

COMMENTARY

The European Group on Ethics in Science and New Technologies and the opinion on the just ecological transition

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Abstract

This article analyses the opinion of the European Group on Ethics in Science and New Technologies (EGE) *Towards a just green transition: addressing structural inequities*. The article first presents the origins, role and advisory function of the EGE within the European Union, then examines the ethical framework proposed for the green transition. The opinion develops a multidimensional understanding of justice, including distributional, corrective, transitional, procedural, recognition, global, intergenerational and planetary dimensions. Particular attention is devoted to the capability approach, which allows justice to be assessed in relation to human flourishing, health, social inclusion and ecological sustainability. The article argues that the green transition must be governed through transparent, participatory and accountable institutions, capable of protecting vulnerable groups, reducing structural “inequities” and aligning technological progress with human rights. From a public health perspective, the just green transition is not only an environmental necessity, but also a democratic and ethical imperative. The article concludes that the ecological transition can be sustainable only if it is guided by justice, solidarity and respect for human dignity.

Key words

- green transition
- justice
- equity

THE EUROPEAN GROUP ON ETHICS IN SCIENCE AND NEW TECHNOLOGIES: ORIGINS, DEVELOPMENTS AND ROLE

The European Group on Ethics in Science and New Technologies (EGE) was established in 1991 (its original name was the Group of Advisers on the Ethical Implications of Biotechnology) with the institutional role of advising the President of the European Commission on ethical guidelines for policies and regulation. It is a body composed of experts; it is independent, pluralistic and interdisciplinary (generally covering the disciplines of natural and social sciences, new technologies and the philosophy of new technologies, ethics and law).

The aim of the documents produced is to provide a comprehensive and concise analysis of a specific topic, generally at the direct request of the Presidency of the European Commission. The EGE's task is to draw up a document which, on the basis of an analysis of the arguments for and against the design and/or use of a tech-

nology, outlines ways of acquiring a critical awareness of the problems arising from technologies, providing a valuable guide for policies and regulation, rooted in scientific and ethical reasons. The growing importance of the EGE over the years is due to the quality of its output, and to the growing awareness of the importance of European governance with a scientific and ethical framework. Ethics is not called upon to place limits on scientific and technological progress, but rather to identify ethical requirements for the design and application of technologies that are compatible with fundamental human rights, in defence of human integrity, freedom as autonomy and responsibility, and justice.

Regulating new technologies is difficult: regulations often require continuous revision and reformulation in light of new scientific discoveries and societal transformations. The EGE's function therefore has the delicate role of ethical mediation between science/technology on the one hand and society/governments on the other.

The task of mediation is divided into several levels: descriptive, dialogical-dialectical and orientational/consultative. At the analytical level, the committee describes emerging problems: the description is generally complex and requires specific, even specialist, interdisciplinary skills. Within the committee, there is constant study, research, in-depth analysis and updating, with internal expertise and external hearings. At the dialogical-dialectical level, the committee is a forum for discussion, which is essential given the pluralism that characterises the current debate at the theoretical level. This pluralism manifests itself at the scientific, ethical and legal levels: even in the scientific field, there is often no single interpretation of phenomena; in ethics, we live in a postmodern society with fragmentation of values; in law, there are different ways of understanding the law and the relationship between law, ethics and science. The most difficult and delicate moment in the work of a committee is the effort, through discussion, to seek minimum or maximum points of agreement, where possible, expressed in the recommendations. It is not a question of reaching a compromise, but rather a mediation, a sharing or a consensus through overlap or intersection.

The opinions and documents of the EGE aim to provide conceptual tools to those who govern and to society in general to understand often complex, dynamic and changing problems and their relevance and urgency, outlining possible scenarios and identifying the paths to be taken in terms of public policies. These paths should seek a balance between the needs of scientific and technological progress and the protection of human beings, recognising the primacy of the human being over science.

The EGE has addressed a wide range of topics. These include issues related to the beginning of human life (prenatal diagnosis, cloning, research on human embryos), the end of human life, research on humans (genetic engineering, biobanks, international trials), new health technologies and emerging technologies (brain implants, doping, nanomedicine, synthetic biology, information and communication technologies, digitalisation, robots, artificial intelligence – AI, biotechnology and patents, genetically modified organisms, animal testing, food safety, energy, security and surveillance, digital democracy, and the pandemic).

