zef
Center for
Development Research
University of Bonn

Working Paper 246

SANDRA GILGAN, DENNIS AVILÉS-IRAHOLA, KEHINDE BALOGUN, TINA BEUCHELT, LISA BIBER-FREUDENBERGER, MICHAEL BRÜNTRUP, MARCELO INACIO DA CUNHA, KRISTINA GROSSMANN, ESTELA HERBAS BAENY, JAKOB RHYNER, JUAN SEBASTIÁN VÉLEZ TRIANA, FERNANDA WANDERLEY

Plural Sustainabilities - Reflections and Ways Ahead

ISSN 1864-6638 Bonn, July 2025

ZEF Working Paper Series, ISSN 1864-6638

Center for Development Research (ZEF), University of Bonn

Contact author

Dr Sandra Gilgan
University of Bonn
Dechenstr. 3-11, 53115 Bonn
0228 73 60594
s.gilgan@uni-bonn.de

Image credit: Arash Hedieh, Unsplash

Plural Sustainabilities

Reflections and Ways Ahead

Sandra Gilgan, Dennis Avilés-Irahola, Kehinde Balogun, Tina Beuchelt, Lisa Biber-Freudenberger, Michael Brüntrup, Marcelo Inacio Da Cunha, Kristina Großmann, Estela Herbas Baeny, Jakob Rhyner, Juan Sebastián Vélez Triana, Fernanda Wanderley.

Abstract

"Sustainability" is a diverse and contested concept that cannot be reduced to a single definition or practice. We propose the concept of "plural sustainabilities" to raise awareness of how different worldviews, knowledge systems, and values shape understandings of sustainability, recognizing the context-specific and culturally rooted approaches to sustainability found across the globe. Thereby, we use the concept of sustainability as a "boundary object"—a flexible term that connects different perspectives—and illustrates a plurality of sustainability concepts and practices through examples from various countries, including Bolivia, Colombia, Chile, Indonesia, Ghana, Germany, Tanzania, and China. These examples highlight how local knowledge, cultural philosophies, national narratives, grassroots initiatives, and international policy frameworks contribute to sustainability.

Through our discussions, we advocate for a "scientific multilingualism"— a more inclusive and pluralistic approach to sustainability research that values diverse way of living, interacting with, and making sense of the world. "Plural sustainabilities" calls on researchers to critically assess the development models advanced in the name of sustainability, particularly those influenced by national governments and international organizations. These models often, whether intentionally or not, perpetuate the same extractive practices and socio-environmental injustices they aim to resolve. A truly critical approach must go beyond surface-level commitments and explore how political decisions and institutional practices—both public and private—shape sustainability efforts in ways that may reinforce existing power structures. Recognizing and challenging this political use of sustainability is essential to support alternative, context-based responses grounded in plural worldviews, local knowledge, and transformative action.

Keywords:

African Agenda 2063, agriculture, Buen Vivir, campesino movement, community-managed land, conservation, decolonial, Ecological Civilization, diverse knowledge systems, indigenous knowledge, land use, plural sustainabilities, pluriverse, scales, sustainability research, sustainability science, Sustainable Development Goals (SDGs), sustainable development, transformation, transition, Ubuntu, UN Agenda 2030.

Acknowledgments

This working paper emerges from the activities of the working group on "Alternative Sustainabilities Between local contexts and global dimensions" within the German Committee for Future Earth (DKN). It was enriched through collaboration with colleagues who joined the author team following the international workshop *"Sustainability Science in a Global North–South Dialogue"* (July 2024). This week-long workshop, generously supported by the Transdisciplinary Research Area "Individuals and Societies" at the University of Bonn and the DKN, provided a valuable space for exchange and reflection.

We are deeply grateful for the support that made our conversations and collaboration possible. In addition to the co-authors, several other colleagues took part in the meetings and discussions on "alternative" and "plural sustainabilities." Our heartfelt thanks go to Constance Akurugu (University of Business and Integrated Development Studies, Wa, Ghana), Stephen Morgan (University of Ghana), Mangku Purnomo (Brawijaya University, Indonesia), Suraya Affif (University of Indonesia, Depok, Indonesia), Jonas Hein (German Institute of Development and Sustainability IDOS), Christoph Antweiler (University of Bonn) and Annette Scheersoi (University of Bonn), for contributing critical perspectives and thoughtful insights that helped shape this work.

Table of contents

ABSTRACT III

ACKNOWLEDGMENTS IV

TABLE OF CONTENTS V

1 INTRODUCTION 1

1.1 "Plural sustainabilities": A broader perspective for sustainability research 4

1.2 Methodology: Taking "sustainability" as a boundary object 6

1.3 Illuminating examples for "sustainability" across scales: from land use over national leading concepts to the SDGs 8

2 ILLUMINATING EXAMPLES PART I: LOCAL APPROACHES TO SUSTAINABILITY 10

2.1 Example from Colombia: Autonomous conservation and transition to agroecology as "alternative sustainability" 11

2.2 Example from Germany: Community-supported agriculture as part of Germany's alternative sustainability movements 13

2.3 Example from Tanzania: Smallholder indigenous knowledge in agriculture as a basis of alternative sustainability concepts in Turiana division, Tanzania 16

2.4 Interim summary I: Seeking recognition for meaningful transformation 19

3 ILLUMINATING EXAMPLES PART II: NATIONAL AND TRANSNATIONAL CONCEPTS OF SUSTAINABILITY 21

3.1 Example from the African continent: Pathway to a sustainable future. An Ubuntu conceptualization of sustainability 22

3.2 Example from Latin America: Buen Vivir as an alternative towards sustainability 24

3.3 Example from China: Ecological Civilization and sustainable development as parallel agendas 26

3.4 Interim summary II: Conflicts and resistance in the pursuit of sustainability 28

4 ILLUMINATING EXAMPLES PART III: AN INTERNATIONAL FRAMEWORK OF SUSTAINABILITY 30

4.1 The Sustainable Development Goals – A Milestone or Old Wine in New Bottles? 30

4.2 Interim reflection: Iterative course of the critical debate 33

5 CONCLUDING DISCUSSION FOR CONTINUING DIALOGUE 34

5.1 Open questions for further discussions and future research 34

6 REFERENCES 36

List of Figures

Figure 1: The "SDG wedding cake" model..... 32

Figure 2: The Ecological Footprint per person and the Human Development Index (HDI) by country. 33

1 Introduction

"Sustainability" is a complex and contested concept, with multiple definitions that carry diverse, analytical, normative and political notions. Over the past decades, the concept has gained prominence and maintained its importance. Rather than viewing the multifaceted nature of the concept as a disadvantage, we consider it an opportunity that benefits a "pluri-versal"[1] understanding of today's lived worlds. While the current global political framework on sustainability (UN Agenda 2030) emphasizes the universality of global sustainability concerns, we argue for the plurality of sustainability concepts and practices in various contexts worldwide. We discuss these concepts under the umbrella of "plural sustainabilities." This approach acknowledges the global concern while recognizing how it is contextualized in different settings.

Sustainability is generally associated with a wide range of human activities related to the use of resources, including natural, human, and financial resources, and it implies long-term continuity and the ability to carry on with these activities indefinitely (Todorov and Marinova 2011: 1397). Thus, it appears as a resource management principle that considers environmental protection and valuation (Todorov and Marinova 2011: 1398). The need to manage something better also entails a criticism of prior mismanagement. Therefore, sustainability is also a critique of the negative anthropogenic effects of capitalist-industrial development and related globalization processes, such as climate change, biodiversity loss, and land degradation (Balogun et al 2023: 5). The extraction of natural resources, with a view to their utilization over an extended timeframe, including that of future generations, gives rise to the concepts of intergenerational justice and distributive justice within ecological or biophysical constraints (Johansson 2021), thereby addressing the normative and political dimensions inherent to sustainability. Prominent concepts around the finiteness of the planet and the constraints of natural resources include the limits to growth (Meadows et al. 1972), planetary boundaries (Rockström et al. 2009, 2015), or ecological limits (Green 2021). The Club of Rome's 1972 report Limits to Growth (Meadows et al. 1972) employs computer simulations to model the interactions between human activities—such as population growth and economic sectors like industry and agriculture—and the finite boundaries of ecosystems, indicating that constant and unregulated economic growth is not feasible within the finite earth system. Planetary boundaries are quantifiable values to "define the safe operating space for humanity with respect to the Earth system and are associated with the planet's biophysical subsystems or processes" (Rockström et al 2009: 472). Ecological limits can be explained in descriptive terms, such as in resource and systems limits, and normative dimensions, such as distributive justice, institutional or legal reform, and the concept of the good life (Green 2021: 2). Distributive and social justice between states and within societies are necessary facets of sustainability, responding to asymmetric global developments and the reaping of their benefits. Global income and wealth inequalities are closely linked to environmental inequalities, as well as differences in contributions to and negative impacts of climate change. Countries in the Global South bear a greater burden (Balogun et al. 2023: 4). Environmental justice with climate justice at its core is therefore closely tight to sustainability concerns.

Definitions and concepts of sustainability that are well-known and frequently cited[2] include the following:

[1] The term "pluri-versal" describes a world in which many worlds fit; diverse world views and ways of living the world are in place. This is a world which is not scattered by "mainstream" and "marginalized" paradigms, practices, and positionalities, by "Global North" and "Global South", or "developed" and "developing" (Kothari et al. 2019: xxviii). It means to accept multiple positionalities and realities.

[2] Inspired by a presentation by Dr. Jonas Hein during the workshop "Sustainability Science in a Global North-South Dialogue" (July 16, 2024) and subsequent discussions among participating colleagues, some of whom are co-authors of this paper. The workshop was part of the activities of the working group "Alternative Sustainabilities" (German Committee in Future Earth, DKN), and it was co-financed by the University of Bonn (Transdisciplinary Research Area "Individuals and Societies").

Sustainability can be defined as the balance between three interdependent dimensions, namely ecological, social, and economic, as outlined in the famous Brundtland Report (Gehringer 2023: 16; WCED 1987). Furthermore, the report also encompasses responsibility for future generations and has a clear normative dimension. Accordingly, "sustainable development" is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987).

The adoption of the UN Agenda 2030 and its 17 Sustainable Development Goals (SDGs) has significantly advanced awareness and understanding of sustainability at both the international and national levels. In 2015, the Agenda and its goals were endorsed by all 193 UN member states, marking the most extensive international consensus on sustainability to date (UN 2015). A similar, continent-wide effort for Africa has been undertaken by the African Union in 2013 with the Agenda 2063 (AU, no date). It is crucial to recognize the complexity of both frameworks; the goals should be viewed not in isolation, but as an integrated system, where synergies and trade-offs must be carefully considered in the implementation process.

Sustainability can be understood as either "weak" or "strong" sustainability. Proponents of "weak sustainability" believe that natural resources are either abundant or substitutable and that technological progress can overcome resource constraints (Neumayer 2010: 22). According to this view, there is no need for a fundamental change in the interactions between natural and human systems—for example, in the economy—but rather a need to cause less harm, such as reducing pollution and improving resource efficiency. "Strong sustainability" focuses pessimistically on the depletion of non-renewable resources and sees loss of natural capital as irreversible. Pollution and consumption of resources today impact future generations. Thus, proponents of strong sustainability make strong normative demands to change how we deal with natural resources today for the sake of future generations' ability to sustain themselves (Neumayer 2010: 25).

Sustainability may also be interpreted as a critique of the exploitation of natural resources and of inequity, which has been described as "imperial mode of living" (Brand and Wissen 2013). This theoretical framework aims to comprehend the ecological crises in the context of social change, which has been deemed insufficient to address these crises. The concept of "imperial mode of living" was introduced to underscore the profound interconnection between capitalist, fossil fuel, and industrialist societal structures and the natural environment. It is imperative to comprehend the mode of living in close relation to capital's strategies, the profoundly entrenched mode of production, and the power-shaped settings of the norms of consumption (Brand and Wissen 2013: 703).

"Sustainability" refers to a state or objective, but it also encompasses a procedural element: the process of transitioning between states or achieving objectives. The term "sustainable development," often used interchangeably with "sustainability," reflects this notion. Additional related concepts that are pertinent to action- and change-oriented processes include "transition" and "transformation." These concepts address dimensions of policy and governance.

