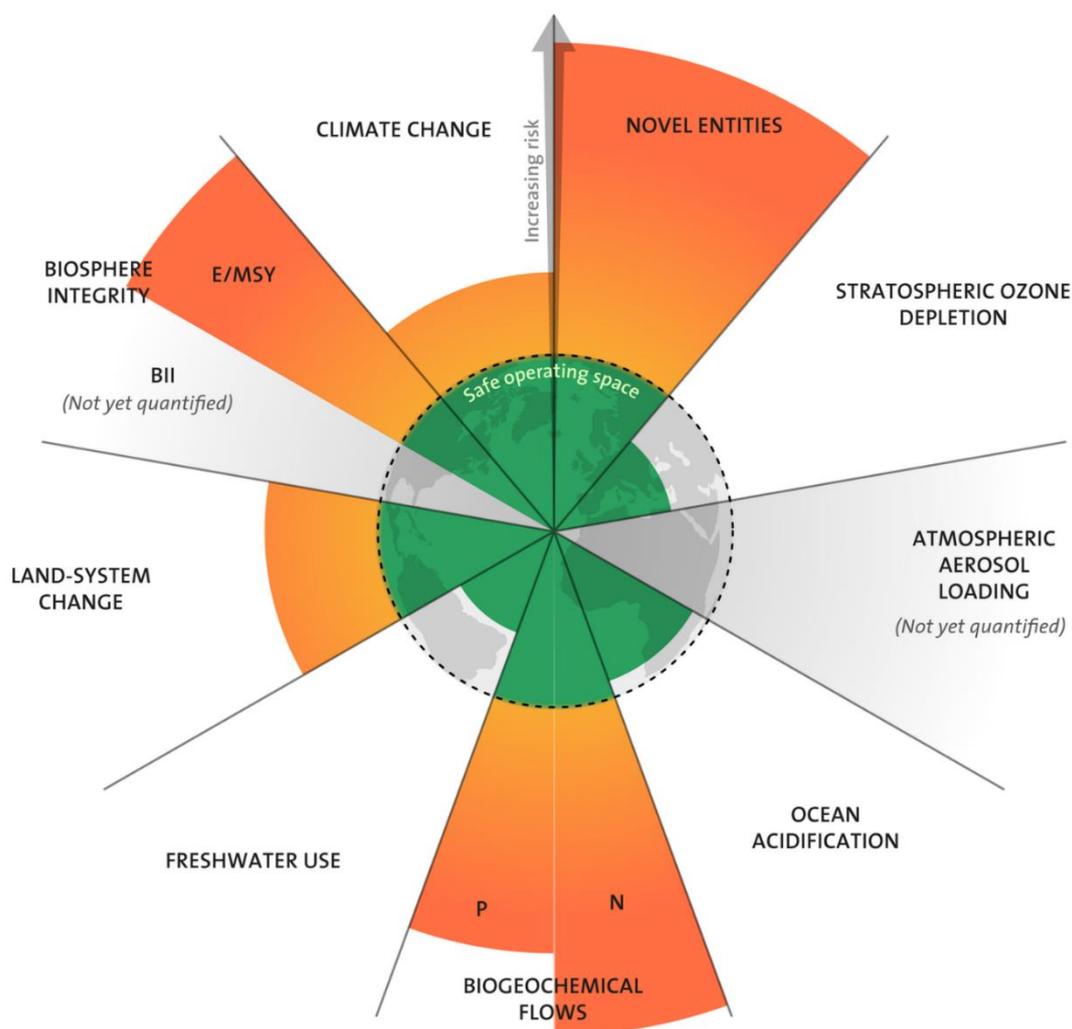
In particular, the perspective on Earth as a system has given rise to several concepts emphasizing that 1) human activities and natural" phenomena have become so intertwined that they can only be approached and managed holistically (Lade *et al.*, 2020) and 2) a **significant change of course is now warranted** rather than incremental efforts to make a real difference in terms of environmental

¹⁰<https://www.unep.org/news-and-stories/story/states-have-these-13-duties-when-it-comes-biodiversity-and-human-rights>

protection – a requirement that underpins the call for sustainability or ecological transition. These concepts include the following:

- **Critical natural capital:** referring to the “*set of environmental resources which, at a prescribed geographical scale, performs important environmental functions and for which no substitute in terms of manufactured, human or other natural capital currently exist*” (Douguet & O’Connor, 2003), the concept suggests that some ecosystems are unique and irreplaceable and as such represents a cornerstone of the strong sustainability approach (Ferrari, Lavaud, & Pereau, 2012a). Furthermore, in allowing to consider both the drivers of ecosystem integrity but also the importance of the services they provide to societies, it offers an avenue to bridge the imperative of environmental protection and sustainability with the concerns for human development and aspiration for prosperity. In fact, the definition of what is actually critical, that is, what truly matters for societies, is not rooted only in economic or ecological considerations but must take account of values, perceptions and distributive effects (Chiesura & Groot, 2003; Ferrari *et al.*, 2012; Guerry *et al.*, 2015; Pelenc & Ballet, 2015).
- **Planetary boundaries:** extensively documented by (Biermann & Kim, 2020), the notion emerged in 2009 in an article signed by 29 scholars in the journal *Nature*, in which they defined thresholds on nine criteria that Earth should not surpass. It has become extremely influential ever since (with 7000+ citations in academic papers and mentions in a large number of policy documents) while at the same time fuelling heated debates, reflecting the scientific challenge of defining the nature or value of such limits and the resistance to the fact that they embody constraints to economic growth and as such might undermine the human development agenda...However the notion’s interest lies in suggesting that boundaries should be set with an objective basis, based on science and expertise and that the focus of environmental policymaking and governance should shift to ensuring that they are not exceeded as well as to managing the distribution of constraints arising from them. The notion also helps to raise the importance of some “less addressed” environmental issues on the public agenda (most notably the nutrient cycle).
- **Cascading effects:** in addition to being directly harmful, certain impacts on the environment can trigger other phenomena, which will in turn generate new disruptions to other components of the system – be they physical, social or economic ones. Having multiple effects concurring, combining and propagating in multiple forms increases the magnitude of the resulting crises as well as the difficulty of dealing with them effectively. Improving the management of interlinkages and cascades is at the heart of new approaches developed in the domain of socio-ecological resilience, disaster risk management and system dynamics (Lawrence *et al.*, 2020).

► **An illustration of the planetary boundaries**



Source: J. Lokrantz/Azote based on (Steffen et al., 2015)¹¹

2.1.2 An evolution of policy goals and instruments

As the impacts of human activities on the environment have become more evident and their consequences better understood, the need for “corrective” interventions has moved up onto the political agenda. A growing call for action, rooted in both activism and policy emulation - especially at the European level (Holzinger & Sommerer, 2013) - has led to the development of a dense and varied set of policies, the scope and ambition of which have grown in step with the magnitude and pervasiveness of the environmental crisis.

Quite importantly, the way we frame our relationship to “the environment” (as discussed above) has been reflected in the specific objectives and instruments of such policies (Ducarme & Couvet, 2020), with the following approaches being successively adopted - and to some extent, still coexisting.

¹¹ Available at <https://www.stockholmresilience.org/research/plan&ary-boundaries.html>

► **Several approche/ paradigm for environmental management¹²**

Approach	Description
Environmental conservation	<p>Conservation refers in the most generic acceptance to the protection, preservation, management or restoration of natural environments and the ecological communities that inhabit them. However, it includes some quite distinct approaches depending on the targets and purpose of conservation efforts (Ducarme & Couvet, 2020; Haila, 2012; Meine, 2013):</p> <ul style="list-style-type: none"> • Conservation policies have historically been driven by the cultural, symbolical and aesthetical value ascribed to some environmental features; for example, in America and Australia, they have long focussed on keeping the “wilderness”, that is animals and habitat seen as an essential heritage, “unspoiled” by human influence, in a mostly romantic view of nature; • Utilitarian conservation emerged upon the observation of depleting stocks of fisheries or forestry, with a view to maintaining a “wise use” of natural resources
Environmental protection	<p>Environmental protection as it emerged in the late 60’s focussed on forbidding the use of hazardous substances, setting limits to harmful activities and repairing damages they caused, especially as a result of concern over their impact on human health. Detailed systems of regulations were introduced, mostly in industrialized countries, which first addressed point sources pollutions such as industrial plants and utilities, where the cause-and-effect relationship between an activity and its environmental effect could be clearly established. <i>“Excess or “optimal pollution levels” were defined more by short-term economic acceptability (and therefore, politics) than by what was necessary for the maintenance of ecosystem resilience (...) The limits enacted were thus often arbitrary from a scientific- ecological point of view. Pollution dispersal continued to be a common approach to amelioration, even when it created yet larger, more costly problems down the road”</i> (Colby, 1991). The response to such provisions mostly relied on “end of pipe solutions”.</p>
Ecological modernization	<p>Ecological modernisation is underpinned by the recognition that human societies’ existence depends on the “life-support system” of the Earth, which warrants to protect the environment. It also posits that : 1) this is a problem that can be fixed while maintaining the functioning of the capitalist market economy, with the progressive internalization of “environmental care” by political, economic, and social institutions (Gibbs, 2000; Hajer, 1997); 2) this represents an opportunity rather than a constraint.</p> <p>In fact, environmental management is not seen as a burden on the economy as it used to but rather as a potential source of growth, based on the following arguments [(Dryzek, 1997) cited in (Langhelle, 2000)]:</p> <ul style="list-style-type: none"> • Pollution is a sign of waste; hence, less pollution means more efficient production. • Solving environmental problems in the future may turn out to be vastly more expensive than to prevent the problem from developing in the first place (thus the introduction of the precautionary principle or environmental assessments); • An unpolluted and aesthetically pleasing environment may give more productive, healthier and happier workers. • There is money to be made in selling green goods and services • There is money to be made in making and selling pollution prevention and abatement products.

¹² (Colby, 1991) mentions four other paradigms of environmental management: frontier economics, resource management, ecodevelopment and deep ecology.

	<p>Ecological modernization, which has come to dominate the political discourse and policymaking on the environment since it emerged in the 80's - most notably in the European Union (Machin, 2019) - suggests that a decoupling between economic activities and environmental degradation can occur through technological innovation and the marketization of green products and services, with a focus on energy and resource efficiency, recycling, depollution...</p> <p>Machin (2019) argues that the discourse of ecological modernisation reflects a “<i>double depoliticization</i>” (...): <i>political dissent is smoothed over by economic rationality; market competition and innovation replaces political regulation. Further, the discourse itself is reified as the only feasible strategy, a matter of ‘common sense’ and therefore one that is ‘outside’ or ‘beyond’ politics.</i>”</p>
Planetary stewardship	<p>“<i>Earth Stewardship is the active shaping of trajectories of change in coupled social–ecological systems at local-to-global scales to enhance ecosystem resilience and promote human well-being</i>” (Chapin III <i>et al.</i>, 2011). It involves a shift away from past approaches aimed at restoring or preserving a “state of reference” towards a more forward looking action aiming at defining the conditions for a successful co-evolution of human and natural systems, including through the enactment of “self-regulations” of our societies (Gibbons, 2020; Kim, 2021).</p> <p>The systemic dimension of environmental concerns encourages a change in the orientation of environmental governance so that it aims at the regulation of the human – nature relationships, rather than the sole management of the “natural” environment. Such an approach makes it possible, conceptually, to get out of the impasse of the eco-modernist paradigm, which views the environment only as a medium serving human needs, without considering its own (long term) dynamics; and that of the conservationist paradigm, as it emphasizes that humans are part of the system that needs fixing.</p>

2.1.3 Several levels to consider

Understanding how public intervention seeks to address, or influences, environmental issues require considering the various scales where factors are at play in the emergence, shaping and outcomes of such intervention. Specifically, it is necessary to differentiate between the four (interdependent) levels described in the table below.