THE DOCUMENT ON THE JUST GREEN TRANSITION

The document *Towards a just green transition: addressing structural inequities* (11 February 2026) [1] starts from a recognition of the urgency of the topic due to the context of the triple crisis of climate change, biodiversity and ecological degradation. The document discusses the concept of justice, and its normative basis (what it means to ensure “equality” and “leave no one behind”) in the context of the relationship between humans and the environment, recognising its growing and progressive complexity. The aim is not only to analyse the issue theoretically, but also to offer practical suggestions for including justice in policies.

The main innovative points may be underlined as described below.

The analysis of the multilevel concept of justice and the capability approach

Of particular interest is the analysis of the concept of justice to be applied from the design stage of policies for ecological transition: justice not only in the sense of recognising equality and not exacerbating existing inequalities, but also in the proactive sense of understanding the reasons for structural inequalities in order to overcome them, building more resilient societies. In the face of “disruptive” changes in the fast ecological transition, characterized by uncertainty and unpredictability, it is essential to change traditional approaches, with an innovative conceptualization of justice in a multilevel framework. The EGE emphasises that scientific evidence “remains crucial” in informing policy, but that policies should also integrate the multidimensional concept of justice, considering different levels:

- *Distributional justice* requires an equitable allocation of both burdens and benefits. Climate policies may disproportionately affect low-income households, rural populations, or workers in carbon-intensive sectors. The ethical commitment to “leave no one behind” should go beyond preventing additional harm and actively reduce existing structural injustices through targeted compensation mechanisms. From a public health perspective, this aligns with the principle of proportionate universalism: policies should be universal, but always tailored to needs;
- *Corrective justice* underscores historical responsibility: communities that have suffered from pollution, extractive industries, or economic marginalisation deserve recognition and remediation. This is particularly important in regions historically dependent on coal or heavy industry, where environmental degradation and health disparities often coexist;
- *Transitional justice* recognises that even necessary transitions can generate loss of employment, identity, or community cohesion. Ethical governance demands anticipatory measures to keep justice in ecological transition, with retraining programmes, social protection, green collective bargaining, and community participation in shaping new economic pathways. Without such measures, social protest movements may undermine both democratic legitimacy and climate objectives;
- *Procedural justice* means fair access to decision-making, through trust, transparency, and inclusive communication, which is considered essential for compliance with collective measures. Climate policies, often more disruptive and long-term, require even deeper democratic engagement. Citizens’ assemblies, participatory and inclusive consultation mechanisms represent important initiatives that should actively include marginalised groups, as migrants, elderly populations, rural communities, and people with disabilities;
- *Recognitional justice* demands cultural sensitivity. For communities whose identities are tied to specific ways of life, transition policies may be experienced as existential threats. Ethical governance requires acknowledging these attachments, rather than dismissing them as irrational resistance;
- *Global justice and solidarity* require the awareness that

green transition cannot be confined within European borders and the recognition that high-income regions avoid displacing environmental burdens onto lower-income countries. Trade agreements, due diligence directives, and carbon border mechanisms should be aligned with human rights principles, given the global interdependence;

- *Intergenerational and intragenerational justice* mean considering the rights and interests of future persons, and present persons, in both social and ecological sustainability. Importantly, intergenerational justice also intersects with intra-generational equity. Policies that impose austerity-like sufficiency measures on disadvantaged populations, while leaving affluent consumption patterns intact, would violate principles of fairness;
- *Planetary justice* further broadens the moral community to include non-human life. While not fully elaborated in the text, the recognition of biodiversity and ecosystem integrity as morally relevant entities challenges anthropocentric policy frameworks. Public health, increasingly aligned with “one health” and “planetary health” paradigms, must integrate this expanded ethical horizon.

In the context of the multilevel dimensions of justice, the M. Nussbaum’s capabilities approach is invoked in the document to help make justice operational beyond the economic and financial dimension. It is considered the impact of policies on the dimension of “human flourishing”, and therefore on life, health, bodily integrity, the senses, imagination, thought, emotions, practical reason, and the relationship with other species and the environment. A transition that protects ecosystems while undermining basic capabilities, through unemployment, energy poverty, or social exclusion, would fail on justice grounds; conversely, failure to respect planetary limits compromises the health and capabilities of both present and future generations.

It is the capabilities approach that allows justice to be established in a flexible way, promoting justice for individuals, communities and nations at an intercontinental and global level, while also considering non-human beings and future generations. This approach, proposed by the EGE, combines several dimensions: “intersectionality”, taking into account vulnerabilities related to age, gender and socio-economic status; “spatiality”, taking into account the many levels of policy and regulation, with the need for policies that are applicable in different geographical contexts; and “temporality”, recognising the intergenerational dimension and reflecting on urgency and ecological integrity.