Approaches to socio-ecological transformation "aim to promote changes in the interactions and relationships between human and natural systems in order to increase these systems' resilience and sustainability" (Malakar et al 2023: 170). One such approach is ecosystem-based, with a focus on conserving and restoring ecosystems to improve their resilience to environmental stresses, such as climate change. This includes ecosystem-based adaptation (EbA), a strategy aimed at reducing vulnerability and enhancing ecosystem services. A second approach encompasses integrated assessment and planning, utilizing tools such as modeling and scenario planning to elucidate the interactions between human and natural systems and develop strategies for managing these interdependencies. Thirdly, the concept of adaptive governance and management is paramount, emphasizing the establishment of adaptable governance structures capable of addressing the intricacies inherent in socio-ecological systems. This approach advocates for the promotion of stakeholder engagement and the incorporation of traditional knowledge (ibid).

Socio-technical transitions (Geels and Locatelli 2024) refer to long-term processes of change aimed at reducing environmental impacts and mitigating climate change through concrete technological innovation. These transitions take place in key sectors such as energy, mobility, agri-food, and industrial systems, involving a complex interplay of factors, including the development and diffusion of new technologies, the improvement and transformation of existing systems, the reorientation of key stakeholders, and the gradual phase-out of outdated infrastructures and practices.

The concept of "just transitions" was initially introduced as a means of safeguarding the interests of workers in the fossil fuel industry, who were adversely affected by climate policies with regard to employment and pensions. Over time, however, the term has evolved to encompass a more comprehensive notion of ensuring equitable and inclusive societal transformations as society transitions away from polluting industries (Laurent 2024: 5). In order to address the challenges posed by the fossil fuel industry, particularly in relation to marginalized communities, a series of strategies have been proposed. These comprise the provision of alternative employment opportunities, the delivery of training programs, and the promotion of workers' rights, including the right to unionization. Additionally, there is an emphasis on health rights, clean environments, social support, and climate-resilient public health systems, calling for the prioritization of social, physical, and mental well-being, with the aim of ensuring that no individual or community is left behind. Furthermore, the cultural and historical harms inflicted by the fossil fuel industry, particularly towards marginalized communities, are to be addressed, with a focus on supporting healing and rebuilding processes. Finally, the promotion of decentralized, low-carbon economies focused on population health and community-based healthcare is identified as a key objective (Laurent 2024: 8). "Since the COP 26 declaration in December 2024 and the launch of the first 'Just Energy Transition Partnership' (JETP) agreements, the just transition has even become a core topic of climate negotiations." (Laurent 2024: 2)

In these definitions, sustainability is approached from multiple perspectives, encompassing socio-technological, environmental, political, and normative facets. However, the scope remains within the paradigm of a "Western model" of modernity, development, and progress, as critiqued by the "imperial mode of living." The concept of "sustainability" is inextricably linked to human-nature relations, which are understood and experienced differently by diverse groups of people in their respective environments. Consequently, sustainability is a contested field in which diverse worldviews and development frameworks interact (Acosta 2016; Escobar 2018). Critical approaches contend that sustainability should not be reduced to a mere adaptation of capitalist models under the guise of "sustainable development" (in a spirit of weak sustainability); instead, it must be open to alternative epistemologies that prioritize the interdependence of society and nature (Gudynas 2014). It is imperative to acknowledge the existence of multiple ontologies, rather than relying exclusively on conventional Western metrics. A more thorough examination of these dimensions and their implementation in various contexts would assist in addressing the current conceptual ambiguity that permeates sustainability debates.

Consequently, we propose a discourse on what we term "plural sustainabilities," encompassing a spectrum of sustainability conceptualizations across diverse socio-geographical contexts. In these cases, there is frequently a discordance between "Western" and endogenous models, concepts, and modes of existence. The countries under scrutiny in this study include Bolivia, Colombia, Chile, Indonesia, Ghana, Germany, Tanzania, and China. We examine the particular "sustainabilities" in question (1) within their contexts and respective origins; (2) in their different political, cultural, economic, ecological, and academic interpretations; (3) in context of related concepts, theories, discourses; (4) in their application or embodiment in communities, policies, and initiatives, as well as their potential misuse; (5) contradictions, tensions, and resistances concerning the concepts, their interpretations, applications, across various scales.

We present an example of a grassroots-driven transition to ecology in Colombia, examined from the perspective of an alternative to existing development paradigms. It adopts the notion of transitions as espoused by sustainability, but employs a critical lens to evaluate established development paradigms and global capitalist structures. In a similar vein, we explore community-supported agriculture in

Germany as part of 'alternative' sustainability practices. This analysis critiques existing economic structures, a perspective which aligns with the concept of the "imperial mode of living" but incorporating an additional gender perspective. In the case of Tanzania, we examine the use of indigenous knowledge in the context of sustainability and food security, reflecting exposure to exogenous knowledge and 'modern technology' in and since colonial times. These examples collectively illustrate a particular "situatedness" of the aforementioned practices concerning sustainability. In this paper, we do not focus on the scalability of these practices and initiatives; this necessitates a distinct methodological approach. Instead, the focus is on the significance of context in relation to sustainability, facilitating a comprehensive understanding that spans from theoretical frameworks to practical applications.

For the African continent, we have selected the well-known philosophy of ubuntu in the context of sustainability. This philosophy has been linked to the African Agenda 2063 (AU, no date). On a conceptual level, it adds depth to the three dimensions of sustainability by emphasizing the interconnectedness of beings—human to human, but also human to environment and further living beings, as well as to ancestors. Responsibility and respect are not confined to future generations but extends to past ones as well. However, the identification and implementation of such ideals in the political agenda, in terms of concrete policies or initiatives, remain ambiguous, suggesting that certain ideals may remain at the level of political rhetoric. A similar dynamic is observed in the concept of Buen Vivir in Latin America, which signifies a localized approach to achieving a fulfilling life and is intrinsically linked to the normative facet of sustainability. Several countries have incorporated Buen Vivir into their constitutions. However, it remains largely unrealized in political action, as governments continue to prioritize economic growth and the extractive exploitation of natural resources, reflecting the prevailing capitalist model.[3] In the context of China, the concept of Ecological Civilization is identified as a pivotal element for the formulation of domestic sustainability policies. The origins of this idea can be traced back to the Chinese academic community during the 1980s; this community is similar to that which was involved in the international discourse that ultimately shaped the Brundtland Report. The provided example illustrates a parallelism between Ecological Civilization and sustainable development. One is a guiding principle for domestic politics, while the other is an international framework for international politics. Both are employed at their respective levels. These national examples are remarkably diverse in character and origin, yet they share a common critical stance toward the Western model of civilization.

Finally, the SDGs are examined as an individual case, representing an alternative to previous notions of development. A critical examination of the progress achieved thus far is imperative, particularly with regard to the concepts of "weak" and "strong" sustainability. The argument is made for a greater emphasis on the latter, indicating a need for increased efforts to be directed towards it.

1.1 "Plural sustainabilities": A broader perspective for sustainability research

Scientific inquiry in relation to "sustainability" and "sustainable development" can embody different modes, namely research or science *of* and *for* sustainability (Spangenberg 2011: 276-279). With our discussion of "plural sustainabilities," we contribute a third mode of research *about* sustainability, complementing the first two modes.

Research *of* sustainability examines the intricate relationships between human and environmental systems, emphasizing the necessity to establish connections between various academic disciplines and foster mutual comprehension among disparate scientific cultures. This is a common practice in our

[3] These critical reflections stem from our discussions of the two concepts, though they may extend beyond them. Similar challenges may also arise in other political (sustainability) agendas, including the UN Agenda 2030.

day-to-day research, and it serves as the foundation for this paper and our deliberations on sustainability. It is also in this context that the concept of "**sustainability science**" can be situated, which was formally introduced as a new field of studies in 2001 during the World Congress "Challenges of a Changing Earth 2001" in Amsterdam. This introduction was spearheaded by a scientific community with a strong foundation in earth, geological, and environmental sciences. The congress was organized by the International Council for Science (ICSU), the International Geosphere-Biosphere Programme (IGBP), the International Human Dimensions Programme on Global Environmental Change and the World Climate Research Programme (WCRP; Miller et al 2013: 239). US-American environmental scientist and geographer Robert W. Kates (1929–2018) played a pivotal role in this event. He is widely recognized for his seminal contributions to the emerging discipline, which he defined as an approach "that seeks to understand the fundamental character of interactions between nature and society. Such an understanding must encompass the interaction of global processes with the ecological and social characteristics of particular places and sectors." (Kates et al. 2011: 641). This underscores the imperative for contributions from research in the domains of societies, cultures, geographies, and environments. Indeed, appeals for interdisciplinary and transdisciplinary research are on the rise (Thorén et al. 2021). Research must extend beyond the established disciplinary boundaries, a process that necessitates "scientific multilingualism" (Spangenberg 2011: 279). This involves transcending the conventional boundaries of disciplines and embracing interdisciplinarity, as well as transdisciplinarity, which involves the integration of knowledge from diverse sources, including those outside the academic realm. The objective of our work, which we have termed "plural sustainabilities," is to contribute to this "multilingualism" by providing examples of "sustainabilities" from diverse geographies, societies, environmental contexts, and cultural ingredients.

Research *for* sustainability targets the goals of sustainable development as outlined in political frameworks or strategies. This research provides support for decisions and informs the public. It can be mono-, inter- or transdisciplinary in nature; its primary objective is to serve society. The concept of "plural sustainabilities" is predicated on a critical interrogation of the origins of various forms of "sustainabilities," encompassing knowledge, understandings, and practices. In summary, our focus does not lie in the immediate execution of specific objectives. However, the present approach can also facilitate the process of questioning and evaluating goals, as well as fostering collaboration for achieving them.

Research *about* sustainability involves the examination of various conceptualizations and interpretations of the term, as well as the concerns and connotations associated with it. Additionally, this research explores the approaches to and conflicts in its implementation. Research about sustainability is characterized by the facilitation of dialogue between communities of practice across boundaries of knowledge and geography, and it addresses a significant gap in the existing German research landscape in the field of sustainability. As noted by leading scholars in the field, "The broad discourse in cultural anthropology has not found yet its way into sustainability research. Hence, theoretical reflections on a transcultural and transdisciplinary approach to a holistic understanding of sustainability are deemed necessary" (Jacob et al. 2022: 6).

In summary, the objective of our work on **"plural sustainabilities"** is to cultivate awareness regarding the repercussions of disparate ontologies, worldviews, and epistemologies on a foundational level. Furthermore, we aim to foster "scientific multilingualism" in sustainability research—in the context of interdisciplinary research, international collaboration and in engaging with diverse interpretations and conceptual frameworks of sustainability. Indigenous perspectives, for example, have been demonstrated to yield valuable insights and alternative paradigms for addressing contemporary environmental challenges. By emphasizing interconnectedness, reciprocity, collective ownership and stewardship (e.g. of land and ecosystems, respectively), and long-term thinking (i.e. intergenerational thinking, e.g., over seven generations), Indigenous communities provide models of sustainable living that are both ecologically sound and culturally meaningful. Integrating these principles into broader sustainability frameworks could enhance global efforts to achieve environmental resilience and social equity (Berkes 2012; Whyte 2017). Concomitantly, a comprehensive understanding of the context and

a critical evaluation of disparate "sustainable development" initiatives promoted by states and international organizations is imperative to ensure that these initiatives do not reproduce the same logics of capital accumulation and resource exploitation. This could be considered a step towards overcoming the political instrumentalization of sustainability. We will further discuss this issue with the help of our examples.

1.2 Methodology: Taking "sustainability" as a boundary object

We are an authors' team from various geographical locations and academic cultures, that is, with diverse disciplinary backgrounds and positions (PhD candidate to professor) in academic systems in multiple countries. All of us are engaged in research related to the concept of "sustainability." This term's flexibility allows for relatability by a diverse group, while its robustness enables it to accommodate a range of interpretations. Knowledge generation for sustainability appears to us to be situated beyond the confines of a singular discipline. Rather, we consider it a novel domain of study, wherein diverse knowledge sources, stakeholders, and sectors converge to inform, design, and propel change. Such inter- and transdisciplinary research traverses boundaries: the former necessitates communication among different disciplines and the integration of methods and theories from disparate fields. The latter broadens the scope of communication to encompass non-academic stakeholders and integrates knowledge from diverse sectors of social life, politics, and business. Disciplines are the patterns in which modern academia is organized (Vilsmaier and Klein 2023: 23). Canons of significant thinkers, objects of study, their knowledge criteria, methods of knowledge acquisition and analysis confine modern academic disciplines and mark their boundaries towards each other (Klein 2021: 17). Curricula, training, qualifications, ethics of work and research institutionalize the specific "knowledge work" for a professional community of practice (Klein 2021: 18). Consequently, disciplined research is bound by people and practice. We are a group of people who endeavor to comprehend the concept of sustainability in "un-disciplined" international and interdisciplinary "knowledge work".