► **The various levels of public intervention**

Sphere	Description	Issues	Examples in the water sector
Environmental management	Actions and measures that are implemented to manage, protect or restore the environment.	Implementation, effectiveness and efficiency	Water restoration projects, incentives to change agricultural practices
Environmental policy	Goals that are set and course of action taken (or not taken) by public organisations to achieve specific outcomes in relation to the environment (Howlett & Cashore, 2014)	Policy design, stringency	The Water Framework Directive, the River Basin Management Plan
Environmental governance	<i>All the rules, practices, policies and institutions that shape how humans interact with the environment</i> (UNEP) ¹³	Participation, coherence	Water Framework Directive and River Basin Management Plan development process and stakeholders
Environmental governance regime	<i>“sets of implicit or explicit principles, norms, rules, and decision making procedures around which actors’ expectations converge in a given issue-area”</i> (Krasner, 1982)	Political power, knowledge	Integrated water resources management paradigm

2.2 THE NOTION OF COHERENCE

2.2.1 A policy evaluation criterion

In its most narrow interpretation, coherence is one of the key criteria used for policy appraisal or evaluation, with a view to characterizing how well they “fit” in the wider context in which they are deployed, that is, whether they are compatible with other policies or instruments applying in the same realm (be it a geographical area or a sector), to what extent they reinforce or conflict with each other, how much they are adding value while avoiding duplication of effort.¹⁴

The coherence of an intervention can be assessed from several different perspectives:

- A first essential distinction must be made between **internal coherence** which refers to the interlinkages between the interventions carried out within a same organisation and/or the consistency of these interventions with the norms and standards to which it adheres; **and external coherence** which concerns the way in which the interventions of an organization articulate with those of other actors, in terms of complementarity, harmonisation and co-ordination;
- Coherence can also be assessed **at different stages of the policy process** (e.g. design or implementation) as well as for distinct **components** of a policy (e.g. goals or instruments): for example, two policies can state similar, or at least compatible, objectives but introduce

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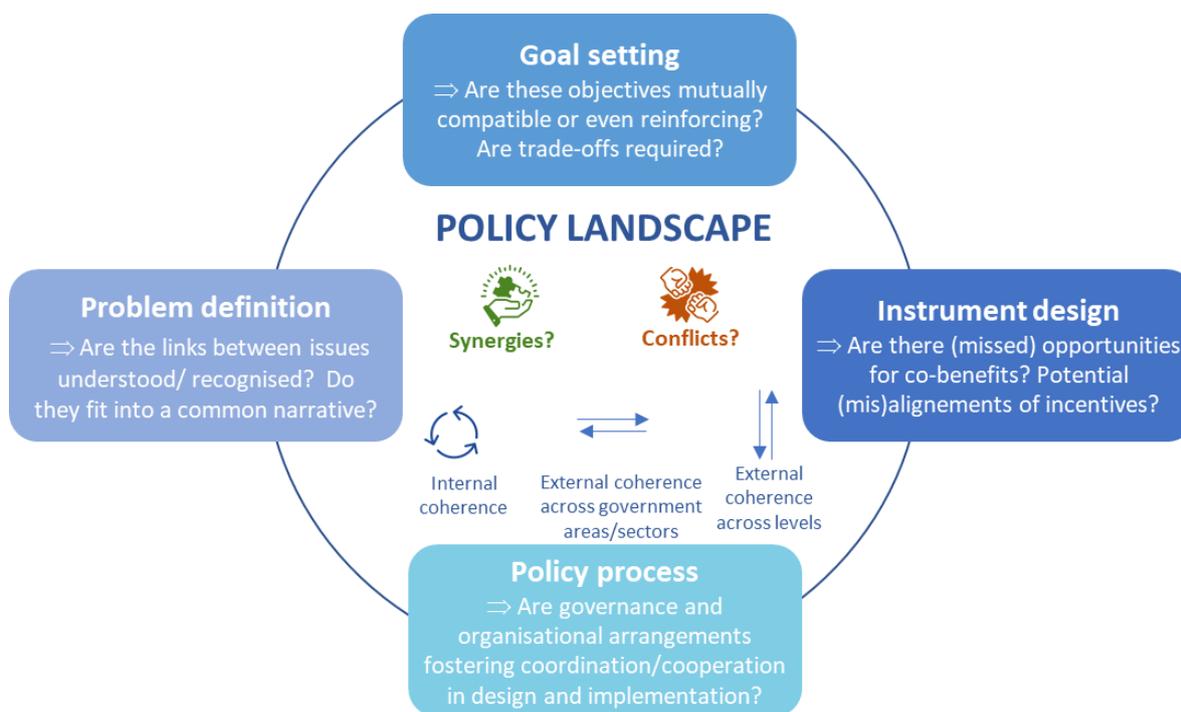
https://wedocs.unep.org/bitstream/handle/20.500.11822/7935/Environmental_Governance.pdf?sequence=5&isAllowed=y

¹⁴ Cf. the definitions, elements for analysis and key challenges provided by the OECD, available at <https://bit.ly/3oadPxV>

measures that are misaligned, as is the case with “harmful subsidies” providing conflicting incentives or in situation of “policy leakage”¹⁵.

- It can also be useful to differentiate between *normative* coherence (relating to policies themselves), *institutional* coherence (pertaining to the organisations that develop them) and *operational* coherence (regarding the way they are implemented) (Koff, Challenger & Portillo, 2020).

► **An illustration of the various perspectives on coherence**



The perimeter considered to carry out a coherence assessment is also a defining parameter, as the criterion does not pertain to an intrinsic characteristic of a policy but rather relates to the relations it maintains with other interventions. The crux of the matter is in fact to define *with what* an intervention is or should be consistent (Visseren-Hamakers, 2018), insofar as **most issues in today's complex world are global, narrowly linked with others and/or influenced by multiple factors**.

The fact that coherence has become “*a widespread political mantra*” (Lenschow *et al.*, 2018) reflects the need and challenge to ensure that policies aimed at addressing these issues - or having an influence on them - are properly coordinated – and better still, aligned – to be effective, despite being carried out across different areas and levels of government with the participation of many different stakeholders.

However, unlike other evaluation criteria (such as efficiency, effectiveness, etc.) which can be informed by quantitative analysis, policy coherence remains **an elusive criterion** (Bocquillon, 2018) as it is neither easy to define in a normative way nor to measure objectively. Therefore, although it could

¹⁵ See (Bastos Lima, Persson, & Meyfroidt, 2019) for an analysis of the challenge posed by “leakage” (which can be broadly described as the “*unintended displacement of impacts caused by an environmental policy intervention*”) through a policy and governance lens.

provide a useful lens to inform policy-making, coherence is all too often assessed *ex post* and only given due attention only when it appears it is lacking. These situation arise most notably when:

- Potential linkages **between policy domains** have been overlooked, either due to a lack of understanding or an insufficient awareness of the issues that are less salient on the scientific or political agenda;
- **Conflicts in objectives** have remained implicit and/or unresolved as an outcome of the political bargaining process which had to take place in order to muster enough support for the policy to emerge.
- New **policy instruments** are at best redundant, at worst counter-productive, compared to those that already exist, because the real, “on the ground”, conditions of their deployment have not been thought through.

2.2.2 From coherence to integrative governance

Beyond assessing policy coherence or highlighting its importance, what really matters is trying to understand and possibly map out the processes and conditions required for progress on this matter. This has become an important topic of research in the field of “environmental governance studies”, associated with significant conceptual developments (Ohno, 2018). Several processes conducive to coherence have been described, which provide both an explanatory framework for the performance of policymaking processes on this criterion as well as normative insight to make them evolve.

► *Some processes conducive to policy coherence*

Type of process	Description
Coordination	Coordination refers to “ <i>the instruments and mechanisms that aim to enhance the voluntary or forced alignment of tasks and efforts of organizations within the public sector. These mechanisms are used in order to create a greater coherence, and to reduce redundancy, lacunae and contradictions within and between policies, implementation and management</i> ” (Bouckaert, Peters & Verhoest, 2010). Coordination thus mostly describes an organisational process.
Integration	Policy integration refers to the processes whereby some policy elements (goals or instruments) from different sectors are incorporated into a larger entity or merged as a unified whole, so that the new “framework” is more effective or legitimate to address complex, multidimensional issues (Trein <i>et al.</i> , 2019).
Mainstreaming	Mainstreaming “ <i>involves taking a specific objective of one issue domain and declaring that this objective should be integrated into other issue domains</i> ” (Karlsson-Vinkhuyzen <i>et al.</i> , 2017). As a unidirectional movement, it has a strong normative dimension as it boils down to considering that some challenges requires everybody’s contribution to be appropriately tackled and take precedence on any sectoral agenda (Visseren-Hamakers, 2018).
Landscape approaches	Landscape approaches (or integrated landscape management) have been developed as a way to address multiple and simultaneous challenges such as development, food security, climate change and biodiversity loss through suitable policies and practices for land use (Scherr, Shames & Friedman, 2013) : “ <i>It aims to balance competing demands on land through the implementation of adaptive and integrated management systems. These include not only the physical characteristic features of the landscape itself, but all of the internal and external socio-economic and socio-political drivers that affect land use, particularly related to conservation, forestry and agriculture</i> ” (Reed, Deakin & Sunderland, 2015).

Integrated environmental management	While not unequivocally defined, integrated environmental management - and the related concepts focused on ecosystems, catchment or resources management - broadly refers to approaches seeking <i>“coordinated control, direction or influence of all human activities in a defined environmental system to achieve and balance the broadest possible range of short- and long-term objectives”</i> (Cairns & Crawford, 1990). Interactions among stakeholders and with the public are key operational components of its implementation.
Nexus approaches	<i>“With the Nexus approach the relationship between different compartments of Integrated Management Approaches has changed. It is not anymore the management of one resource that takes into account related resources, but rather the relation of each resource to the other without prioritizing one over the other”</i> (Roidt & Avellán, 2019)

All these notions are included within the umbrella concept of *“integrative governance”* defined by Visseren-Hamakers (2018) as *“the theories and practices that focus on the relationships between governance instruments and/or systems”*. A key take-away lesson from integrative governance studies is that policymaking is not a *“purely technical exercise”* as it implies weighing interests and setting priorities, thus requiring wider political economy considerations.

As a result, the effective implementation of integrative governance – and therefore the improvement of coherence – depends largely in practice on the institutional context, and more generally on the *“regime”* within which environmental policies are embedded, so that even politics influence how the integration process may possibly occur (Russel *et al.*, 2018). This dimension is especially significant *“when moving from internal [coherence] (within one governance system), since the trade-offs are expected to be relatively low and win-win situations can be relatively easily achieved, to external [coherence] (crossing governance system boundaries), where trade-offs and win-lose situations are expected to be more common.”* (Visseren-Hamakers, 2018).

3 AN ASSESSMENT OF COHERENCE

3.1 CLEARLY STATED AMBITIONS

The recognition of the interdependencies existing between the various components of the natural environment and of its many connections with human societies has progressively led policy-makers and practitioners to approach environmental issues in a more holistic way, trying to move away from “siloed” policies and seeking an integration of environmental considerations “across the board”. This aspiration features prominently in many policy statements and documents published at every level of public action. Two key levers are actioned to operationalise this ambition.

Firstly, **integrated frameworks** are developed to draw out the links between various environmental issues and ways to address them, either at a conceptual level or from a policy perspective.