Ethical governance of green transition

The document highlights the risks of delays or decisions not to prioritise the green transition.

The EGE insists on the need for “ex ante” and “ex post” assessment of risks and benefits in decisions regarding the green transition, with particular reference to social and cultural impact, with the provision of compensation for the most vulnerable groups through transparent and inclusive policies. The aim is to achieve a fair and proportionate distribution of burdens and benefits,

strengthening social protection (with particular reference to employment and the minimum wage).

The EGE is aware that the green transition can cause tensions, which require democratic deliberation. It is important to clearly develop “indicators” (such as well-being, health, sustainability, equity, environmental costs) that are useful as a coordinated, strengthened and implemented monitoring mechanism, through inclusive interoperable platforms. Each European country should clearly publish its environmental policies and measure the results of their social impact in terms of equity.

In the EGE’s view, the just transition should be legally binding at European level, tailored to socio-economic realities, with compensatory measures in national plans. To this end, detailed reports on the involvement of local populations in the evaluation of green policies are necessary. Europe should promote “green bargaining” for the protection of workers, giving them the tools, including educational tools, to cope with a green economy. It is also a question of clarifying and addressing market contradictions in order to link well-being and sustainability. Governments at all levels must address the contradictions inherent in the market in the green transition, seeking to reconcile “economic objectives” and “ethical imperatives”, competitiveness, sustainability and equity as interdependent objectives.

Governance should be “adaptive” and “flexible”, capable of governing systemic and interconnected phenomena, such as the relationship between humans and non-human species and the environment in a global and planetary sense, and the long-term impact on the relationship between present and future generations.

The document proposes a holistic approach of resilience, inclusiveness, equity, solidarity, and sustainability, seeking to bridge the gap between the economy and society, developing robust sustainability criteria and transparent reporting methods to prevent the so-called “greenwashing”. Compensation measures such as financial assistance, tax exemptions, and incentives should be available to those who are disadvantaged (e.g., in terms of property ownership or job opportunities).

Technological progress should be aligned with ecological and social justice, with respectful technical solutions aimed at strengthening justice beyond the borders of the European Union, taking into account fundamental human rights, in a perspective of global solidarity. Social labour policies should be closely linked and adapted to the green transition, and ecological policies should always comply with human rights. Circular economy policies should be promoted in Europe, with a reduction in waste and the encouragement of sustainable consumption and production.

Sustainability in Europe should always have a global perspective, with particular reference to middle- and low-income countries. Transparency in administrative policies should be improved, simplified and made understandable to all. The risks of global inequality should be mitigated with awareness.

Forms of participation

Governance must be transparent, participatory, and enforceable.

Communication, participation and inclusiveness should be strengthened. The success of the green transition will depend on participation, such as citizen active involvement, which is a prerequisite for building trust. Communication should be clear, transparent and reflective of European diversity, involving, in an inclusive way, the most vulnerable. Public participation should be systematically and procedurally guaranteed, and Member States should be “obliged” to establish permanent forums for participation and organize the fight against disinformation campaigns.

Europe should promote civic education on environmental justice, integrate “ecological and climate literacy”, and “ecological critical awareness” and encourage ethical and critical reflection, including through the role of artists, educators and journalists who can promote initiatives that strengthen the community’s bonds and ties on these issues. Education should promote resilience.

CONCLUSIONS

The opinion analysed, represents an ethically ambitious and normatively coherent framework for socio-ecological transformation. Its strength lies in its multi-dimensional conception of justice, integration of ethical governance with human rights, and recognition of democratic participation as foundational.

From a public health standpoint, the transition is not merely an environmental strategy but a comprehensive approach to safeguarding the determinants of health,

reducing inequities, and promoting human flourishing within ecological limits. The EGE asks that ethical aspirations should translate into enforceable standards, measurable equity outcomes, and institutional accountability. Without robust implementation, justice risks remaining rhetorical.

The green transition, according to the EGE, is both a moral imperative and a test of democratic maturity. If guided by justice, solidarity, and respect for human dignity, it offers an opportunity to build resilient societies capable of thriving within planetary boundaries. If pursued without ethical vigilance, it may deepen divides and erode trust.

The choice is not between green and just: the ecological transition should be just, or it will not be sustainable.

Conflict of interest statement

The Author declares no conflict of interest.

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