In the context of an international dialogue on sustainability, it is imperative to acknowledge the diverse colonial histories that have contributed to the formation of the academic knowledge system and the concept of sustainable development. Sustainability in Latin America, for example, must be considered in the context of its colonial history and the power relations that have influenced its developmental models (Escobar 2018; Svampa 2019). The paradigm of Buen Vivir (or Vivir Bien), enshrined in the constitutions of Bolivia and Ecuador, presents an explicit critique of extractivist and market-driven logics of development, proposing an approach based on the harmonious relationship between humans and nature instead (Acosta 2016). However, state appropriation of this concept has led to tensions between Indigenous communities and governments, underscoring the contradiction between environmentalist rhetoric and economic growth policies dependent on natural resource extraction (Gudynas 2014). This will be elaborated upon in the subsequent discussion. Consequently, efforts to promote sustainability should be informed by decolonial approaches that interrogate the role of sustainability discourse in perpetuating neo-colonial forms of territorial control and resource exploitation (Devine, Ojeda and Yie 2020).

The impetus behind our engagement in an international dialogue beyond disciplinary boundaries lies not only in the difficulty of comprehending sustainability through multiple disciplinary lenses (Vilsmaier and Klein 2023: 23), but also the impossibility of fully capturing it using the very categories that emerge from—or have been shaped by—those disciplines. Our very work in "plural sustainabilities" can be specified as "boundary work" encompassing various practices to uncover, discuss, negotiate and communicate differences and commonalities (e.g. of boundary concepts) from a plurality of perspectives. "Boundary work is the praxis of making differences visible, utterable, and tangible to confirm, reinforce, transgress, transcend, or transform boundaries" (Vilsmaier and Klein 2023: 22). As previously mentioned, in academic collaboration, this approach fosters a pluralized

understanding of sustainability, and underscores the need for context-specific analysis. For policy and practice, this has the potential to provide much-needed clarification. Despite the increasing inclusion of sustainability in governance frameworks and policies, its implementation has been marked by contradictions between official discourse and extractive practices promoted by states and transnational corporations (Svampa 2019). One example is Bolivia, where the government has promoted lithium extraction for the sake of an "energy transition," while local communities denounce the negative environmental impacts and the exclusion from legitimate consultation processes (Escobar 2018), revealing different views on and uses – including abuses – of sustainability.[4]

Boundary objects represent a prevalent approach for transcending the boundaries that delineate various disciplines and their respective communities. These objects garner interest from multiple professional communities, both within academia and in other fields. Each area of expertise (e.g. a discipline or professional sector) possesses a distinct corpus of knowledge and expertise pertaining to the boundary object, which serves as the foundation for the communication and translation of interests across boundaries. Accordingly, boundary objects have the capacity to mediate across boundaries by maximizing communication between social worlds (Klein 2021: 27-29). The diversity the objects are surrounded by is a resource to their meanings and impacts rather than an obstacle to their understanding or something to be avoided (Klein 2021: 94). According to Star and Griesemer, who initially introduced the concept in 1989 in the field of science and technology studies, boundary objects are characterized by their capacity to adapt to diverse perspectives, thereby exhibiting meaning from multiple vantage points, while concurrently preserving a degree of autonomy in their identity across boundaries. Their structural characteristics are not confined to a single realm but manifest and are valid in multiple domains (Vilsmaier and Klein 2023: 25).

In this characteristic, boundary objects function as mediators between disparate social domains, thereby serving as instruments of translation, in two ways: Firstly, they support a pluralistic worldview, encompassing diversity in ontologies, epistemologies, and the (inter)actions that ensue from these frameworks.[5] This approach is particularly well-suited for us as authors, facilitating a collaborative exploration and generation of interest, drawing upon the expertise from diverse disciplinary backgrounds and sociocultural contexts. It also permits our work to stand side by side under the umbrella of sustainability Secondly, the translation of "sustainabilities" from various national languages, in addition to technical terminology, integrates interdisciplinarity and internationality.

On a practical level, sustainability as a boundary object presents itself as a contested space, seen and implemented differently. Environmental justice and the rights of nature as integral parts of sustainability have been crucial in defending territories and communities from extractive projects (Schlosberg 2007). In Latin America, struggles for Indigenous territorial rights are deeply tied to broader critiques of the development model imposed by the state and the market (Acosta 2016). Environmental justice movements have shaped local sustainability alternatives, such as campesino agroecology in Colombia (which we will present later as a detailed example) or water protection movements in Bolivia (Vélez-Triana 2023). The concept of African *Ubuntu* reflects a broader vision of an African Renaissance and offers an alternative to Western societal models. Similarly, China's concept of an Ecological Civilization presents a contrasting paradigm to Western industrialized societies (see examples in this paper).

In these contexts, sustainability presents itself as a normative and ethical framework demanding profound transformations in the way societies manage economies, territories, and commons (Schlosberg 2007). It is important to distinguish between sustainability as a negotiation tool, which is

[4] The above-mentioned paradoxes reveal once again that sustainability is not a neutral concept but a contested space where antagonistic development visions collide (Rivera-Núñez 2024).

[5] It is possible for multiple human-nature relations and understandings to exist concurrently, even within the same location (Sprenger and Großmann 2018; Mignolo 2018). This can be a source of friction and conflict in concrete sustainability practice. Often, these foundational misunderstandings and tensions are not part of solution- or practice-oriented sustainability research.

a flexible concept that facilitates collaboration among different disciplines and actors, and sustainability as a political agenda that requires material and structural changes (Escobar 2018). Using sustainability too flexibly, without tying it to concrete structural changes dilutes its transformative potential and thus its ability to drive meaningful change (Klein 2021; Gudynas 2014).

As authors of this working paper, our boundary work has involved several months of discussions and workshops, and finally this working paper. The paper uncovers multiple perspectives on "sustainability" and "sustainable development" in local translations or regional approaches. There are also initiatives that operate under different terminologies but have similar concerns to what we call "sustainability". Our boundary work therefore draws on knowledge of languages and terminology, intellectual history, politics, policy work, cultures, empirical and theoretical work. We present and discuss "illuminating examples" (Vilsmaier and Klein 2023: 25) of "sustainability" from different contexts and scales—from local to national to international. These examples highlight the diversity of conceptualizations, interpretations, meanings, concepts, and practices surrounding this "boundary object".

1.3 Illuminating examples for "sustainability" across scales: from land use over national leading concepts to the SDGs

All of our examples have very localized starting points. The most localized example is land use for agricultural production. We examine different examples in Tanzania, Colombia and Germany, which reveal "alternatives" to conventional development approaches, partly in resistance to the latter and partly in mutual reconciliation. Conventional approaches are often related to views of (Western) modernity and the use of modern technology. Depending on the specific local conditions, needs, and histories, modern approaches may be partially or fully resisted, or useful knowledge and technology may be embraced. There is no strict dichotomy; not all external influences are negative, nor are all indigenous practices inherently superior.

Furthermore, we examine different national and transnational narratives of sustainability that have brought selected local concepts to the national and transnational levels, including Buen Vivir (Latin America), Ubuntu (Africa), and Ecological Civilization (China). These concepts have already gained some prominence in expert debates, public discourse, and policies concerning "sustainability." Incorporating them into national debates, political agendas, and even constitutions is a political decision. This political act reflects the chosen narrative for development and transformation and may involve new issues of cultural and political representation and power asymmetries.

Finally, we examine the UN Agenda 2030 and its sustainable development goals as an example on an international scale. This example illustrates a collective political will toward a common direction while still allowing for diverse policies in different countries. However, the group involved in setting the agenda is a relatively small circle of experts, meaning many voices are underrepresented or entirely absent. Additionally, measuring progress toward sustainable development remains a significant challenge.

All of the "illuminating examples" that we present are on different scales. Scales have spatial and societal or social components. They can be understood as the "level" of geographic resolution at which something occurs, e.g., urban, local, regional, national, or global (Widlok 2022: 8; Towers 2000: 23). Our examples span local (e.g., agricultural movements and initiatives), national and transnational (e.g., political narratives and concepts), as well as international (e.g., UN agendas) scales. People are bound within the social spaces and scales they produce. These spaces have different meanings that shape people's identities and affiliations, such as those formed within cultural communities, collectives, or social movements (Towers 2000: 26; Miller et al 2021: 3). We see this especially in the first set of examples (Part I). "Scales" also refer to "size" — small-scale community or large-scale society—and "relation," meaning how units refer to each other in concrete situations, such as human-environment

relations in specific locations or relations between stakeholders that create a network (Widlok 2022: 8). These spatial categories also bear social meaning. People can be bound politically, in social categories such as class, or legal categories, such as citizenship (Miller et al. 2021: 3–4). The extent of regulation varies depending on the scale, e.g., in terms of authority or access under a certain political jurisdiction. Geographical and social scales can overlap. For example, in nation states, territory and regulation or authority overlap, binding people as nations (Miller et al. 2021: 4; Towers 2000: 26). Thus, a small-scale local community may refer to a higher-scale national policy, an international framework, or an abstract, higher-scale concept such as environmental justice or human rights. These scales and boundaries are not ontologically given, but rather the result of social processes and production. They are not isolated categories, but rather intersect. “Scales are linked by social structures and human agency” (Towers 2000: 27). In the examples presented, we find small-scale expert communities at the international level that design and decide on political frameworks effective at the global level, as in UN negotiations. Similarly, we find grassroots movements or groups of resistance that refer to higher-level concepts, such as environmental justice in Latin America or the common good in Germany. These scale dynamics reveal tensions of hierarchies, power relations, and dependence, and boundaries are tested, contested, transgressed, and redefined.

2 Illuminating examples part I: Local approaches to sustainability

Land and land use have long been central to discussions about sustainability, as human interaction with natural landscapes has continuously shaped and transformed them throughout history. In the context of German history, the concept of sustainability was first introduced in forestry as a means of resource management — taking no more trees from the forest than can grow back in due time for 'sustainable use' (*nachhaltende Nutzung*) of the same (von Carlowitz 1715). The underlying principle is that natural resources should serve human needs while ecological functions of the ecosystems in which they are situated are preserved, a practice that was already in place in "Germany"[6] during the Bronze Age, where long fallows were used, manure and crop rotation were introduced, and land was collectively managed until the late Middle Ages (Tserendorj et al 2021; De Moor 2008).[7] This principle remains at the core of sustainable land management, as outlined by the UN Food and Agriculture Organization (FAO, no date).

The example of the **Colombian campesino movement** for autonomous agroecology and conservation exemplifies the struggle of a small-scale community between local land governance based on local norms, traditions, and ways of agricultural production methods, and national-level politics demanding the construction of "sustainable development plans" based on a non-local understanding. This illustrates the plurality of collective "sustainability" efforts in the same locale, where "sustainability", as practice in between political agendas and ways of community life, has very different meanings and histories. Likewise, **German community-supported agriculture** provides insights into the entanglements of "sustainability" that have developed alongside the mainstream economy. There are multiple ways of approaching land and the economy in agriculture that make use of norms and values not covered by the mainstream economy. Small-scale communities and cooperatives establish alternative agricultural productivity methods to capitalist market structures and conventional agriculture. In both the German and Colombian cases, people strive for recognition of their approaches in terms of meaning and regulation: the campesino movement strives for autonomy, and community-supported agriculture strives for institutionalization. **Agricultural practices in Tanzania** reflect a deep respect for traditional methods and tools, while also embracing those technologies that deliver the most effective results, including "Western modern" ones. In everyday farming, the distinction between "modern" and "traditional" is not a point of conflict—what matters is what proves effective in practice. The underlying study tested the knowledge and utility of individual technologies, not the ontological or epistemological frameworks for these assessments and their rationales. More in-depth, comparative anthropological studies are necessary to derive such a conclusion, e.g., in the context of philosophies such as Ubuntu, which we present later as a pan-African narrative for sustainability. However, as the example from Tanzania suggests, such studies must consider the dynamic nature of local knowledge systems, as this may affect overarching assessment frameworks.

Note: The three examples presented below stand for themselves and in their respective contexts. We do not (at least at this point) argue for their scalability or transferability, whereas this would be an interesting project.

[6] This refers to the area that is now modern-day Germany, which was inhabited by various prehistoric cultures at that time.

[7] However, Germany had lost most of its natural habitats and soil until the middle age and was not sustainable, even though the new agro-ecological systems were arguably more biodiverse than the natural ones. Only through large transitions was sustainability reached at the margin, under relatively constant, or low, population growth (Teuber et al. 2017).