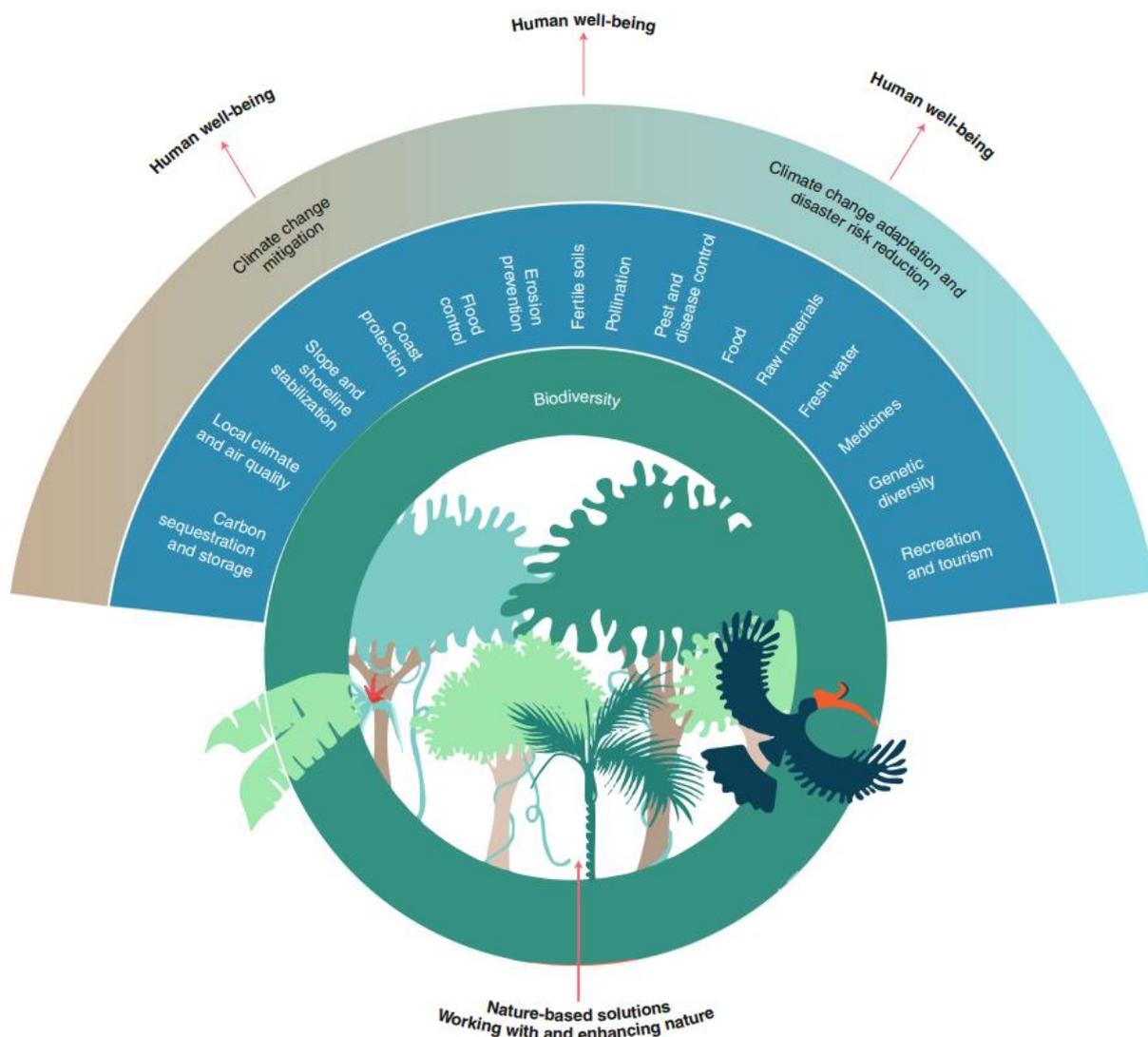
- Ireland's first statutory National Adaptation Framework (NAF) was published in 2018, it sets out the national strategy to reduce the vulnerability of the country to the negative effects of climate change and to avail of positive impacts. It outlines a whole of government and society approach to climate adaptation in Ireland and aims to improve the enabling environment for adaptation through ongoing engagement with civil society, the private sector, and the research community.

In addition, a more “joined-up” approach to policy development is highlighted as an essential pre-requisite. For example, as pointed out in the NAF, *“At International and European level, there is an emerging acknowledgement of the need to enhance coherence and complementarity between the Paris Agreement, the Sendai Framework for Disaster Risk Reduction as well as the UN Sustainable Development Goals. [It] recognises the opportunity to enhance coherence across policies, institutions and goals and seeks to ensure credible links, as appropriate, between these processes”*. Similarly, key actors such as the Intergovernmental Panel on Climate Change (IPCC), the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the European Union now call and push for greater integration between the response to the biodiversity and the climate crisis, considering the many drivers that they share (European Environment Agency, 2021a). Such integration warrants an increased coordination and collaboration between government departments but also between the international, national and local actors, that is, the implementation of an effective multi-level governance.

- The aspiration to coherence has been very present in water policy, with the introduction of the Integrated Water Resources Management framework as early as the 1990's. Significant efforts have been invested since then to operationalise it, including through the development of River Basin Management Plans required by the Water Framework Directive. However, an outstanding challenge is now to extend the scope of integration beyond sectoral boundaries.

A strong emphasis is also increasingly placed on the selection of measures or course of actions that can generate multiple benefits or positive feedback loops. Among them, “nature-based solutions” have a great potential to simultaneously address several environmental issues (European Environment Agency, 2021)

► An illustration of the “cross-cutting” dimension of nature-based solutions



Source: (Seddon et al., 2019)

While the aspiration to coherence has long emerged *within* the environmental policy “realm”, there is also an increased recognition that it needs to extend much further beyond. Environmental considerations are thus (slowly) permeating into an ever larger domain of public intervention:

- Through **sectoral policies**: agriculture, forestry,
- Through **“macroeconomic” policies**, including trade policy¹⁶ or the recent Green Deal of the European Union,
- Through **“structural” integration**: as an example, as of 2020, all OECD countries had a framework to support environmental objectives in public procurement, 40% reported green

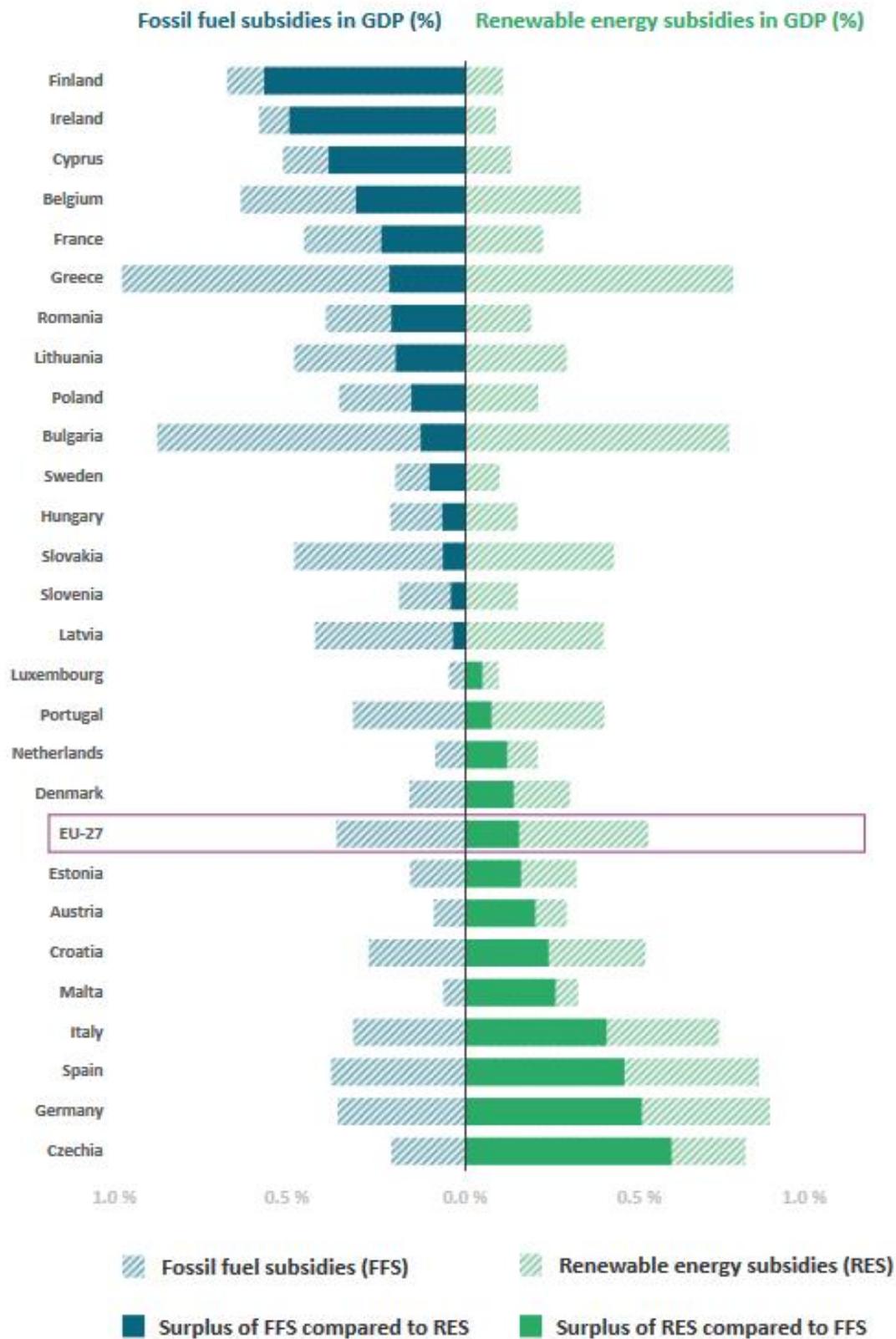
¹⁶ “Sustainable development and protection and preservation of the environment are fundamental goals of the World Trade Organisation (WTO), enshrined in the Marrakesh Agreement establishing the organisation, which go “hand in hand” with the WTO’s objective to reduce trade barriers and eliminate discriminatory treatment in international trade relations”. Source: WTO website, https://www.wto.org/english/tratop_e/envir_e/envt_intro_e.htm

budgeting efforts and 73% had aligned long-term infrastructure plans with sustainability goals (OECD, 2021).

Efforts towards greater coherence could also materialize through **changes in government structures**, where environmental protection could become, along with fiscal responsibility, a cross-cutting issue. While environment ministries have generally broadened their scope of action over time (notably in France where its remit was extended to include transportation and energy since 2007), Germany has taken an important step forward in this area by recently creating a "super ministry" for economics and climate protection (which could veto any legislation incompatible with the 2015 Paris Agreement in the same way that their finance ministry can halt plans that conflict with the national budget).

However, notwithstanding such initiatives and the proliferation of ambitious commitments in favour of greater coherence, the integration of environmental considerations into policy domains remains largely **confined to declarations of intent, with little impact on the substance of policies** or on the effectiveness of their instruments for environmental protection, as evidenced by the lack of tangible results obtained to date in this area. Going beyond the "lip service" to really improve coherence would actually require a deep transformation of the policymaking processes, thus to overcome significant obstacles.

► **An example of the gap between discourse and action: comparison of subsidies to fossil fuel vs. renewables**



Source: ECA based on Trinomics, *Study on Energy costs, taxes and the impact of government interventions on investments*, October 2020.

Source: (European Court of auditors, 2022)

3.2 SIGNIFICANT OBSTACLES

Whilst improving coherence is recognized as necessary and important, the approaches to policy development deployed in practice largely fall short of what integrative governance would call for. Stafford-Smith *et al.* (2017) underscore that “*all member states are encouraged to develop ambitious national responses but little guidance is provided as to how nations could keep an eye on integration whilst doing so*”. There is in fact hardly a positive definition of what requirements need to be met to achieve coherence.

Russel *et al.* (2018) show that the integration of environmental concerns between government levels and across sectors can be hampered right from the outset of policy development, at the appraisal stage, because of the **different “logics” that prevail between the policy actors**. These differences in perspective, which can be rooted in the educational or disciplinary background of the players, the policymaking history and interests at play within their institutions or even procedural requirements, create barriers to effective cooperation. This fragmented approach, whereby each organisation uses its own lens, results in environmental issues still being approached, to a significant extent, in “siloes” even though they epitomize what Jochim & May (2010) call “*boundary-spanning problems*”.

In addition to (or as a result of) being disjointed, the policy development process often leaves the **trade-offs inherent to policy choices unaddressed or implicit** – either deliberately or not - so that the “operationalisation” of integration is left to the stage and at the level of policy implementation where actual challenges and potential conflicts will emerge. It will depend on how public agents in charge of applying the policy “on the ground” will resolve these trade-offs, thus potentially be subject to such factors as:

- **(Re)interpretation:** “*Vague ideas defeat policy coherence and undermine implementation success as relevant implementers reinterpret fuzzy mandates to meet their goals*” (May & Joachim, 2013);
- **Avoidance:** “*Hiding potentially conflicting goals behind abstract or equivocal formulations can facilitate the adoption of a decision, a “shaky” consensus being often preferred to not reaching an agreement*” (Nilsson *et al.*, 2012);
- **Bounded rationality:** because of lack of time, resources and information, as well as cognitive limitations or resistance to change, individuals may make decisions that are sub-optimal, especially when choices are to be made under risk and uncertainty or involve intertemporal/ long-term considerations (Gsoottbauer & van den Bergh, 2011).