2.1 Example from Colombia: Autonomous conservation and transition to agroecology as "alternative sustainability"

By Juan Sebastián Vélez Triana

The current national government in Colombia (2022-2026) promotes a faster transition towards sustainability by calling for a de-carbonization of the economy, the strengthening of alternative renewable energy sources such as solar and wind power, and the promotion of conservation endeavors through a strengthening of the international lobby to gain funding to protect Amazonian forests, hosting the Biodiversity COP16 in 2024 and even calling for degrowth in industrialized economies, environmental economic reparations from the Global North for the Global South, and for exchanging external debt of developing economies for internal funding of conservation initiatives. Although this marks a significant change concerning several previous governments in which extractive industries were portrayed and defended as the main drivers of the Colombian economy, in practice, the current government has not been able to kick off any de-coupling process, revealing the deep roots of carbon dependency and the heavy backlash of powerful economic sectors against the proposed transition.

On the other hand, Colombia houses several regional and local grass-roots rural movements of Indigenous, fisher communities, afro-Colombian communities, and campesino communities[8] that are actively building "plural sustainabilities" on the ground by further implementing autonomous communitarian governments and often encompassing a transition to agroecological practices and own initiatives of conservation based on local knowledge and traditional practices. An interesting case that has gained traction over the last decade is the Campesino Reserve Zones (ZRCs), which are driven by campesino local organizations. Once conceived as a territorial ordering figure to limit growing large estates in agrarian frontiers and guarantee a minimum of land for campesino families, it has been repurposed by campesino movements as a way of vindicating autonomous communitarian governments and constructing their own "sustainable development plans," which often propose alternatives to conventional development and sustainability by giving a central place to local knowledge, traditional practices and own understanding of envisioned sustainable horizons.

One particular characteristic that serves as an example is the aim to transition to agroecology in campesino economies. In the Campesino Reserve Zone of Upper Venecia, in the Andes mountains, this aim translates into recovering and strengthening traditional practices of native seed exchange and reproduction, barter of cultivated products between families and communities, and knowledge exchange between families to explore and share traditional practices to manage their crops without industrial pesticides and fertilizers. In addition, in different Campesino Reserve Zones, the construction of autonomous initiatives for conserving water sources and forests also points to the rise of "plural sustainabilities." While often eagerly rejecting the enforcement of officially protected areas, payments for ecosystem services, and carbon bond projects, some campesino communities are self-organizing to identify and strengthen traditional relations with the forest to ensure having a healthy environment and continued access to resources they depend on such as timber, water, and fertile soil.

In this case, the "plurality" of sustainability is related to social struggles of campesino movements to gain more autonomy before the state in relation to the regulation of access and use of common goods and the way campesino economies are organized, claiming that to depart from their own local knowledge and traditional practices can lead to more sustainable ways of living than following the top-down principles of conventional development promoted by the Colombian public policies, international NGOs and cooperation agencies. Other examples can be found in several Campesino

[8] The term "campesino" is kept from the original Spanish instead of using an English translation – such as peasant or farmer – to not lose the particular meaning that this term has in the context of Colombian rural movements, in which campesino communities are giving a recognition struggle to position themselves as political and cultural subjects instead of mere agrarian workers with only economic relations to land (Montaña, Escobar & Yie 2022; Vélez 2023).

Reserve Zones across the country and different initiatives of autonomous organizations such as the Afro-Colombian Community Councils in the Pacific coast forests, Indigenous reserves, and the so-called Campesino Agro-alimentary Territories (TCAMs). Although varying in specific contextual characteristics, these diverse initiatives often share a struggle to pursue autonomy and self-government, a vindication of local knowledge and traditional practices, and a cultural dimension that reframes sustainability in multiple ways that differ from conventional sustainable development. This indicates that many rural social movements in Colombia and also in the broader Latin American context are immersed in a decades-long struggle for both distributive and recognition justice that aims at gaining greater rights to self-government, self-determination and autonomy (Devine, Ojeda & Yie 2020). At the same time, this points to a variety of grassroots approaches to what might be called agricultural production, conservation, and sustainable development in other contexts (Rivera-Núñez 2024). These approaches can be seen as part of a broader idea of "plural sustainabilities."

In this context, although terms such as "sustainability" [sostenibilidad] or "sustainable development" [desarrollo sostenible] often appear within the jargon of campesino and other rural movements, this is often related to the fact that such movements are also embedded in a political dynamic in which using conventional and dominant terms is necessary to be legible before the state. However, the meaning and political content that lies behind the use of such terms can be radically different. In this regard, a picture is worth a thousand words: while the Campesino Reserve Zones are positioning autonomic vindications and traditional knowledge and practices in ways that contest the conventional understandings of sustainability and sustainable development, campesino organizations are legally compelled to construct Sustainable Development Plans in order to be officially recognized by the Colombian state. According to the technical definition of such plans in the Colombian law that regulates Campesino Reserve Zones, they are conceived as a set of programs and projects with measurable or quantifiable social and economic indicators, while in practice they are being constructed in the ground rather like collective life plans [*planes de vida]* for well-being.

The words of a campesino leader of Upper Venecia during the official constitution of the Campesino Reserve Zone are a very illustrative example of the "plural sustainabilities" being built at grass-roots levels in Colombia:

> With the sustainable development plan, we want to start building the conditions to construct a future where harmony between inhabitants of Upper Venecia and the forests is the basis of productive and conservation interactions; A plan where water, its flows and rhythms inspire new ways of organizing campesino lifestyles, the infrastructures that connect our territory and the planning of individual, family and community activities; a plan where development is not simply thought of as an increase in productivity or based on decontextualized indicators, but necessarily implies the sustainable promotion of the social and natural fabrics of water that make well-being possible; a plan where the formalization of property is a right that ensures equitable access to land; where community expectations and desires are built with the participation of all the social sectors that make up our community; and, above all, where we consolidate the collective and autonomous management of our hamlets under a horizon that embraces solidarity and sustainability [sostenibilidad] in all its forms as a principle of community life (campesino leader, public speech, 2023).

This suggests that a possible way to strengthen sustainable transformation from the public policy decision-making level is to more eagerly support and enhance local and regional autonomous initiatives of conservation, agroecology, traditional food systems, and self-government in general. It offers the potential to foster "plural sustainabilities" that are already in the making as a complement or even an alternative to the more conventional sustainable development approaches focused on technological innovations that are severely criticized for green washing and for ignoring root causes and grass-roots alternative solutions for the ecological break down (Ajl 2021), which are often promoted by international cooperation agencies, international NGOs and government agencies.

This country case is based on the doctoral research of Juan Sebastián Vélez Triana, PhD Development Studies, Institute of Development Policy (IOB), University of Antwerp.

2.2 Example from Germany: Community-supported agriculture as part of Germany's alternative sustainability movements

By Tina Beuchelt

Germany possesses a rich and multifaceted history of sustainability thought, characterized by the co-evolution of diverse theoretical and practical approaches across various domains. These trajectories can be traced back several centuries, with notable developments emerging in agriculture as early as the 16th century. Agricultural sustainability gained renewed momentum at the beginning of the 20th century and has since continued to diversify into the 21st century. Parallel to this, the mid-19th century saw the rise of communist and socialist ideologies, many of which engaged critically with notions of social equity and development. Social reform movements emerged during the latter half of the 19th century, advocating for the promotion of a natural and healthy lifestyle and influencing early sustainability discourses. Environmental movements, with origins in the 18th century, experienced significant surges around the turn of the 20th century and again during the 1970s, shaping public awareness and policy frameworks.

International initiatives also influenced Germany's sustainability discussions such as the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, also known as the "Earth Summit", the implementation of Local Agenda 21 programs and the three Rio-Conventions on Biodiversity, Climate Change and Desertification. In 2002, the Federal Government introduced the first national sustainability strategy, and later contributed to the United Nations Sustainable Development Goals (SDGs; Kern 2008). These policy-driven frameworks largely reflect dominant "mainstream" sustainability paradigms, which are rooted in a dualistic worldview that separates humans from nature and legitimizes the control and exploitation of the natural world. This perspective, as argued by Mies (2015), can be traced back to the ideological underpinnings of the 16th-century witch hunts and was further solidified during the European Enlightenment of the 17th and 18th centuries. Contemporary iterations of these mainstream approaches now frame sustainability in terms of the integration of economic, ecological, and social dimensions—albeit within the overarching logic of neoliberal, capitalist economic systems.

Given Germany's extensive historical but also international engagement with sustainability, a substantial plurality of "alternative" sustainability approaches persists nowadays alongside the institutionalized, government-endorsed mainstream paradigm. This diversity is particularly evident in the proliferation of bottom-up, grassroots initiatives and social movements, which continue to play a vital role in shaping localized and context-specific interpretations of sustainability. In some instances, these initiatives have evolved into formalized institutions, further embedding alternative practices within the broader socio-political landscape. Others focus primarily on offering alternatives to their members, while exerting comparatively less influence in the political sphere. Alternative sustainability approaches and movements include:

- Common property and collective ownership models, influenced by theoretical frameworks such as Marxism, Anarchism, Socialism. These models often take the form of ecologically-oriented communes or other intentional communities centered on shared resource management.
- Economies oriented toward the common good, including concepts such as "Gemeinwohlökonomie" (economy for the common good), "convivial economy", "vorsorgendes Wirtschaften", or "solidarity or sharing economy". Practical implementations include

    - Cooperatives (e.g., for agricultural production, for agricultural marketing, for land acquisition, hunting, forestry, food, energy, banking)
    - Sharing and repairing initiatives (e.g., tool libraries, car-sharing networks, repair cafés, and food-sharing)
- The "Lebensreform" movement, a social reform movement, originating in the 19th century in Germany and Switzerland, emerged in critique of industrialization and materialism. Prominent examples are anthroposophy, as well as the biodynamic and organic farming movements. Notable outcomes include the establishment of organic certification systems and the creation of "Reformhäuser" (health food stores).
- Peasant agriculture and food sovereignty movements, such as "Arbeitsgemeinschaft bäuerliche Landwirtschaft (AbL)" or the Slow Food association, advocate for localized, ecologically sound, and culturally appropriate food systems. There are many local biodiversity conservation movements, like breeding associations dedicated to preserving endangered and underutilized livestock breeds and crop varieties, thereby contributing to agro-biodiversity and cultural heritage.

These movements and initiatives are integral to the broader concept of transformative economics, which seeks to develop alternatives to the profound socio-ecological consequences of industrialized agriculture and the globalized food system (Bonfert 2022). They are socio-spatially embedded within specific cultural contexts, institutional frameworks, political systems, networks, and forms of capital, responding to the particular conditions of the places, regions, and cities in which they emerged. To this day, uneven power relations continue to play a critical role in explaining the predominance of mainstream sustainability pathways and the marginalization of alternative perspectives and voices within political discourse (Truffer et al. 2015). This dominance is further reinforced by the relatively limited scale, authority, and systemic impact of many alternative movements.

Another common barrier to transformative change lies in the resistance of regime actors—such as the German government and the European Union—and their associated political frameworks, notably the Common Agricultural Policy (CAP). This resistance is often shaped by lobbying from conservative stakeholders, particularly the German Farmers' Association, which is supported by agribusiness and industrial farming interests. Although the German government promotes ecological farming practices—which, as of 2023, were implemented by 14% of farms, covering approximately 11% of agricultural land—sustainable alternative approaches remain largely marginalized. Non-ecological production systems continue to receive subsidies, rather than being required to internalize their environmental costs. Efforts to implement stronger ecological standards within conventional farming, despite incremental reforms, still face considerable opposition (Heyen & Wolff 2019).

One practical example of "lived" alternative sustainability is community-supported agriculture (CSA), which is both inspired by and grounded in the aforementioned theories and concepts, thereby embodying a philosophical dimension as well. The first CSA initiative in Germany was established in 1988, and as the movement has expanded, it has increasingly sought to gain political influence.

Community-supported agriculture

Community-supported agriculture (CSA) is a sustainable, collective model of food production in which a group of local farmers or producers share labor, responsibilities, costs, risks, and yields with local consumers (households). CSA seeks to establish an alternative food system that operates outside capitalist market structures and corporate control. It is grounded in regional, small-scale, ecologically sustainable food provision, coupled with collective action, grassroots democratic organization, fair wages, and community participation. The overarching goal is to de-commodify agriculture and advance the principle of food sovereignty—that is, to empower people to control their own food systems and produce healthy, culturally appropriate food through ecologically sound and sustainable methods that respect the rights and needs of local communities and food producers.