► **An example of how bounded rationality can result in incoherent decisions**

Drawing on case studies in Brisbane, Australia and Cork, Ireland, Tangney (2020) shows how a combination of factors can result in maladaptive strategies being applied for the management of multi-purposes dams despite the stated ambition of a “coherent” articulation between the goals they are set to pursue :

- Adherence to technocratic operating protocols underpinned by economic rationalism;
- Opaque normative value choices by dam administrator;
- Poor communication and absence of a coordination process between the various actors involved, preventing a joined-up assessment/decision-making.

These various challenges can be further aggravated by the complexity of multi-level governance arrangements, especially as they display the following features:

- **Limited transparency and accountability** in how decisions are made (Söderberg, 2016);
- The **lack of a “steering” player** with the authority and/or legitimacy to make trade-offs or settle conflicts when coordination mechanisms result in protracted decision-making processes; or even fail to reach an outcome (Schubert & Gupta, 2013);
- An **unequal distribution of power**, voice, access to information, resources and capability amongst actors and institutions (Weitz *et al.*, 2017).

► **An analysis of how complex governance structures can result in incoherent policies when implementing the EU Water Framework Directive in Sweden**

“Many water bureaucrats (...) hold that regional development programmes such as The Rural Development Programme is not adapted for prioritising the type of measures that are demanded according to the WFD. Furthermore, different authorities often handle the different regulations that affect water quality work, and these authorities have different priorities regarding how significances should be weighed between water quality and other issues such as agricultural competitiveness; forestry; societal planning; renewable energy production; employment policy and economic development. In their workplace, only 21% of the bureaucrats state that there are clear guidelines for how priorities should be made. Thus, the bulk of goal conflicts in the water area are solved case-by-case though negotiations between different actors and involves compromises between different goals”.

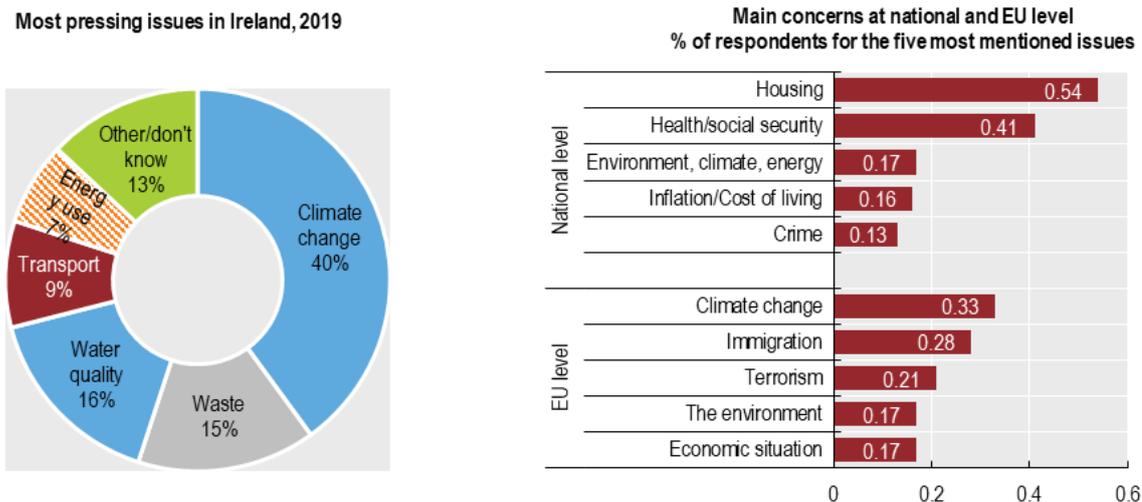
Source: (Söderberg, 2016)

Finally, the influence that *politics* can have on the shaping of policies can also be identified as a key obstacle to coherence, as various factors are likely to take precedence on the search for “optimal” measures or an effective alignment of sectoral policies:

- Governments tend to prioritize issues that are **politically salient** (Fiorino, 2011);
- They have a **preference for the short-term** that reflects the narrow time horizon of their mandate; in addition, different branches of government may have their own planning cycles and goals (Meadowcroft, 2009);
- They are highly sensitive to the **political economy context** surrounding policy issues/options (risk of partisan conflict, distributive effects, etc...); and potentially averse to policy proposals that would result in and/or be perceived as creating “winners and losers”; or just be opposed by public opinion (ex: the planned increase of the carbon tax in France was suspended after it triggered the “yellow vests” movement)

These factors can explain the reluctance of most politicians to invest political capital for the introduction of “breakthrough” environmental legislation, despite the mounting concerns of scientists and civil society about the pervasive crises.

► **Climate change and environment are among the main concerns of Ireland's citizens**



Left panel: Based on the responses to a national omnibus survey carried out on behalf of the EPA in January 2020.
 Right panel: Percentage of Irish citizens responding to the question "What do you think are the two most important issues faced by Ireland and the EU at the moment?".
 Source: EPA (2019), *Environmental Protection Agency - 2019 in Review*; European Commission (2019), "Public Opinion in the European Union", *Standard Eurobarometer 91*, Spring 2019.

Source: (OECD, 2021)

3.3 A TENSION WITHIN THE SUSTAINABILITY PARADIGM

The previous section identifies several reasons why policy processes have largely failed in fostering the integration of environmental considerations at the heart of public intervention. Yet, these explanations can be viewed as the tip of the iceberg as they focus on procedural aspects while the major challenge to coherence lies in the inability to address the policy dilemmas inherent to the sustainability paradigm.

Variations on a concept

Since it emerged in the 1970s, the concept of sustainability has become ubiquitous in the realm of public policies as well as political discourse or in the media (Meadowcroft & Fiorino, 2017). It has been, and continues to be, widely dissected in academic research, giving rise to the specific field of sustainability studies (Boda & Faran, 2018), resulting in definitions, publications and analyses. It can thus be considered a key, dominant paradigm¹⁷ of our times from a sociological, epistemological and semantic point of view (Diemer, 2017; Pascual Espuny, 2007).

Broadly described, sustainability relates to a vision where environmental, social and economic considerations are integrated with a view to creating or preserving conditions under which humans

¹⁷ "A paradigm is a representation of the world, a way of seeing things, a coherent model of vision of the world which rests on a defined base (disciplinary framework, theoretical model or school of thought). For example, in the social sciences, the term "paradigm" is used to describe the set of experiences, beliefs and values that influence the way an individual perceives reality and reacts to this perception"(Chapuy, 2010).

and nature can coexist in harmony, today and in the future. More specifically, the seminal definition of sustainable development¹⁸ as proposed in the wake of the Brundtland commission¹⁹ in 1987 is that of a “*development which meets the needs of the present without compromising the ability of future generations to meet their own needs*”. The concept seeks to reconcile aspirations for prosperity with a greater awareness of the onus it places on the environment and the efforts required to prevent the impacts and degradation that ensue.

The sustainability paradigm has thus framed the conduct of public policy and business activities for decades now (with a renewed interest since the introduction of the Sustainable Development Goals by the United Nations in 2015, which many organisations have integrated in their mission statement), even though the notion faces a variety of critiques (Dernbach & Cheever, 2015):

- It raises significant implementation challenges since it has **no operational significance**, in that it does not provide any guidance or even decision-making support helping to devise a specific course of action or chartering a path to the future²⁰;
- It is not, and cannot be, related to a specific state of the actual, physical world, because the notions of “harmony”, “balance”, “well-being” or human “needs” that it refers to are **not unequivocally defined**; and even less so are the associated levels of consumption and emissions;
- It evacuates the consideration that current “needs” could be antagonistic with those of the future generations or that individual and collective “needs” might diverge; in fact, in suggesting that meeting the needs of everyone, everywhere and all the time is the goal to pursue, **it conceals the fact that trade-offs and “hard choices” may be required**; in focusing on the suggestion that win-win situations are achievable, it distracts from looking where and when it may not be the case and some form of arbitration and/or regulation may be warranted.

Given these shortcomings, the paradigm has given rise to an “*ambiguous consensus*” (Larose-Tarabulsky, 2019), allowing everyone to project their expectations, priorities or interests through it. In fact, two different interpretations have eventually been proposed to reflect the distinct and almost irreconcilable visions of the place that ought to be given to the environment in the “sustainability equation”²¹ (Mensah, 2019):

- **Weak sustainability** posits that we will always be able to substitute natural capital by man-made capital, that is, to offset natural resource depletion thanks to innovation and increasing efficiency. Technological development, identified with progress, is viewed as being the main or primary engine of development, always yielding net positive impacts. This perspective, encapsulated in the *green growth* narrative, also suggests that perpetual economic growth is “within reach” without consideration of physical limits.

¹⁸ The notion of sustainability and that of “sustainable development” are closely related yet distinct; the fact that they are often used interchangeably reflects the confusion around the vision that underpins them.

¹⁹ The UN-convened World Commission on Environment and Development which produced a report, “*Our Common Future*”, aiming to bridge environmental degradation and poverty, the most pressing concerns on the global agenda at the time.

²⁰ “*Because there is little agreement on what level or kind of development is ultimately desirable and ecologically feasible over time, the voluminous discussion surrounding ‘sustainable development’ is often deceptively thin and the term does not often offer much clarity for future action*” (Niles & Tachimoto, 2018)

²¹ These ambiguities were dissected by (Theys, 2014) with regard to sustainable development; and were at the heart of the negotiation of the UN Agenda 2030 on the Sustainable Development Goals (SDGs).

- **Strong sustainability** considers that economic, social and environmental goals are of a different nature and nested within each other. It can only be achieved through a profound transformation of our production and consumption systems, associated with changes in behaviours and ways of doing things, making it possible to drastically reduce our “needs” and all the associated externalities (consumption of energy and resources, emissions, physical footprint): *“Strong sustainability requires deep, large-scale and urgent transformations”* (Waddell *et al.*, 2014). These transformations cannot be only technical, but they must also involve changes at the social/political level, as well as at the personal level, that is, in the way individuals see the world especially as regard their relationship to nature (Rigolot, 2020).

Going even further, the concept of “regenerative sustainability” has been introduced to move away from the anthropocentric views of the environment and proposes a holistic worldview as well as a focus on ensuring a co-evolution of human and natural systems (Gibbons, 2020; Robinson & Cole, 2015).

An implicit prioritisation

Debates on the definition and interpretation of sustainability are much more than semantic battles or scholarly disputes: they highlight the **lack of consensus on the “problem definition”** that public intervention seeks to resolve, without which there cannot be a coherent response strategy. Yet such debates hardly permeate the approach to sustainability in practice. The “triple bottom-line” approach whereby economic, social and environmental goals must be considered *simultaneously* remains indeed a guiding principle for policy development in many domains. The promoters of such approach, including the UN or OECD, even advocate that no prioritisation should be established between the SDGs given their “integrated and indivisible” nature.