CSA initiatives also aim to preserve agricultural biodiversity by cultivating traditional, underutilized crop varieties and protecting endangered livestock breeds. From an ecological standpoint, the model promotes a shift away from specialized, high-input monoculture in monotone landscapes toward diversified, low-input, resilient agricultural systems that build soil fertility and foster diversified agricultural structures and landscapes (Kurth et al. 2023).

Regional production, primarily based on organic practices or, at a minimum, aligned with the principles of regenerative agriculture and closed nutrient cycles, is essential, as agricultural production should operate in harmony with nature (Diekmann & Theuvsen 2019). Key elements include direct linkages between production and consumption (i.e., short supply chains), support for smallholder farming, reduced resource inputs, independence from conventional markets, and lower greenhouse gas (GHG) emissions (Diekmann & Theuvsen 2019).

Internally, CSA governance structures are typically envisioned as low-hierarchy, democratic, and participatory. Individual CSA groups negotiate their shared values, norms, and principles in a collaborative process (Degens 2023). This participatory ethos is one reason many initiatives are organized as cooperatives. Members are encouraged to engage with the intention of creating a new social space—one in which diverse individuals come together as a community to enact their collectively defined vision, principles, values, and norms (Behrend 2015; Diekmann & Theuvsen 2019; Poulsen 2017). CSA initiatives also aspire to foster broader economic and political transformation. They frequently engage in municipal food councils, expand their operational scope, and form CSA networks at national and international levels. Many are also linked to the global peasant movement La Via Campesina (Bonfert 2022).

The principles of sharing and solidarity play a major role, stretching from solidarity among members and with society (“Gemeinwohl”) to solidarity with nature (Degens 2023; SoLaWi, no date). A revised vision of human-nature relations is envisioned: humans no longer see themselves as the dominant species and owners of nature, but as part of it. Though this is often not explicit, the underlying idea is to change the relationship with the intention of contributing to socio-ecological transformation (Degens 2023).

The number of CSAs is growing, with more than 500 initiatives in Germany alone. These initiatives vary in their management and implementation. Members come from all walks of life: scientists, nurses, private and public sector employees, the unemployed, and students. While community-supported agriculture (CSA) initiatives embody many laudable objectives, they also face a range of challenges. Membership tends to be white and from well-educated, middle-class backgrounds. Many of them are already embedded within ecologically conscious social milieus (Bonfert 2022). There is a constant negotiation between members regarding the normative idea of fair payment for workers, balancing contributions between low-paying members and high production costs, which are then compared to the cost of organically produced food one can buy in a shop. The goals and alternative ideas of the CSA are not always fully shared or affordable by all participants. Often, only a small core group of members drives processes forward (Bonfert 2022). Many members are also socially engaged in other activities, such as volunteering, environmental protection movements, and food-sharing initiatives. Thus, time tensions may emerge between different forms of activism. The vision of a regional socio-ecological transformation encompassing food, land, and economic systems remains a long-term aspiration. Yet, despite their current limitations, CSAs represent living laboratories of change—sites where hopeful, tangible alternatives to industrial agriculture are not only imagined, but actively practiced.

2.3 Example from Tanzania: Smallholder indigenous knowledge in agriculture as a basis of alternative sustainability concepts in Turiana division, Tanzania

By Michael Brüntrup

Alternative (concepts of) sustainability are often rooted in and are associated with indigenous knowledge (IK), with the connotation that IK is particularly concerned with, shaped by, and oriented towards protecting the (local) natural environment of indigenous communities (McGregor 2004; Rist & Dahdouh-Guebas 2006). Recently, the importance of indigenous people has been further elevated by being highlighted in several international communities (e.g. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), or The Convention on Biological Diversity (CBD)), including in the Kunming-Montreal Global Biodiversity Framework (Target 3) which notes that for achieving its targets "recognizing indigenous and traditional territories" (CBD 2022) is needed. This is based on the observation that "much of the world's biodiversity now exists in landscapes and seascapes traditionally owned, managed, used and/or occupied by indigenous peoples and local communities and that biodiversity is declining more slowly in areas managed by indigenous peoples and local communities than elsewhere" (Reyes-García et al 2022).

The reason(s) why indigenous people (IPs) are (better) custodians of biodiversity and sustainable land management deserves further investigation (Eyzaguirre 2001, McGregor 2004). Is it because of their special attitude towards nature, or due to special knowledge, or rather because they lack(ed) of alternative (modern) knowledge, have had and have less technical and economic options and opportunities to behave more exploitative or unsustainable? Depending on the answer, it would make a big difference if and when IPs had access to more opportunities to exploit their resources, if they could be custodians of nature due to their IK and attitude alone, or if it would be necessary to protect nature in addition or even against them (under changing conditions). This raises further questions of scale and of power of the people acting along a concept of sustainability and its knowledge base – not only against other powers, but also the power to act, even to destroy nature. Is it valid at larger scales— when individuals or groups gain power, in terms of numbers, capital, power over others and over large resources?

In the frame of a research project investigating the role of knowledge for rural development and sustainability in corridors in selected countries (Namibia, Tanzania and Kenya) in Sub Sahara Africa (Brüntrup & Hornidge 2022), an attempt was made to better understand the relation between IK and behavior. We did this for the knowledge about and the use of indigenous technologies in agriculture, food production and conservation as one of the key areas of IK, and one of particular importance for preserving nature, since agriculture is the main driver for biodiversity loss (UNEP 2021). As a case study, we investigated the knowledge on and use of indigenous technologies among smallholder farmers in Turiani Division, a region near to Morogoro in the SAGCOT corridor (Southern Agriculture Growth Corridor of Tanzania), one of the research areas of the project. It included about 280 households in a quantitative survey and 16 expert qualitative in-depth interviews.

The concept of Indigenous Knowledge in Sub Sahara Africa

Much of the insights into indigenous knowledge are based on situations in the Americas. There, the ethnic and socio-political distinction between indigenous (autochthone) and external (allochthone) populations (European, African) is more evident than in most other world regions. In Africa, particularly in Sub-Saharan Africa (SSA), the situation is quite different, not because there were no historic migratory movements (there were Bantu, Massai, and Zulu migrations, to name just a few in East Africa) but because these were generally not as socially imbalanced and contrasted, or at least not as well documented. In SSA nowadays basically almost all ethnic groups can be considered as indigenous when assessed against criteria such as originating from the same continent, self-identification, cultural difference from other, confrontation with dominant groups in a state, or a special relationship with their traditional territory (for more criteria of indigenous compare Secretariat of the Permanent Forum

on Indigenous Issues, 2009). However, it is to be noted that only a few groups in SSA are formally acknowledged as indigenous by their nation states. Tanzania does not recognize the existence of indigenous peoples, even though Tanzania is home to approx. 125 to 130 different ethnic groups (IWGIA 2022) and voted in favor of the UN Declaration on the Rights of Indigenous Peoples in 2007. Some communities, however, are considering themselves indigenous and are fighting or official recognition, notably the hunter-gatherer Akiye and Hadzabe, and the pastoralist Barabaig and Maasai (IWGIA 2022).

Thus, the term "indigenous" in Tanzania (an SSA more generally) does not provide as clear an orientation as in other world regions as the knowledge of indigenous people, rather it is the knowledge of local people which is "traditional", i.e. which is the knowledge they have inherited and practiced from their ancestors based on „evidence acquired through direct contact with the environment and long-term experiences, as well as extensive observations, lessons, and skills passed from generation to generation" (CEQ and OSTP 2022). This is in line with many other scholars who attribute the term "IK" to practices of local agricultural communities (Materechera 2021; Kom et al. 2024; Diko 2023). Yet, we prefer "indigenous" to "traditional" or "local", because "traditional" has a obtained a notion of "backward", and because we will show in this article that "local" knowledge" is not (or: no longer) purely traditional or indigenous but a synthesis of different sources of knowledge. Furthermore, we will demonstrate that practices are not only shaped by knowledge of the best options but by local conditionalities to act, notably access to capital.

Challenges to IK in Tanzania

These other knowledge systems or sources of knowledge and the challenges to indigenous knowledge in Tanzania have been manifold, and though they may all be subsumed under "modern" versus "indigenous", it is worthwhile to further distinguish the context. We can at least distinguish three eras of challenge, associated to different political regimes, which are emphasized by different schools to different degrees.

Post-colonial theory posits that the colonization of the African continent, from its inception, targeted everything that was indigenous or traditional. This included the rejection of traditional African religion, the disruption of African social, political, and economic systems in the mistaken belief that everything traditionally African was primitive and backward. All these deliberate attempts by the colonizers were made to dismantle indigenous institutions and pave the way for the continuation and establishment of western domination in third world countries (Briggs & Sharp 2004; Milligan 2011). In Tanzania, several modern large-scale schemes and farms were established (among them the well-known Groundnut Scheme which legendarily failed) though less systematic and radical than in neighboring Kenya (Coulson 1977).

In post-colonial Tanzania after independence, another threat to IK (or rather a continuation of the colonial period) was modernization, now through a socialist regime which dismantled indigenous structures by collectivizing and restructuring. The Arusha Declaration of 1967 (Tanzania's most prominent political statement of African Socialism, ujamaa, or 'brotherhood') emphasized self-reliance. While it highlighted the role of peasants and workers as key actors in the development of Tanzania, it wanted to realize the ambitions of this nationalist path by the so-called Ujamaa program, consisting of the relocation of smaller hamlets into larger villages (resettlement), agricultural extension services and collective marketing. The Ujamaa program resulted in food shortages and deficiencies in export earnings (Lofchie 1978; Mueller 2009; Gajere 2020; Shivji 2023).

After the failure of the Ujamaa program and a general collapse of the Tanzanian economy, the state revised its policies and legal frameworks between 1986 to 1994 in favor of liberalization, privatization and more export orientation, pushed for and supported by the Structural Adjustment Program of the World Bank and the International Monetary Fund (Lofchie 1978; Mered et al. 1993; Gajere 2020; De Blasis 2020). This brought again neo-colonial critics to the forefront.

Results of the case study

Generally, a large majority responded positively to farmers' awareness of indigenous agricultural practices. Only a very small minority claimed to be unaware of these practices. Most farmers use at least some traditional practice. The majority of respondents, but only slightly more than one-third, reported a moderate level of utilization, indicating that these practices were used, but not widely. Following closely behind, another third reported a high level of utilization, indicating the relatively widespread adoption of these practices.

However, the majority of the participants (47.5%) reported that these practices were only used in a small area, implying that they were not widely used. Only 12.9% of respondents mentioned a large area, indicating a significant scale of adoption. In addition to knowledge, many other factors play a role in determining the extent to which these practices are integrated into agriculture.

Asked about the overall impact of using (all or most) indigenous practices, approximately half of the participants believed that adopting indigenous practices resulted in higher yields, indicating that these practices were viewed as beneficial for crop production. In contrast, almost 40% of the respondents reported lower yields, whereas 15% reported similar yields. Regarding the impact of indigenous knowledge practices on household income, almost 80% perceived a positive impact. Only 13% of the respondents reported a negative impact. A key argument for this much stronger positive assessment of income was that the costs of applying indigenous knowledge were considered much lower than those for applying modern technologies, including costs for modern seeds, mineral fertilizers, pesticides, and modern irrigation.

In addition to the overall assessment, respondents were asked to individually assess a wide variety of indigenous knowledge practices according to their usefulness. The statements concern areas of soil, plant, and water management, pest and disease control, crop harvesting, and storage. They were derived from a literature review on indigenous knowledge and from interviews with key respondents and were pre-tested to ensure respondents' understanding. The farmers could indicate their level of agreement with the statements using a seven-step Lickert scale from "strongly disagree (SD)" over "neutral (N)" to "strongly agree (SA)."

For many assessments, there were relatively high and homogeneous degrees of agreement, indicating that these practices are positive for sustainable agriculture and high yields under different conditions and situations in the region. Strong support is, for instance, found for a positive statement on water-harvesting management. Traditional irrigation fetches a bit more skepticism but is still widely positive. In addition, three out of the five crops harvesting and storage practices were assessed very positively. Traditional seed practices are also supported by many people.

Some indigenous knowledge technologies show equal division between supporters and refusers. For instance, opinions regarding the effect of traditional soil preparation on soil health and crop productivity are almost equally divided. Similarly, diverging assessments have been found for the usefulness of crop rotation to improve soil health and crop productivity and to control pests and diseases, although these practices are not only a part of indigenous knowledge but are also part of the formal (modern) recommendations by extension officers. In addition, assessments of traditional medicinal plants for pest and disease control diverge. While many farmers recognize the cultural and historical significance of traditional medicine, others have reservations or negative perceptions of its efficacy. For instance, most farmers disagreed that the use of ash to keep crops in storage is beneficial, and neither is ash positively considered for controlling pests in the field. Some key informants, however, held up their support for this technology.

Discussion and conclusions

This study provides compelling evidence that IK is still used by farmers and plays an important role in assuring agricultural practices and advancing sustainability in the Turiani division. Farmers actively use indigenous methods such as soil preparation, crop cultivation, pest control, water management, harvesting, and storage. Neither colonial nor later post-colonial (socialist, modernization) approaches

to agricultural development could be fully imposed or could eliminate the indigenous knowledge. This may be due to lack of enforcement power, neglect of smallholder farmers considered as too peripheral to be enforced, or lack of effective alternatives without which enforcement would have led to collapse of rural livelihoods. The question to this answer would require additional, historical and political research.

Another key insight of this study is that smallholder farmers scrutinize indigenous technologies, particularly comparing them with modern knowledge. The result of farmers' assessments is the merger of indigenous and modern knowledge. Given that this reflects site-specific conditions, we can refer to them as "local knowledge". Costs, higher for modern technologies and lower for indigenous ones, seem to play an important role in assessment and use, and reduction of costs (but also lack of funds) when choosing indigenous practices seems to outweigh the yield disadvantage in many cases.

We also conclude that it is important to clearly distinguish the two concepts of indigenous and local knowledge and be very specific when assessing individual components or technologies in order to draw the right conclusions and recommendations. Blunt support for neither indigenous nor modern technologies is appropriate.

Local knowledge, in contrast to IK, must be seen as a dynamic field in which smallholder farmers actively scrutinize multidimensional advantages and disadvantages depending, for instance, on changing conditions for agriculture, assuring food security and livelihoods (such as agricultural and food markets, income diversification or social protection networks), available technologies, or new knowledge and information. The emergence of local knowledge as a voluntary merging of different sources of knowledge is proof of agency of smallholders and indicates that they are not simply victims of wrong modernization strategies, and that they have the competence to create their own adapted knowledge system.

Stating that local systems have been resilient to changes and external pressures may overlook that this maybe was not due to knowledge and voluntary decisions based on a whatsoever sustainability concept and other rationales and/or irrationales, but due to lack of agency options. While traditional practices are usually adapted to local original conditions, new practices often come with requests for additional resources and knowledge. Furthermore, local conditions evolve continuously, be it population growth, local environmental conditions or climate change, social and economic environments, new options, or new ambitions. Not assuming these capabilities to evolve would under-estimate the ingenuity of local people to adapt, and over-estimate the conservationary power of IK which, as discussed, which is often assumed to be the source of the conservation or sustainability-related action of indigenous peoples. Understanding the arguments pro and contra of maintaining "old", approved traditional practices versus adopting and adapting new ones (and the conservationary consequences) should be crucial when assessing the reliability of indigenous and other local people, mostly farmers, to conserve nature. In consequence, more regulatory measures may be necessary to achieve given conservation goals.

2.4 Interim summary I: Seeking recognition for meaningful transformation

The three examples of "sustainability" highlighted above underscore the importance of social connections, local economies, and daily life. The communities featured pursue meaningful transformation that supports their autonomy, affirms their identity, ensures participation and well-being, and reflects their understanding of justice. "Sustainability is not just a matter of fixing the current technical problems of climate change, water, food security and so on, but a larger project of changing values which themselves will require novel social and economic institutions, possibly even innovative ideas about some of the fundamental prerequisites of communities and societies (…), such as sociality, trust, companionship" (Moore 2017: 69). The example from Tanzania demonstrates that

it is imperative to commence from a position of acknowledging peoples' agency, and of scrutinizing local expertise and the adaptation of knowledge systems. Furthermore, under the broad umbrella of "sustainability," critical socio-political issues, including questions of distributive justice, are brought into focus, reflecting the enduring human concern with the conditions of a good life. The two movements discussed aim to increase their impact by seeking greater recognition, legitimacy, and influence within governance structures while expanding their societal reach. In doing so, they engage with frameworks, policies, narratives, and discourse on a new scalar level. Some of these narratives and frameworks are discussed in the next section.

3 Illuminating examples part II: National and transnational concepts of sustainability

The history of the term “sustainability” in English is strongly influenced by the cultural context from which it originates. A prominent example often cited in academic literature on the term's origins is Hans Carl von Carlowitz, who coined it (see above, Illuminating Examples, Part I). The 17 Sustainable Development Goals (SDGs) of the UN Agenda 2030, formulated in English, are translated into the official UN languages. However, it all starts with English terminology. How do these translations adapt to different language contexts? For instance, a literal translation of “sustainable development” does not make sense in Twi, a language spoken in Ghana. “Sustainable” adds three dimensions to “development”: economic, social, and ecological. These dimensions must work together for development to be sustainable. “Leaving no one behind” indicates the involvement and consideration of people. However, the Twi expression for “development” is a concept that also encompasses the importance of people because they are the agents of enduring (sustainable) and inclusive progress. It implies that different dimensions of human life and environmental conditions must be considered because “development” without these dimensions is impossible. In the exogenous sense, “sustainable development” is a tautology, and it remains unclear what additional efforts are required in the context of “sustainable development,” given that “development” (in local terms) already encompasses them (Gilgan and Balogun 2021: 13).

However, there are common concerns behind what we call “sustainability.” Our illuminating examples focus on Ubuntu (the African continent), Buen Vivir (Latin America), and Ecological Civilization (China). The Ubuntu example focuses on “relations” and “meaning-making” at various scales, incorporating ideas of “relationality” between humans, other beings, spirits, and environments. It addresses the normative aspects of sustainability with a focus on relationality, which brings social dimensions to the forefront alongside philosophical and sociopsychological elements. Ubuntu offers a culturally grounded approach to sustainability, addressing the capitalistic values and practices of industrialized societies while promoting a decolonized understanding of sustainability and sustainability research. Conversely, a lack of identification with this approach, particularly when it is appropriated or monopolized by local elites, represents the other side of the coin. A parallel can be drawn with the concept of Buen Vivir in Latin America. Despite being formally enshrined in the constitutions of countries such as Colombia, Ecuador, and Bolivia, it remains largely unfulfilled in practice, grappling with adequate downscaling in policies. Although Buen Vivir figures prominently in transnational sustainability narratives, political implementation often falls short of its normative intent, perpetuating development trajectories that the concept was originally conceived to challenge. Yet Ubuntu and Buen Vivir bring a decolonial perspective to sustainability and development debates, challenging conventional Western frameworks and offering alternative visions grounded in community, well-being, and holistic relationships with the environment.

Finally, we explain the concept of an Ecological Civilization in China. This concept has been institutionalized as a counter-narrative to Western industrialized societies and has been formally incorporated into the national constitution. Ecological Civilization informs and shapes national policymaking, serving as the central framework for articulating sustainability within the domestic context. Simultaneously, China engages with and contributes to international sustainability agendas, maintaining a dual approach that reflects national priorities and global responsibilities. Significant Chinese scholarship addresses the three dimensions of sustainability, which are theoretically derived from scaling up specific ecosystems to the broader socio-economic-natural complex system in terms of both size and relational scale (as explained above). At the UN Biodiversity Conference in 2020, the narrative of “Ecological Civilization: Building a Shared Future for All Life on Earth” entered the global stage.

While the examples of land use illustrate a *plurality in the practice of sustainability*, the (trans)national concepts show a *plurality of narratives*.

3.1 Example from the African continent: Pathway to a sustainable future. An Ubuntu conceptualization of sustainability

By Kehinde Balogun, Tina Beuchelt and Lisa Biber-Freudenberger

According to Khomba and Kangaude-Ulaya (2013), the word "Ubuntu" is derived from a Nguni (isiZulu) aphorism, "Umuntu Ngumuntu Ngabantu", which translates to "a person is a person because of, or through, others". It is a way of life throughout Africa that transcends the narrow confines of a nuclear family to include extended kinship networks. Ubuntu can thus be defined as a "collection of values and practices that people of Africa or of African origin view as making people authentic human beings, akin to Maslow's (1943) self actualization need. While the nuances of Ubuntu values and practices vary across different groups in Africa, they all point to one thing – an authentic individual human being is part of a larger and more significant relational, communal, societal, environmental and spiritual world" (Magumbate et al. 2020). This recognizes that an individual belongs to a greater interconnected community of life and rejects that a person can be identified solely based on individual physical and psychological features. Ubuntu requires a life that depends on a normative engagement with the community, a substantive appreciation of the common good, and a constitutive engagement with one another in a rational and ethical community. Rational behaviour of the Ubuntu individual is identified as behaviour that is governed by an ability to reason and think within the community context (Khomba and Kangaude-Ulaya 2013).[9]

The concept of Ubuntu is applied in sustainability research and policy in diverse ways, with different functions leading to the transfer of different elements of the concept. In sustainability research, the Ubuntu concept has often been used as an "alternative" framing that supports decolonialization of sustainability research (Seehawer 2018) as well as conservation action (Mabele et al 2022). In conservation, Ubuntu advocates for practices that foster mutual respect and collaboration between humans and nature, in contrast to the Western practice of separating them through "protected areas" (Mabele et al. 2022). Increasingly, the concept is also used in the private sector context to promote community wellbeing and local environmental care, countering ecological degradation and neocolonial conservation practices. This is illustrated by African hunting enterprises that align conservation (e.g., through payments for hunting being reinvested in conservation) with community and economic goals but also as part of a broader Ubuntu-inspired ethic of care for human and non-human communities (Crippen 2021). From an economic perspective, Ubuntu implies that people must come first and before profits due to group solidarity, which is being considered as central to community survival (Khomba and Kangaude-Ulaya 2013). However, the critical cosmic unity of Ubuntu that includes the "I" in the "We" across time and space – to include vital force, nature, the past (ancestors) and future generation (van Norren, 2020) – is often neglected. Yet, it is this recognition of the individual's interdependence within nature and across time that motivates humans to be responsible to and serve each other – by developing and expressing compassion, reciprocity, dignity,

[9] About the relation between rationality, reason, and community: There is now substantial evidence demonstrating that emotion and reasoning are fundamentally interconnected (Kirman et al., 2010). Emotions play a critical role in shaping, sustaining, and transforming human relationality, which is a key determinant of both physical health and psychological well-being (Keltner et al., 2022), as well as a vital element of social and ethical self-regulation (Pham 2007). However, this capacity—referred to as "ecological rationality"—can be significantly impaired when individuals develop negative emotional associations, particularly fear, making behavioral change difficult through logic alone (Blanchette et al. 2014). It is important to note that negative emotions such as fear is shared across mammalian species (Adolphs 2013), predating reasoning. As such a high-intensity negative affective states, such as anxiety or severe depression, are associated with increased amygdala activation in the brain, which disrupts reasoning processes (Gangemi et al. 2021). As a result, individuals may rationalize pre-existing emotions, causing biased evaluations of unrelated situations or subjects (Gangemi et al. 2021). Yet, accurate perceptions and beliefs are critical for the exercising basic logical rationality (Blanchette et al. 2014).

humanity and mutuality in the interests of building, maintaining and sustaining communities with justice and mutual caring (Khomba and Kangaude-Ulaya 2013).

For policy and governance that is oriented towards Ubuntu, this humanistic orientation demands respect, dignity, caring, and sharing as critical values at their foundation, for good guidance of African communities (Khomba and Kangaude-Ulaya 2013). Ubuntu fully (self) actualized would necessitate the individual being understood not as an isolated self but as embedded in nature and defined through relational interconnectedness (Balogun et al., 2023). This perspective allows individuals to transcend the survival mechanisms rooted in the primitive cortex and limbic brain, areas central to emotional arousal and basic human motivation (Lang & Bradley 2010). This shift from self-centered emotional responses such as fear toward socially and emotionally enriched engagement with others that facilitates interconnected emotions, like awe (Keltner et al. 2022) for collective agency of Ubuntu (van Norren 2020).