However, the little consideration given to how the articulation of the three pillars should or could be realised in practice does not mean that they “naturally” align. Thus, the interlinkages of the different targets of the SDG is being increasingly researched, reflecting a need to better comprehend the potential synergies and conflicts existing between them (Alcamo *et al.*, 2020; Mantlana & Maela, 2020)²². Observations drawn from the literature show that:

- environmental goals appear to involve the most significant trade-offs as well as a higher degree of complexity, which might compromise the ability to meet them (Coscieme, Mortensen & Donohue, 2021; Kroll, Warchold & Pradhan, 2019);
- pursuing social goals through the lever of an increased consumption can be associated with higher environmental impacts and natural resources depletion (Mantlana & Maela, 2020);
- there is a *“high risk that nations will ‘cherry-pick’ the [SDG] goals that align with their priorities (...) and fail to address the others that are awkward; in particular, environmental goals and targets may continue to be largely ignored or put in the too-hard basket”* (Stafford-Smith *et al.*, 2017)

Despite the declared ambition of pursuing the three pillars simultaneously, there is indeed an implicit hierarchy that puts economic objectives above the others, which is apparent in the way most public

²² *“It is worth-noting that the nature, strengths, and potential impact of these interlinkages are largely context-specific and depend on the policy options and strategies chosen to pursue them”* (Tosun & Leininger, 2017).

interventions are targeted, designed and assessed. As an example, economic crises are usually followed by cuts in environmental budgets and a weakening of regulatory pressure (Burns, Eckersley, & Tobin, 2019); and recovery plans largely focus on stimulating economic growth while the measure of their success do not consider whether they have a positive impact on the environment. The reason for such hierarchy is that the (weak) sustainability paradigm is itself nested within the growth paradigm and underpinned by economic rationalism (Stålhammar, 2021; Tangney, 2020).

► **A debate around growth in implementing River Basin Management Plan in Scotland**

The case study shows “how an overarching political objective of ‘increasing sustainable economic growth’ is significantly affecting stakeholders’ understandings of the River Basin Management Planning -Development Planning relationship, as well as their own roles and responsibilities within that relationship. This has created barriers to the deliberation and potential operationalisation of environmental limits to growth in the built environment, which may be skewing decision-making processes in a way that undermines the RBMP framework and its objectives of protecting and improving the water environment”. The author documents how “some public officers might be wrestling with the implication that a ‘sustainable situation’ for the water environment means that, at some point, development must be curtailed”

Source: (Smith *et al.*, 2014)

The limits to growth

Economic growth, measured through GDP, has been considered for decades as the main indicator of development, not only for low income countries but also for industrialized ones (Morandín Ahuerma *et al.*, 2018)²³. Despite academic research and even policy initiatives providing new perspectives²⁴, increasing GDP remains to these days at the core of economic policies as well as the focus of many election manifestos.

This reflects how much the logic of mitigating the impacts of economic activities (weak sustainability) has taken precedence over that of regulating them to comply with physical limits (strong durability), to the point where it has actually **overshadowed critical reflections on the process of growth** (Bourg, 2012).

Yet, the pursuit of infinite (and exponential) growth inevitably comes to conflict, at some point, with the constraints of the physical world, that is, impacts will eventually exceed the environment capacity to absorb them and natural resources stock will be depleted from overconsumption. While announced and documented for years (Levallois, 2010), the **recognition of this “overshoot”** and its consequences

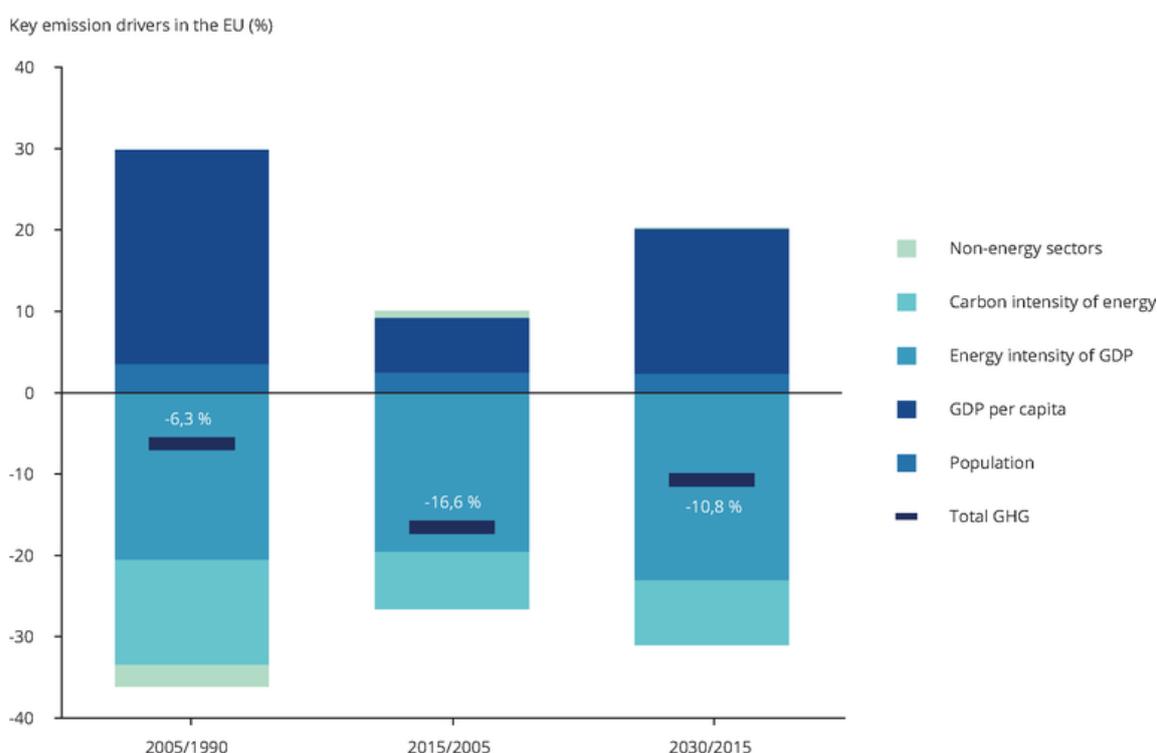
²³ In the UK, section 108 of the Deregulation Act 2015 establishes that any person exercising a regulatory function must have regard to the desirability of promoting economic growth. This “growth duty” “clearly establishes government’s expectation that economic growth is an outcome that all regulators should be working towards”. Cf. statutory guidance published at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/603743/growth-duty-statutory-guidance.pdf

²⁴ A Commission on the Measurement of Economic Performance and Social Progress, chaired by Joseph E. Stiglitz, Amartya Sen and Jean-Paul Fitoussi, was established by former French President Nicolas Sarkozy in 2007 to provide insight into the debate on the limits of GDP as a metric of well-being; and offer suggestions for construction of alternatives alternative indicators which may provide a better description of economic performance and social progress. Documents relating to the work of the commission can be retrieved from <https://www.insee.fr/en/information/2662494>.

has hardly, and only recently, started to permeate public discourses, following decades of denial (Björnberg *et al.*, 2017; Leiser & Wagner-Egger, 2022)²⁵.

- In 1972, the report “Limits to growth”, published by the Club of Rome, examined the five basic factors that determine and, in their interactions, ultimately limit growth: population increase, agricultural production, non-renewable resource depletion, industrial output, and pollution generation²⁶. It established that the unregulated evolution of such variables would eventually lead to collapse. Despite all the criticism the report faced at the time, research has since established that the trends projected in its “business-as-usual” scenario were broadly in line with the empirical evolutions observed to date.
- “In 2014, the importance of harmony with nature was recognized and the report of the Secretary General of the United Nations acknowledged that the economic growth model is not congruent with harmonization with nature, but these ideas did not have enough impact to change the economic focus of goals” (Morandín Ahuerma *et al.*, 2018).
- In its Seventh Environment Action Programme (7th EAP), the EU endorsed long-term sustainability goals and developed the long-term vision of ‘living well, within the limits of our planet’, in order to guide its environmental action.

► The impact of growth on GES emissions



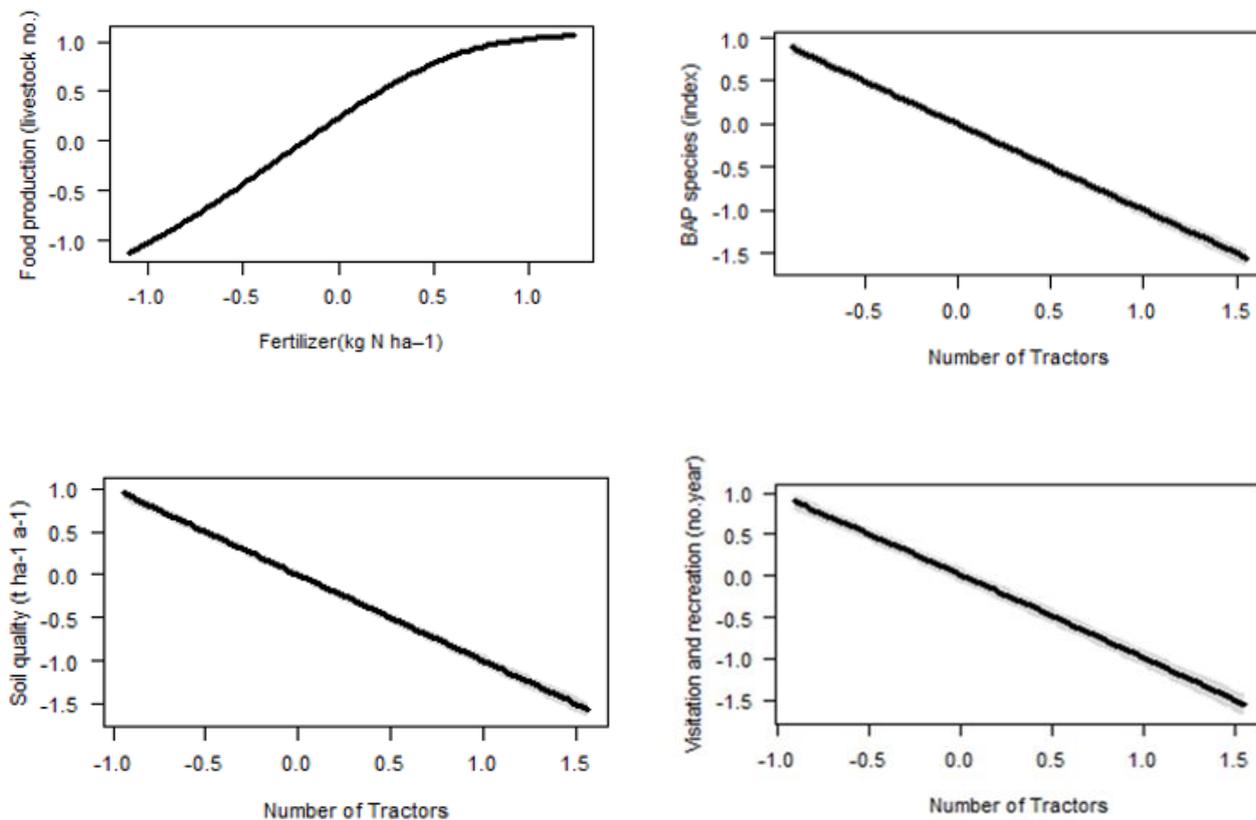
The chart shows that efficiency gains, as reflected by the reduction in energy intensity of GDP, is all but offset by the growth of GDP per capita

Source: European Environment Agency (<https://bit.ly/36SRyPO>)

²⁵ Just as for climate change, the denial of Earth limits and overshoot tends to follow several steps:

- There are no limits;
- Perhaps there are limits but they are far away;
- Perhaps the limits are near but technology / markets will allow us to overcome them or find new solutions;
- Perhaps we will not find solutions but we will adapt.