However, the concept of Ubuntu, detached from its cosmovision, has also been brought up in the context of African sustainability strategies, namely the Agenda 2063. The Agenda 2063 is a strategic long-term planning instrument for the development of Africa published by the African Union (AU) in 2015 (Nwozor et al. 2021). It is tightly linked with the Sustainable Development Goals (SDGs), which together could catalyze the implementation of sustainable solutions (Omisore 2018). Based on a broad bottom-up participatory approach,[10] the Agenda 2063 aims to strengthen existing African national development strategies, shifting the paradigm to African capabilities and self-reliance (Nwozor et al., 2021), while also advocating for inclusion and empowerment of all groups of people (Ndizera and Muzee 2018). Leading principles of the Agenda 2063 are Pan-Africanism[11] and African Renaissance[12], with the goal of building an integrated, prosperous and peaceful Africa, that is people-centered, based on solidarity and good governance, and that is impact-driven (AUC, 2015; Ndizera and Muzee 2018). However, despite these high aspirations, the likelihood of achieving significant results and impacts is doubted given the historical comparable limitations in finances, a lack of concrete action plans and political commitment, therefore lack of implementation progress, weak and fragile state systems, and diverse and sometimes conflicting interests between different priorities and actors (Nwozor et al. 2021, Ndizera and Muzee 2018, Omisore 2018).

To address the challenges that Africa and its Agenda 2063 face, and as a consequence of a new self-confidence and celebration of African heritage, the Ubuntu concept has been revived and promoted. This was also met with criticism ranging from it being elitist and lacking integration into daily realities and general identification with it of the broader population (Matolino and Kwindingwi 2013). Others highlight that the revival of Ubuntu is just a romanticizing of a traditional approach which is unsuitable for modern social visions and might hinder progress and development. Furthermore, the concept might be used to oppress minorities as it emphasizes the central role of the community and the insignificance of individuals (Hailey 2008). However, through a Western perspective, Ubuntu poses challenges because it goes beyond the moral framework of individualism, to include a broader

[10] The involved stakeholders include the private sector, African academics, think tanks, civil society organizations (CSOs), planning experts and development specialists, African diaspora, the youth, women, media, Faith Based Organizations, former heads of state and government, web-based general public at continental level, sector ministries, and Regional Economic Communities (RECs). Participation occurred, for instance, through consultations at national, regional, and continental level, technical contributions from committees and national planning bodies expert reviews (Ndizera and Muzee 2018).

[11] Political movement or concept indicating the Unity of People with African descent globally.
The first Pan-African Conference was held in London in July I900. In 1958, the first two conferences ever were held on African soil (Geiss 1969).

[12] Pan-Africanism emerged as a pivotal movement in the struggle against African imperialism, advocating for independence, cultural recognition, and the unity of African peoples both on the continent and in the diaspora. In the context of globalization, African elites have often leveraged ethnicity through forms of neo-tribalism and neo-traditionalism to consolidate power within post-colonial and neo-colonial states. Conversely, African communities have embraced ethnicity and cultural revivalism as means of resisting the challenges of modernization and globalization, manifesting in the form of post-traditionalism (Nabudere 2001).

understanding of what it means to be human and the universality of the individual (Asike 2016). On a fundamental level, this necessitates the decolonization of the human mind by (un)learning colonial constructs and perceptions of the individual and societal structures (Balogun et al. 2023). Particularly regarding, the role of non-human-specific (mammalian) emotions and their influence on human experience, as evidenced across psychology, neuroscience, and philosophy (Kirman et al. 2010).

Thus, the Ubuntu worldview is valuable and can be used for big social transformations in which humanity and being human are not inherent of the individual alone but inextricably bound up in others – together we are all belonging to the same bundle of life (Asike 2016; Mayaka and Truell 2021). Thus, the cognitive processing and integration of the notion that "a person is a person through others" motivates the duty to nurture peace by continuously reconciling differences amongst the community of life to which one belongs (Asike 2016; Mayaka and Truell 2021). What calls for sustained attention is this holistic vision of peaceful "co-existence" — one that depends on the practice of dialogic ethical transformation among diverse African communities to advance both individual capabilities and collective progress simultaneously (Nicolaides 2021).

3.2 Example from Latin America: Buen Vivir as an alternative towards sustainability

By Dennis Avilés-Irahola, Estela Herbas and Fernanda Wanderley

In the early 1990s, the Latin American notion of *Vivir Bien* or *Buen Vivir*, loosely translated as "Living Well," arose in regional critiques to the limitations of conventional development models and policies that place a higher priority on economic growth than on social and environmental well-being (Altmann 2016). The roots of the *Buen Vivir/Vivir Bien* concept go back to the Indigenous pre-colonial worldviews of the Andes, where harmony with nature, community life, and holistic well-being are central to human life. Expressions like "*suma qamaña*" (Aymara) and "*sumak kawsay*" (Quechua) represent the ideals of harmony, mutual aid, and regard for all living things.

As a possible model for sustainable development, the idea has attracted attention from throughout the world and has been debated in a number of international conferences with various topics such as social and solidarity economy, environment and culture, and alternatives to traditional ways to measure wellbeing through indicators such as the GDP. *Vivir bien/Buen Vivir* has inspired discussions on alternative development models all over the world by motivating initiatives and laws that aim to combine social inclusion of marginalized groups, particularly of indigenous origin, and environmental protection. The cases of Bolivia, Ecuador and Colombia constitute the best examples of the inspiring potential of *Buen Vivir* for a sustainable present and future but, also, of the many complexities encountered in its implementation at institutional level.

The rights of nature passed by law in Colombia, Ecuador, and Bolivia represent a paradigm shift in constitutional law, rooted in Andean-Amazonian cosmovision and intercultural principles (Vargas-Chaves and Cumbe-Figueroa 2023; Gómez Sierra and León 2016). These countries have incorporated concepts like *Pachamama* (Mother Earth) and *sumak kawsay* into their legal frameworks, recognizing nature as a subject of rights and challenging traditional anthropocentric approaches (Castellanos Tisoc 2021). Ecuador and Bolivia's Constitutions, in particular, exemplify radical environmental constitutionalism by integrating concepts of pluri-nationality, interculturality, rights of nature, and the principle of *Buen Vivir* (Bonilla Maldonado 2018). This innovative legal approach reflects a biocentric and multicultural vision, emphasizing the intrinsic value of nature and indigenous epistemologies. These constitutional developments contributed significantly to global debates on cultural diversity, human rights, and environmental protection while questioning dominant legal knowledge paradigms (Bonilla Maldonado 2019; Castellanos Tisoc 2021).

Several years later, despite Bolivia and Ecuador's international positioning as champions of the environment and indigenous peoples, in line with the *Buen Vivir* principles, their current development models, like those of the past, remain deeply entrenched in unsustainable extractivist practices. Companies from Asia, Russia, Latin America, the US, and Europe have aligned with successive governments to exploit raw resources, often operating under vague and ambiguous regulations that disregard the rights of local communities. Moreover, rather than empowering local communities to manage and sustainably use their territories, state institutions have concentrated political and economic power within their own hands. In both Bolivia and Ecuador, indigenous groups, women, and labor organizations have been co-opted or divided by mainstream political parties, not only along political lines but also by economic interests tied to the exploitation of minerals, land, forests, and other natural resources.

In the case of Colombia, grassroot organizations (peasants, Afro-Colombians and Indigenous) have taken the *Buen Vivir*, or moreover, the *Vivir Sabroso* (living tasty), as a flag of local resistance and revindication of their specific rights. The *Vivir Sabroso* integrates enjoyment, cultural appreciation, social connection, and personal well-being, principles reflected in the discourse and practice linked to agroecology, land and water protection, resistance towards extractivism and displacement and for the valuation of local knowledge, traditions and own ways of life. However, despite the impetus that marked the current government entrance into power and that included indigenous and Afro-Colombian world perspectives (such as *Buen Vivir* and *Ubuntu*) in its governmental promises, old problems remain in their translation to public policies. The rampant violence caused by the remains of the armed conflict, drug trafficking, organized crime, socioeconomic conditions has not moderated. Several proposals encompassing land redistribution and environmental protection (such as tax reforms and state intervention in sectors such as energy and mining) have been stopped either at the Congress or at the judicial levels.

The *Buen Vivir/Vivir bien* has also encountered strong critiques. Some feminists' perspectives point to the potentially romanticizing indigenous and peasant populations without adequately addressing patriarchal norms and power dynamics within their culture. They advocate for a feminist approach to *Buen Vivir* that actively promotes gender justice and challenges traditional gender roles (Avilés-Irahola and Youkhana 2024). Despite the advances in linking decolonization to depatriarchalization processes in the political discourse, the alarming gender-based violence (CEPAL 2023) and women's marginalization in the region make evident that timid and patchy legal initiatives have not led to the deconstruction, or even scratched the surface, of patriarchal and macho culture deeply rooted in Latin American societies. Other strong criticisms to *Vivir Bien* came from environmental and grassroot movements because of the functional (mis)use of the concept with the aim to prioritize the redistribution of wealth among marginalized groups while disregarding nature and the consequences of an extractivist economic model (Gudynas 2014).

While significant strides have been made in embedding *Buen Vivir* into legal and policy frameworks, challenges remain in translating these principles into tangible outcomes, especially concerning environmental protection and gender and ethnic disparities. Moving forward, it is imperative for governments to prioritize inclusive governance, inclusion of marginalized communities, and uphold the rights of nature to truly realize the vision of *Buen Vivir*. By fostering collaboration among diverse stakeholders who comprise the myriad of Latin American society and embracing indigenous knowledge systems, the region can pave the way for a more equitable, environmentally conscious, and culturally rich society rooted in the principles of *Buen Vivir*.

3.3 Example from China: Ecological Civilization and sustainable development as parallel agendas

By Sandra Gilgan

Ecological Civilization (*shengtai wenming* 生☒文明) is China's endogenous "sustainability" agenda which is well-known from the political context. However, the concept emerged in Chinese academia decades before it appeared on the Party's agenda. It arose alongside the concept of sustainability in the Brundtland Report. In fact, Chinese scientists who contributed to the Brundtland Report came from the same academic field that produced the narrative about Ecological Civilization (EC). Nevertheless, "sustainable development" was considered an "international" concept, while EC became the central national narrative. In both cases, Chinese tradition plays a role: as a tool to adapt the international narrative to the national context and as an integral part of the national concept.

Sustainable development (*kechixu fazhan* 可持☒☒展) became an important topic in China's national policy in 1995, during the Fifth Plenary Session of the Fourteenth Central Committee of the CCP. Reflecting the 1987 Brundtland Report, it addressed the need to align economic growth with environmental and social interests. The concept was adopted nationwide to protect and sustain the socialist market (Liu et al. 2018: 742). "*Kechixu fazhan*" literally means "continuous development," and it entails the idea that further (unlimited?) growth is only possible if it is done sustainably. The terminology is focused on economic growth, and it is not yet very telling about what "sustainability" in this kind of "sustainable" development actually is, but it already shows what is often criticized about the Agenda 2030: it is mainly (still) about economic growth and aims to address social and environmental aspects that are compatible with growth (Brightman and Lewis 2017: 5).

To understand the term "sustainability" in "continuous development," it is necessary to examine why this terminology was adopted as the Chinese translation for sustainable development, both internationally and domestically. The term was coined by Ma Shijun ☒世☒ (1915-1991), who was the director of the Research Center of Ecology at Academia Sinica, chairman of the Commission of Environmental Sciences, and president of the Ecological Society of China when he joined the Brundtland commission. A trained ecologist with degrees from universities in Beijing, Utah, and Minnesota, he began his career studying insects and eventually became a driving force in ecological agriculture. He studied ecosystems, their components and interactions, and he actively applied systems thinking, which is why he is sometimes also labelled as an earth systems scientist. Interestingly, he belongs to a group of scientists similar to those who coined "sustainability science" as a field of study in 2001 (as mentioned above). Through his approach of adapting technology to the conditions of ecosystems to improve agricultural output in a resource-saving way, he became the Chinese founding father of ecological engineering. Building on his work with specific ecosystems, Ma developed the theory of social-economic-ecological systems, stating that the interplay and harmony of these components are necessary for ecosystems to function. He published related pieces to guide China's "ecological modernization," a development plan that allows for further growth while reducing ecological damage by considering a harmonious relationship between humans and nature.