► *An illustration of the interlinkages and tradeoffs in relation to agricultural intensification*

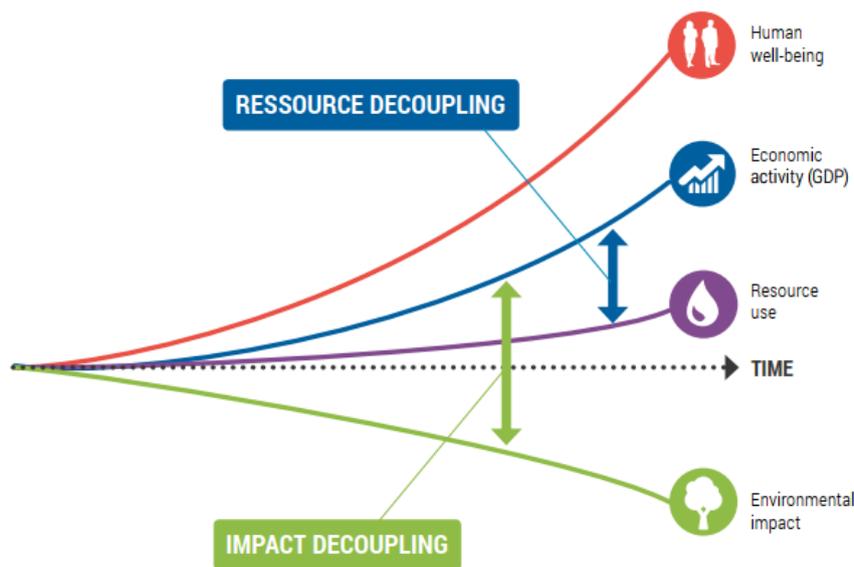


Charts represents the output of general additive models (GAMPs) analyses of timeseries ecosystem service responses to agricultural pressures (n= 75, data from 1930 to 2015. Grey polygon represents 95% confidence intervals

Source: (Watson *et al.*, 2021)

As a result of the growing tension between the objective of keeping the global economy grow and that of avoiding or addressing the pervasive impacts of such growth, **the notion of “decoupling”** has been introduced as a potential solution : it describes a situation where “*resource use or some environmental pressure either grows at a slower rate than the economic activity that is causing it (relative decoupling) or declines while the economic activity continues to grow (absolute decoupling)*” (IRP, 2017). The aspiration to decoupling has attracted considerable attention from policymakers, with many initiatives flourishing to promote approaches that enable it, such as green growth, circular economy, low resource development. (Morone & Yilan, 2020).

► **An illustration of the notion of decoupling**



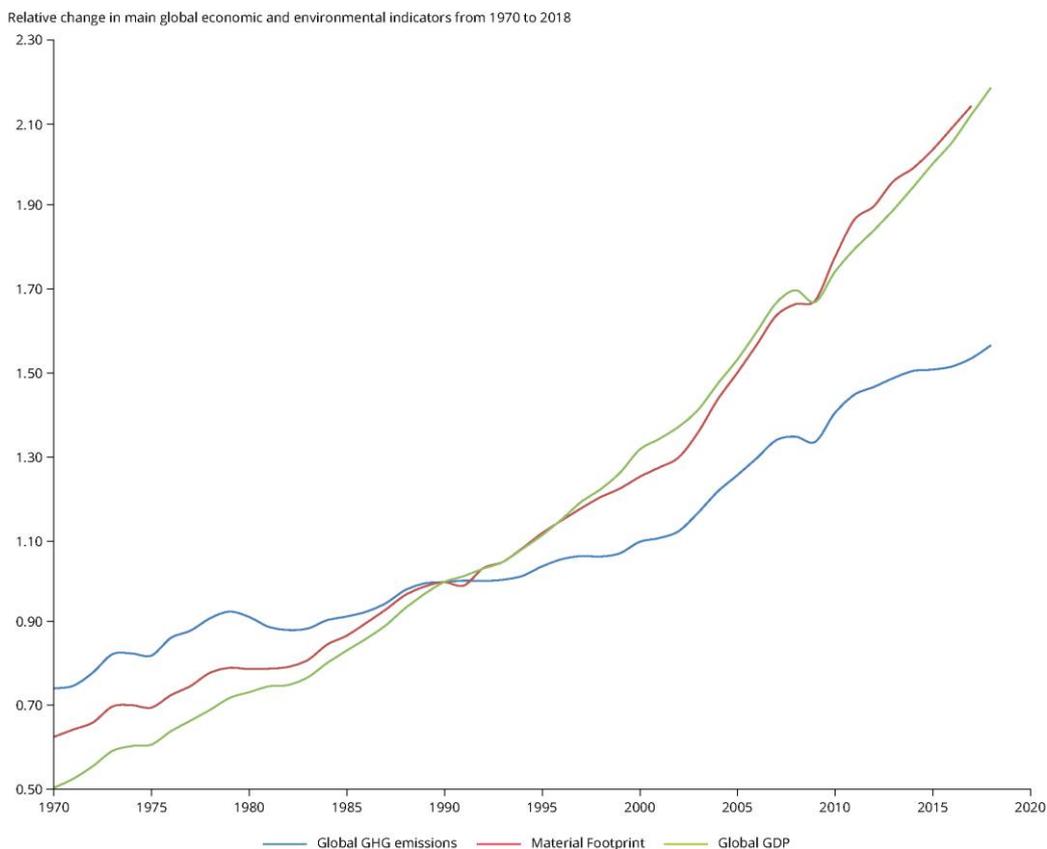
Source: (UNEP 2011)

Yet, the ambition and call for actions towards the decoupling agenda is a **case in point of cognitive dissonance**²⁷ as data show no evidence that delinking GDP from resources consumption may have started to occur, at least not at a global scale (Sanyé-Mengual *et al.*, 2019); and neither that it could be envisioned in the future without transformative change of a major scale (Haberl *et al.*, 2020; Parrique *et al.*, 2019; UNEP, 2011)²⁸.

²⁷ Inconsistency among beliefs or behaviours causes an uncomfortable psychological tension (*i.e.*, cognitive dissonance), leading people to change one of the inconsistent elements to reduce the dissonance or to add consonant elements to restore consonance (Taylor, Lamm & Lundy, 2017)

²⁸ “Already the world is running out of cheap and high-quality sources of some essential materials such as oil, copper and gold, the supplies of which, in turn, require ever-rising volumes of fossil fuels and freshwater to produce”. It would take “an urgent rethink of the links between resource use and economic prosperity, buttressed by a massive investment in technological, financial and social innovation, to at least freeze per capita consumption in wealthy countries and help developing nations follow a more sustainable path” (UNEP, 2011).

► **The (impossible) challenge of decoupling**

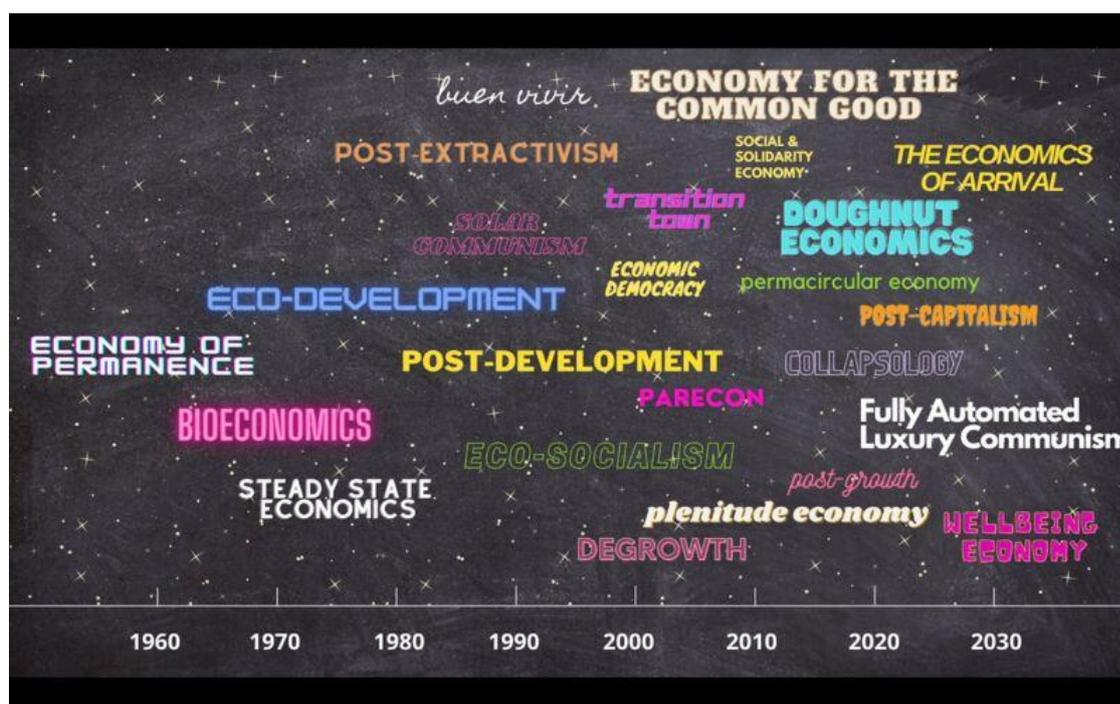


Source : European Environment Agency²⁹

The growing recognition of the sheer incompatibility between growth and environmental protection – an observation that is both “*overwhelmingly clear and sobering*” (Parrique *et al.*, 2019) - has led to the emergence of proposals for various “post-growth” paradigms (D’Alisa, Demaria & Kallis, 2014; Wiedmann *et al.*, 2020).

²⁹ Available at <https://www.eea.europa.eu/legal/copyright>

► *The variety of concepts to overcome the growth paradigm*



Source: (Parrique, 2021)

While initially introduced in academic or activist circles (Kovacic *et al.*, 2021; Parrique, 2019)³⁰, degrowth (and associated concepts) has recently gained a place in mainstream media and is even beginning to find an echo among policymakers: for example, a recent report “Growth without growth” published by the European Environment Agency acknowledged that “*economic growth is closely linked to increases in production, consumption and resource use and has detrimental effects on the natural environment and human health. It is unlikely that a long-lasting, absolute decoupling of economic growth from environmental pressures and impacts can be achieved at the global scale; therefore, societies need to rethink what is meant by growth and progress and their meaning for global sustainability*” (Kovacic *et al.*, 2021).

The various approaches encompassed within the degrowth paradigm rest on the following pillars:

- A definition of the overarching goal of public policies other than through the lens of growth/increased level of consumption, with a **focus on notions such as human development, well-being, progress or prosperity**;
- **A strong focus on sufficiency** as a driver for absolute reduction of impacts (Kreps & Cobb, 2021; Sandberg, 2021)
- The importance given to the **reduction of inequalities**³¹ as an essential prerequisite for transformative change (Chancel, 2021)

³⁰ More than 500 academic articles (in English) on degrowth have been published to date, a list of which can be found at <https://timotheeparrique.com/academic-articles/>. The subject is growing in popularity and universities such as Barcelona, Leeds, Vienna and Lund are beginning to specialize in this topic.

³¹ At the global level, the top 10% of emitters are responsible for about 48% of global CO2 emissions. The bottom 50% (3.8 billion individuals) emit on average 1.6 tonnes and are responsible for around 12% of all emissions in 2019

4 PROGRESSING TOWARD COHERENCE

4.1 GENERIC PRINCIPLES

Halting environmental degradation requires recognizing the biophysical limits to growth and ensuring that they are not merely a backdrop, or an aside, to political and social affairs but instead that they define the “*safe operating space*” (Szuba, 2017) for our societies/economies. A policy mainstreaming process would be needed to embed these limits into macro-economic and sectoral policies rather than the introduction of new “environmental” policies which have proved so far to remain conditioned or subordinated to economic growth. Such a shift appears to be the only way to ensure the consistency of public action in favour of environmental protection, in substance and not only from a procedural point of view or in political discourse.

To implement such a process of “*normative management under environmental constraints*”, the bio-economist René Passet, cited in (Szuba, 2013), proposes a three-stage process :

- firstly, setting the limits of a truly “sustainable” exploitation of the environment;
- then defining how the constraints arising from such (binding) limits must be distributed within society;
- then, establishing new institutions ensuring that economic actors will make optimal decisions according to these constraints.

However, applying these steps in practice is no easy feat. Firstly, because exposing and challenging the implicit assumption that natural resources and the biosphere capacity to “absorb” the by-products of human activities are infinite amounts to reframing the problem definition which has prevailed so far and determined the environmental policy agenda, goals and instruments. Such a deep transformation can only be associated with a regime change; and a new way of approaching environmental issues as “wicked problems” rather than through the technical policymaking lens.

4.1.1 The need for a regime change

Policy regimes rest upon a tripartite foundation of ideas, interests, and institutions : therefore, the emergence of a new regime results from (or requires) evolutions regarding each of these components.

“Ideas” - reframing issues and solutions

Because of the dominance of the weak sustainability/growth paradigms, many actors will shy away from the discussion of environmental limits (Hausknost & Hammond, 2020) or related notions such as overshoot or degrowth. Providing insight about such concepts will raise their profile in academic circles, media coverage and eventually the political discourse. This, in turn, will prompt new ways of framing problems, defining policy goals and developing solutions (Smith *et al.*, 2014)

This process of “reframing” reflects and results from a **cognitive evolution** but is also associated with a **change of representations**³² and of the values that underpin them, which is also a strong driver for behavioural change : *“It is a proven truth that an idea, no matter what form it assumes, has the power of making us come together, of making us modify our feelings and modes of behaviour and of exercising a constraint over us just as much as any external condition”* (Moscovici, 1993). The table below illustrates how two paradigms may reflect completely distinct “worldviews” and influence attitudes towards the environment and policies aiming to protect it.

► **Two paradigm and their underlying worldview**

“Frontier economics” worldview	“Deep ecology” world view
<ul style="list-style-type: none"> • Dominance over nature • Natural environment is a resource for humans • Material/economic growth for growing human population • Belief in ample resources reserves • High technological progress and solutions • Consumerism; growth in consumption • National / centralized community 	<ul style="list-style-type: none"> • Harmony with nature; symbiosis • All nature has intrinsic worth; biospecies equality • Simple material needs, serving a larger goal of self-realization • Earth “supplies” limited • Appropriate technology; non dominating science • Do with enough; recycling • Minority traditions/bioregions

Source: (Colby, 1990)

Changing mentalities and fostering mass mobilization for an effective transition will require a modification of our relationship with nature which nowadays hardly allows us to perceive the effects of the systemic crisis³³; tackling the cognitive dissonance which underpins resistance and avoidance strategies in the face of the scale of the necessary transformations; and debunking the belief that technological/engineering approaches can always "solve" environmental problems.

“Institutions” - overcoming barriers to change

The design of policies, and even their implementation, do not occur in a vacuum: they take place within institutions defined by “hard” infrastructure as well as soft processes, including ordinary politics (Smith et al., 2014). Consequently, mainstreaming environmental concerns across the board will require a change in the way such institutions are built, managed and work together.

The aspiration to remove barriers to cooperation among institutions is not specific to the environmental domain, it is one of the many transversal challenges – and potential solutions – for improving policymaking towards greater impact in an increasing complex and fragmented context³⁴ .

³² Moscovici, cited by (Höijer, 2011), defines social representation as *“a system of values, ideas and practices with a twofold function: first, to establish an order which will enable individuals to orientate themselves in their material and social world and to master it; and secondly to enable communication to take place among members of a community by providing them with a code for social exchange and a code for naming and classifying unambiguously the various aspects of their world and their individual group history”*

³³ *“Environmental sociologists have long since demonstrated and theorized the consequences of the basic fact that most environmental risks are unfelt, unseen and consequently unknown without a significant level of abstract thinking (Beck, 2009). To be experienced by a broader audience and to be governable, environmental problems must be translated, visualized and communicated via various representations”* (Boström & Uggla 2016).

³⁴ See the work of the British Institute for Government (Hallsworth, 2011).

However, beyond the operational and organisational changes required to foster greater cooperation between departments or making the policy-making process better (evidence-based, adaptive, etc...), a more deep-seated transformation is also required to steer of current governments towards promoting sufficiency and self-regulation in production and consumption. These new imperatives are in fact in direct conflict with what has been the *raison d'être* (and the condition of legitimation) of the state for decades, that is, to create the conditions of greater accumulation (Hausknost, 2020). The conversation is open today among scholars about how democracy could (or not) accommodate or trigger the disruptions that are needed to break such “*glass ceiling of transformation*” (Hausknost & Hammond, 2020).

“Interests” – acknowledging political dimensions and power distribution

Many authors have stressed the **political nature of seeking coherence**, in that any policy design reflects the consideration given to some priorities over others, thus reflecting the influence of some groups on the policy process but also the context within which it is implemented (Bocquillon, 2018; Boda & Faran, 2018).

In a context of multilevel governance and concerning a “boundary-spanning” issue such as environmental management, a vast array of actors may therefore become policy entrepreneurs, that is, “*advocates who are willing to invest their resources – time, energy, reputation, money – to promote a position in return for anticipated future gain in the form of material, purposive, or solidary benefits*” (Kingdon, 2014). Each of them will use the resources at their disposal to push forward their specific perspective on an issue; and thus influence the ambition of policy goals or the choice and design of policy instruments to manage it.

While such confrontation of views is inherent, and necessary, to the resolution of the trade-offs at the heart of policymaking, it is important to ensure that it takes place on a **transparent and level playing field**, that is, without being distorted by difference in access to policy-makers or resources to influence them. The regulation of lobbying, the prevention of conflicts of interests or the fight against deliberate disinformation are key endeavours in this regard.

In addition to their influence on the policy process, it is also the consideration of “interests” that may shape the evolution of the environmental governance regime and, potentially, the emergence of a new paradigm. The distributive impacts of environmental management policies are in fact a very sensitive issue, with many pleading that a “just transition” (Newell & Mulvaney, 2013) is both desirable and warranted to overcome resistance to change and to support those that will be impacted³⁵, especially in regard to intergenerational equity. A key question is “*how to compensate the current generation for the consumption which it must sacrifice – without any prior effort of the generation before – in order to initiate the balancing out of interests within the long chain of overlapping generations. It is very likely that a certain minimum level of intergenerational altruism is necessary in order to solve those problems*” (Wagner, 1997).

³⁵ “Any reduced revenues and job losses occurring during transformations to a resource-efficient and sustainable global economy must be addressed (...) Upskilling training and education, recycling tax revenues back to affected industries and businesses to support transformation and protecting the very poor and vulnerable through policy packages that take their needs into account are some of the ways resistance to change can be mitigated”(UNEP, 2011).

► An illustration of how “interests” can influence policymaking

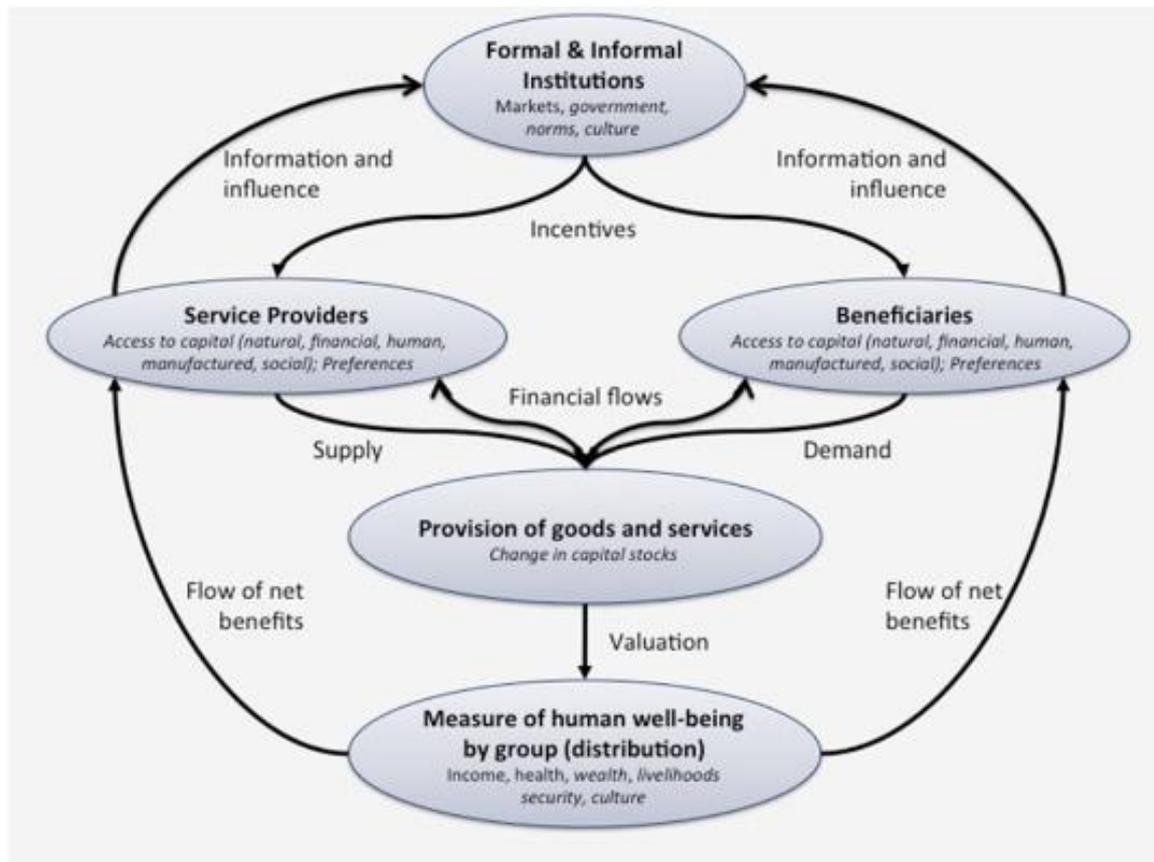


Fig. 1. A framework for including natural capital in the broader context of formal and informal decision-making institutions along with other forms of capital: financial, human, manufactured, and social. Formal and informal institutions influence decisions by both service providers and beneficiaries. Access to various forms of capital (“capabilities”) (115) and preferences affect the decisions of service suppliers and beneficiaries. The joint actions of service providers and beneficiaries determine the flow of goods and services (including ecosystem services). These change various capital stocks (including natural capital) and affect the well-being of different groups in society. Closing the loop from institutions to decisions to human well-being, and back to the top to inform institutional design and decision-making, has the potential to improve policy and management in ways that lead to improvements in human well-being. Components in italics indicate factors that change on relatively long timescales.

Source: (Guerry *et al.*, 2015)

4.1.2 The specificity of wicked problems

Implementing the transition towards strong sustainability requires addressing many issues that can be considered “wicked problems”, both at the local scale (for example, sharing water resources or preventing land use changes on a specific basin) and globally (for example, managing international trade). Such problems, that many authors have described with several nuances (Head, 2008; Levin *et al.*, 2012; Newman & Head, 2017; Rittel & Webber, 1973), have three main traits.

► *The characteristics of wicked problems*

Complexity	A variety of elements and subsystems to consider Problems are often ‘nested’ and interdependent, e.g. ecological & socio-economic interactions (Rogers <i>et al.</i> , 2013)
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Uncertainty	Uncertainty in relation to risks and consequences of action No stopping rule (no ends to the causal chain that links problem and solutions)
Divergence	Multiple parties involved, with divergence and fragmentation in viewpoints, values, strategic intentions Lack of an agreement on problem definition (no definitive formulation) and effective/acceptable solutions Choice of solutions cannot be based solely on “rational” evaluation criteria (Kim, 2021; Veraart <i>et al.</i> , 2018).

Because of the specificity and unique nature of a wicked problem, there is **no template for action**. In fact, the classical approach based on policy analysis must be replaced by alternative approaches taking into account that there is no ‘true-or-false’ solutions but ‘good-or-bad ones’; and that selecting and implementing them is an **open-ended process**. By all means, addressing such issues thus require both flexibility and a form of humility: *“Some caution is required with all proposed methods for addressing wicked problems, as they are all likely to be inadequate in various degrees”* (Head & Alford, 2013). In fact, it is necessary to accept that the success of any given policy response to wicked problems may be hard to predict, only partial or evolving over time (Mueller, 2020).

4.2 POLICY RECOMMENDATIONS

The arguments developed in the above sections show that it would be preposterous to imagine that a set of specific actions could, by themselves, suffice to make a measurable difference in the coherence of environmental policies and improve their impact. Yet, there are a variety of levers that could be actioned in order to support enhanced policy and decision making to better tackle environmental issues.

4.2.1 An ongoing focus on knowledge development

Improving knowledge is a first basic foundation to support efforts aimed at better comprehending issues but, more importantly, at designing and implementing solutions that are “optimal and optimised” to address them. There is an abundant literature on what research should focus on, how it should be conducted and what kind of outputs it should provide in order to take up the daunting challenges of the (strong) sustainability transition, climate change mitigation, biodiversity protection... (Boda & Faran, 2018; Capstick *et al.*, 2014; Chapin III *et al.*, 2011; Mauser *et al.*, 2013).

Some of the key area of focus where progress would be welcome are listed below :

- Enhancing monitoring capacity in order to precisely assess the state of the environment and have a finer grasp of the phenomena at play in its evolution, as *“there is an ever-increasing need for accurate and flexible knowledge of the world around us”* (Niles & Tachimoto, 2018)
- Developing integrated approaches to provide a holistic view of environmental challenges, by drawing insight from a variety of disciplines including economics, ethics or political science....
- Using social sciences to help identify the barriers between specialized, fragmented knowledge areas and overcome the obstacles to collaboration across sectors;
- Defining new “units of analysis”, with a focus on interlinkages between natural/physical components and anthropogenic components, in order to gain a better understanding of behavioural, societal and socio-economic challenges (Coglianese & Starobin, 2020);

- Providing for the involvement of scholars, scientists, public servants, citizens in context-specific, problem-driven and solution-focused research as a way to achieve effective trans-disciplinarity (Niles & Tachimoto, 2018).

Another key aspect is to question why and by whom knowledge is required, in order to make sure that its production and diffusion are targeted to have a maximum impact, especially with regard to:

- Informing the development of policy with evidence (Head, 2008);
- Raising awareness on issues and their interlinkages (Kapović Solomun *et al.*, 2018);
- Reducing cognitive biases (Williams *et al.*, 2018) ;
- Improving useability as a way to change behaviours (Bouma, 2019).

4.2.2 Implementing new policy approaches

The practice of policy-making needs to adapt to the specific, “wicked” nature of environmental issues as well as to the complex (political and institutional) context within which they must be addressed (Visseren-Hamakers, 2015).

Firstly, enhancing the dialogue between science and policy should be an essential pre-requisite. It is abundantly documented that policymakers give limited attention to the insight provided by research; and that decisions are too rarely informed by scientific evidence (or the link to it is not evidenced). The divide between these two worlds is not merely a communication challenge, it reflects that they function with their own logics and timing. New approaches are thus required to build deeper connection, such as knowledge co-production, etc.

The table below presents the main challenges and good practices that can contribute to bridging the gap between policy and science.

► **Science-Policy dialogue : challenges and possible responses**

Challenge	Description	Good practices
Ensure that research results are relevant for policymakers	Scientific findings are driven by research questions which do not fully match policy questions. As a result, scientific findings must be translated into a policymaking context to make them more relevant (Van Enst, Driessen & Runhaar, 2014).	<ul style="list-style-type: none"> • Facilitate knowledge brokerage with dedicated institutions helping to translate policy-questions to researchers and, reciprocally, to convey scientific evidence and answers to policymakers. • Foster transdisciplinary projects where scientists, policymakers and civil society collaborate to produce knowledge <ul style="list-style-type: none"> → The Irish EPA has Science-to-policy research call → The Water Forum commissions research for policy development
Facilitate access to research results	Often, scientific language is not easy to understand because of the complexity of many scientific methods and tools. In addition, policymakers may not have the time required to understand the information provided by scientists. This makes it difficult for them to adopt scientific results. Finally, many research results are published in scientific articles that are not open access to the general public.	<ul style="list-style-type: none"> • Improve the communication of science by means of videos, visuals, infographics, podcasts, blogs, exhibitions, summary for policymakers and news items • Develop knowledge hubs and knowledge portal as “one-stop” shop for sharing scientific findings • Build trusted relationships by periodic national dialogues and seminars, conferences, lunch meetings and awareness workshops
Better articulate the timing of research and the timing of policy	Funding, starting and finalising research projects takes time, but policy-makers are often looking for results in a shorter term.	<ul style="list-style-type: none"> • Involving policymakers in research projects • Conduct periodic science assessment
Better deal with uncertainty	Uncertainty is inherent to climate change science, which calls for practices on how to communicate uncertainty in a way that policymakers can act upon it. This challenge also concerns managing expectations of each actor’s roles and responsibilities in the Science-Policy Interaction.	<ul style="list-style-type: none"> • Develop climate services and decision support tools
Guarantee the credibility of research Manage the controversies	Scientific results may not be considered credible by policymakers despite them being the result of objective research. They may be perceived as not meeting the standards of plausibility and not to be trusted (Van Ernst <i>et al.</i> 2014). It may also be the case that research results are contradictory and cause dissensus, so that science/scientists can find themselves trapped in polarised debates.	<ul style="list-style-type: none"> • Set up institutionalised technical committees

Source: Adapted from (Coninx, Nuesink & Alho, 2021)

However, even if a greater reliance on science and expertise is desirable, scientific knowledge cannot and will never be the only element that policymakers consider. They have to factor in a variety of parameters, including the specific regulatory and institutional framework at local, national and global scale as well as the socio-political context, ...so that integration of **scientific knowledge is often “negotiated” within a wider process of selection and arbitration**, so that the challenge is not just on *“providing more science but ensuring transparency and accountability into how scientific evidence/arguments are taken into account for decision making”* (Post et al., 2020).

In addition, given the complex nature of environmental issues, the impacts of any given policy option or decision are difficult to appraise: they can be uncertain, ambiguous (positive on some aspects, negative on other) or controversial (welcome by beneficiaries, opposed by others³⁶). As a result, the selection of best policy options cannot emerge from a purely rational approach, it necessarily has a political dimension which is best addressed through the implementation of “alternatives” decision-making processes, such as (Post et al., 2020) :

- Use of **system modelling** tools helping to identify interlinkages so as to prioritize actions with larger synergetic impact and select “no-regret” options allowing to build resilience;
- Use of **foresight tools and methods** (e.g. scenarios, vision building, trends analysis, Delphi surveys) to factor in emerging challenges, face the possibility of disruptive events or tipping points and broaden the “solution space” (Machingura & Lally, 2019).

Stakeholder involvement (Renn, 2006) is another avenue to better address the political dimensions of decision-making for environmental management, as it allows for the **incorporation of goals, norms, and visions** (Mielke et al., 2016) through an open debate, rather than keeping it implicit or contained to the expert sphere. In fact, deliberative and participatory processes provide an opportunity to bring to the fore both the **uncertainty and the trade-offs** that are at the heart of solving environmental issues; and addressing them by facilitating the expression of collective preferences regarding the goals to be prioritized or the allocation of a costs and benefits (Post et al., 2020). Such processes are required because *“scientists’ normative claims can only be socially legitimated in a deeply democratic, unpredictable and open-ended process”* (Wironen, Bartlett & Erickson, 2019). In addition, they contribute to an increased connectivity (Ingold et al., 2019) and to the legitimization of the policy process outcome (Birnbaum et al., 2015), which may not be regarded as “better” but at least more acceptable.³⁷

³⁶ This section draws on the conclusions of the workshop by the Joint Programming Initiative “Connecting Climate Knowledge for Europe” on the theme *“Improving knowledge for enhanced climate change response and decision-making”*, held in Brussels on April 21-22, 2015, available at <https://bit.ly/3JFyvgg>.

³⁷ Despite the strong support for participatory approaches, it is also necessary to be aware of their limits:

- There is no evidence of deliberative processes having an impact at the scale required to catalyse a deep socio-ecological transformation, for example by inducing behavioural change; or by providing the necessary democratic legitimacy to the hard choices leading to sustainable path (Flynn & Kröger, 2003; Wironen, Bartlett & Erickson, 2019)
- There is often a lack of conceptual clarity on the rationales for participation, some divergence between conceptual planning and practical implementation of the processes, a focus on output and time constraints that can result in an “apparent” consensus, a challenge in managing the gap between experts and lay people, undue influence by powerful actors (Musch & von Streit, 2020).

4.2.3 Encouraging re-framing

Transitions studies show that profound transformation, such as that required to address the current environmental crises, are the outcome of the **co-evolution of multiple, intricately processes** occurring at various scales, involving rearrangements of political, economic, and social elements as well of changes in governance, with the emergence of new actors, institutions and/or power structures (Huh, Yoon & Chung, 2019; Panetti *et al.*, 2018).

Given the interplay between these many drivers, as well as the specific dynamics and pace of socio-technical change, transitions are essentially **non-deterministic** (Fouquet, 2016), thus “*irreducible to a single cause, factor, or blueprint*” (Sovacool, 2016)³⁸. Governing them is therefore a very challenging endeavour for policymakers.

Nonetheless, one important lever for inducing or reinforcing the impetus for change is the introduction of new concepts and the development of new narratives. Through the transformation of collective representations³⁹, this can bring about major contributions such as (Hysing & Lidskog, 2021)⁴⁰:

- raising the profile of an issue on the public agenda,
- “reframing” it in a way that facilitate its appropriation by a broader array of stakeholders,
- fostering transdisciplinary collaboration,
- establishing new institutional practices,
- inducing political, social and behavioural change.

For example, the “*ecosystem services concept has successfully reframed and broadened the rationale to strengthen considerations of nature in decision-making, especially by raising awareness and engaging new groups*” (Hysing & Lidskog, 2021).

The importance of narratives is especially salient for “disruptive” notions such as degrowth, which, “*to get traction on the mass level (...) is going to need better stories: visions for a positive future that tap into the myths. Stories to guide us down the steep slopes of the dark mountain to the shelter of the valleys beyond*” [(Alcock, 2016) cited in (Parrique, 2019)]. New visions would especially be needed to illustrate how to “live better with less” and thus to encourage a shift away from consumerist lifestyle, which could be rooted in a new perspective on “well-being” rather than being driven by moral or environmental imperatives (Brown & Vergragt, 2016).

³⁸ Energy transitions “*can be influenced by endogenous factors within a country, like aggressive planning (...) intensified by political will and stakeholder involvement, or exogenous factors outside of a country*” (Sovacool, 2016).

³⁹ However, “*Experience clearly shows that it is not enough to “transmit” a new information to change social practice and representation. The transformation of representations and practices is an eminently complex process and remains a vast field of investigation. There doesn’t seem to be a direct process influence of one on the other (representations on practices or practices on representations) which leads to transformations. The context is also an intermediate element that play a role*”. In addition, such transformations take place over a long period of time, which increases the difficulty of governing or monitoring them (Garnier & Sauvé, 1999).

⁴⁰ “*Concepts do not neutrally mirror the world but influence our way of understanding and navigating the world, thereby also changing it. By introducing new concepts, facts and values are organized in new ways, thereby creating incentives for action. New concepts, if agreed on, can (...) facilitate communication and collaboration*” (Hysing & Lidskog, 2021).

Academic research investigating the ability of narratives to influence public attitudes and activism ⁴¹ show that they must be developed having regard for the type of motivation that they can appeal to, thus “to shift attention from the behaviour sought...to the different motives that might encourage or discourage this behaviour” [(Batson, 2010, p.227), cited in (Smith & Christie, 2020)]. Their effectiveness can also be associated with the elements presented below.

► **Key drivers of narratives’ influence**

Emotional engagement	Targeting deeply held morals, values and identities is more effective than providing information and deliberative thinking
Human stories	Capturing issues through human stories is much more effective than statistics
Non-violent, democratic aims	Violent, anti-democratic or revolutionary language limits a social movement’s potential pool of support
Inclusive, superordinate goals	“Us versus them” enemy narratives are counterproductive
A values-inclusive narrative	Activating common moral foundations that transcend social and political identities (e.g. liberal vs conservatives) enable to broaden support
Unity and Diversity	Having a strong, unifying, grand narrative or central purpose is essential to mobilise largely but political effectiveness also depends upon the potential of this grand narrative to be favourably re-presented as sub-narratives to a wide range of constituencies with diverse interests, in order to recruit actors to the cause who are motivated by these sub-narratives
Appealing to the values we have	Due to the time-urgency, narratives for a sustainability transformation need to “draw out deep seated principles and values which are already harboured by people”(Capstick <i>et al.</i> , 2014) rather than rely on some future, hypothetical change of worldviews.
Modelling new norms	Moral revolutions don’t happen because people are persuaded by new moral arguments but because a committed movement of change-makers, with the help of influential leaders, mobilise to redefine what behaviour or practices are considered socially acceptable

Source: (Smith & Christie, 2020)

⁴¹ See for example (S. R. Smith & Christie 2020) for an overview.

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