In a 1984 paper on "The Social-Economic-Natural Complex Ecosystem" (*Shehui – jingji – ziran fuhe shengtai xitong* 社会——☒☒——自然复合生☒系☒), he and Wang Rusong[13] state that only a holistic approach to the interrelations of natural, social and economic systems can solve pressing social questions, such as those around food security, energy, population and entrepreneurship. Considering that natural systems provide the basis for human production and humans are also part of nature, it is crucial to maintain the regenerative power of these systems (ibid: 1-2). Economic development is

[13] Wang Rusong (1947-2014), Chinese ecologist, Chinese Academy of Engineering (CAE). The CAE was established in 1994 and is an institution of the State Council of China. Together with the Chinese Academy of Sciences, the CAE they are often referred to as the "Two Academies."

presented as a means of sustaining nature because a solid economy is the foundation for a robust education system, which can foster an environmentally conscious mindset. Similarly, science and technology are viewed positively as drivers of innovation that can address environmental issues (ibid.: 2). The three dimensions of ecosystem functioning correspond directly with the three dimensions of sustainability (economic, social, and environmental), which were popularized by the Brundtland Report in 1987. While Ma and Rong clearly position nature as a resource for human needs and the economy, they also situate humans within the environment, departing from the Cartesian dualism of humans and nature seen in European intellectual history. Given this conceptual history, it is interesting that upon re-entering China from abroad, the concept of "sustainable development" at the international level was merged with Chinese concepts, such as the "harmonious society" (*hexie shehui* 和⌧社会; Liu et al. 2018: 742)[14] to make it suit the country's context. It had to be linked to existing party programs to open channels for communicating between party politics and international politics. At the same time, "sustainable development" seems to be an arena in which to present one's "sustainability" results and approaches; it is not used as a guiding principle for one's own policies.

Ecological civilization, which has made it to the national level, also comes from the field of ecological agriculture. Agricultural economist Ye Qianji 叶⌧吉 (1909-2017) used the term during his opening speech at the National Conference on Eco-agriculture in 1987, acknowledging the severe environmental conditions in China and calling for action, labelling the twenty-first century "The Century of Ecological Civilization Construction" (Marinelli 2018). From the very beginning, the concept of EC has a clear environmental connotation. It is based on the concept of "ecological culture," which originated in the former Soviet Union in 1984. This concept emphasizes that any further development of humanity must consider "the ecological conditions of our existence" (Gare 2010: 10). The term supposedly reemerged in a Chinese translation in the Guangming Daily when "culture" (*wenhua* 文化) was replaced with "civilization" (*wenming* 文明; Marinelli 2018; Gare 2010).

As a scientific concept, ecological civilization is a counterproposal to Western industrial civilization, emphasizing respect for nature and ecological justice (Marinelli 2018). Ye Qianji underscored the importance of sustainable agriculture as a means to successfully implement EC. He firmly believed that a balanced relationship between humans and nature could lead to more balanced and sustainable socioeconomic development. He introduced the ancient philosophical concept of the unity of humans and nature (*tianren heyi* 天人合一), which is tied to the works of scholars such as Mencius and Laozi, into the discussion on EC. While Western environmental movements from the 19th to the 21st century have criticized the ecological harm caused by modern industrialization—which promised economic growth and material progress—thus acting as a counterpoint to modernity, the situation in China is different. Ecological agriculture was not opposed to modernity, but rather to the Western model of industry or the modern economy (Rodenbiker 2021: 1942). Critique of EC as an alternative to industrial-capitalist modernity goes a step further than sustainable development (*kechixu fazhan*), as it is not only the economic model that is criticized, but also the underlying civilizational paradigm of how the world is perceived and created. However, both "sustainabilities" focus on further growth, aiming to cause less ecological damage and social division.

[14] The concept of a "harmonious society" was a central initiative under former President Hu Jintao (2002–2012). While China's rapid economic growth has led to greater stability and generally improved living standards, it has also fueled individualism through rising consumption and consumerism. This shift has been associated with a perceived erosion of a moral foundation among younger generations, making it more challenging for the Party to engage them with its visions and narratives (Foster 2015: 23; DeBlasi 2015: 71; Moore 2015: 139). At the same time, economic development has exacerbated social inequalities, becoming a source of conflict. The "harmonious society" guideline, rooted in ancient ideas of peace and prosperity, was designed to address these disparities and instill a clear sense of values and party allegiance, particularly among the youth. In this context, the concept of harmony focuses not on human-nature relations but on human-society dynamics within the specific political framework.

In 2007, the CCP adopted the term "Ecological Civilization" as a political slogan. This aligns with China's scientific approach to development (*kexue fazhanguan* 科学☒展☒), as outlined in the 11th Five-Year Plan in 2006 (Yu et al. 2025: 250). During the 17th National Party Congress, President Hu Jintao emphasized the importance of "building an ecological civilization," meaning protecting the environment amid economic growth, production, and energy and resource consumption. Thus, ecological civilization became the grand narrative for a green alternative to industrial civilization, offering pathways to sustainable solutions (Zhou et al., 2019; Zhang et al. 2019; Wang et al. 2019; Sun et al. 2018; Yang 2021). Foundational courses on climate change and sustainability for students in higher education also align with the EC narrative, aiming to cultivate "ecological behavior" (*shengtai xingwei* 生☒行☒, Yang 2021).

During the 18th National Party Congress in 2012, the concept of Ecological Civilization was written into the constitution, as a key task for the central government (Yu et al. 2025: 250), representing both national interests and global or planetary concern (Geall and Ely 2018). In fact, during the 19th National Party Congress in 2017, the government pronounced the common future of mankind, similar to the UN's Our Common Future narrative, and declared its intention to lead international climate change cooperation and the development of a global Ecological Civilization (Yu et al. 2025: 253). A major step toward this international leadership role was taken in 2020 with the framing of the Kunming Declaration of the UN Biodiversity Conference "Ecological Civilization: Building a Shared Future for All Life on Earth" (UN CBD 2021).

3.4 Interim summary II: Conflicts and resistance in the pursuit of sustainability

These three illuminating examples are particularly striking, especially when considered alongside those in section 2. Their substantial differences make direct comparison difficult in terms of content. Despite these differences, however, they all share a common tension between endogenous concepts of a just social order and Western-influenced societal models that have been exported and institutionalized globally. In the realm of sustainable development, one cannot ignore the postcolonial history of our world when being genuinely concerned with the people, institutions, and societies involved.

Ubuntu embodies the ideal of an African society that prioritizes people over profit. This highlights the tension between African social ideals and the harsh realities of the global economy. "People over profits" and turning away from the capitalist economy are motifs in German community-supported agriculture as well. Similarly, Buen Vivir illustrates how governments are caught between neo-extractivism, which is driven by the need for continued economic growth and power, and the vision of harmonious coexistence between people and nature. This tension is evident in the varying ways the concept is embraced: while governments may adopt it for political legitimacy, grassroot organizations embody it as a symbol of resistance (Colombia is presented as an example). These examples underscore the complex interplay of normative and political dimensions within sustainability, making it a deeply contested concept.

Furthermore, the example of Buen Vivir examines the "burden" of patriarchy in traditional systems. Not everything "traditional" is the ideal solution. This is similar to the example of land use in Tanzania, where traditional agricultural methods did not always produce the desired outcome. This case also shows that "the sustainable way" of doing something is not always an active choice; it can be a byproduct of a lack of agency, knowledge, and access to technological alternatives.

Ecological civilization is a national strategy that advances China's unique vision of civilization and industry while engaging with the Agenda 2030 for international communication of political progress. This approach aligns with the Party's goal of presenting China as self-sufficient and globally influential. In contrast, Ubuntu and Buen Vivir highlight local communities and traditions, scaling these concepts

nationally. Ecological civilization, however, operates differently. It is a concept borrowed from the scientific community that originated in agricultural discourse. Its relation to agriculture is intriguing because it ties back to our practice examples in part one. It underscores the importance of agriculture in sustainability theory and practice.

After exploring various sustainability concepts at the national and transnational levels, we now turn to the international level. There, the Sustainable Development Goals (SDGs) are the most recent and comprehensive framework for sustainability. They reflect a shared global commitment to this cause. We examine this example as an alternative to previous development frameworks, while also critically evaluating its goals of “leaving no one behind” and serving as an indicator of our progress towards global sustainability.

4 Illuminating examples part III: An international framework of sustainability

It took a few decades for governments to go from expressing joint concern for the environment to developing collective policy frameworks on "sustainable development." In 1972, the United Nations Conference on the Human Environment in Stockholm convened government representatives for the first time to discuss the state of the global environment. This landmark conference led to the creation of government environmental agencies and the UN Environment Program. In response to urgent environmental issues, including climate change, ozone depletion, and increasing disparities between nations and populations, the UN General Assembly formed the renowned World Commission on Environment and Development (WCED) in 1983. This international group was made up of environmental experts, politicians, and officials. Its goal was to explore the connections between social equity, economic prosperity, and environmental sustainability. It also sought to develop policy solutions that integrated all three dimensions. The WCED's influential Brundtland Report introduced the concept of "sustainable development," defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987). While this concept emphasizes the importance of fulfilling human needs, particularly those of the global poor, it also stresses the necessity of respecting environmental limits (Spangenberg 2011: 275).

Following the publication of the Brundtland Report, one of the key outcomes was the initiation of the process leading to the Earth Summit, officially known as the United Nations Conference on Environment and Development (UNCED) and also referred to as the Rio Conference. This process began in 1989. The Summit, held in Rio de Janeiro in 1992, aimed to strengthen international cooperation in addressing sustainability challenges. In the 2000s, two major global policy frameworks emerged: first, the Millennium Development Goals (MDGs), and later, the more comprehensive Sustainable Development Goals (SDGs). These frameworks are "nested" on an international scale. They are formulated by expert groups and designed to have a global reach through the adoption of policies by individual governments, thereby connecting back to the national levels discussed earlier. Not legally binding, these frameworks draw their legitimation from endorsement at the highest level of global governance, the United Nations, granting considerable normative authority.

4.1 The Sustainable Development Goals – A Milestone or Old Wine in New Bottles?

By Lisa Biber-Freudenberger, Marcelo Inacio da Cunha and Jakob Rhyner

The Sustainable Development Goals (SDGs) were adopted by the United Nations in 2015 as a framework for sustainable development. The SDGs followed the previous UN Millennium Development Goals (MDGs), which had been developed under the lead of the United Nations, the World Bank, the International Monetary Fund and OECD, with a focus on economic development and poverty reduction (Jacob 2024). The MDGs were adopted by the UN General Assembly in 2000, with a time horizon of 15 years for their realization. Efforts to develop a Post-2015 agenda started in 2012 and were soon thereafter merged with an independent initiative emerging from the *United Nations Conference on Sustainable Development (Rio+20)* in 2012. There was a consensus that the new process should, beyond the economic focus of the MDGs, include ecological and social aspects on an equal footing. The central instrument for structuring the discussions and including as many perspectives as possible in the short time frame to 2015 was the *Open Working Group* (OWG), consisting of 30 core members, chaired by the UN Ambassadors of Hungary and Kenya (Fukada-Parr 2015). Specific processes were established to give civil society, science and the private sector opportunities to bring

in their views. While the MDGs had served as a framework for development mainly in low-income countries, the SDGs were supposed to provide also orientation for the high and middle-income countries ("Every country is a developing country"). This more "holistic" approach, but also the effort to have an as wide as possible global participation, made the OWG process a very demanding endeavor in the short time frame. It could be completed by the approval of the UN Agenda 2030 by the UN General Assembly 2015. The core element of the corresponding report "*Transforming our World: The 2030 Agenda for Sustainable Development*" are the 17 SDGs (Niestroy 2017).

The Agenda 2030 for Sustainable Development seeks to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources as well as taking urgent action on climate change and biodiversity loss, so that it can support the needs of the present and future generations (Preamble of the Agenda 2030 for Sustainable Development). "Leaving no one behind" is an overarching principle which cuts across the SDGs (Fukada-Parr and Hagstad 2018).

The 17 distinct objectives theoretically allow for exploring both synergies and conflicts among them. However, in practice, this separation has fostered a siloed approach to decision-making that often overlooks the interconnected nature of the goals. This structure has also made it easier for decision-makers to cherry-pick goals that align with their specific agendas or sectors, rather than adopting a holistic approach that considers the broader, integrated vision of sustainable development (Nillson et al. 2022).

The SDGs were conceived with a vision akin to that of the Brundtland Report, which views economic, social and ecological sustainability in a non-hierarchical way as equally important dimensions. However, critics from the strong sustainability perspective argue that an inherent hierarchy should be taken into account, where an inclusive economy depends on society, and society, in turn, relies on a thriving biosphere. This hierarchy is better illustrated by the "SDG wedding cake" model (Folke et al. 2016), which visually emphasizes the foundational role of ecological sustainability in supporting social and economic goals (see figure 1). This model aligns with the concept of strong sustainability (see section 1) which advocates for the intrinsic value of natural resources and ecosystems in contrast to the so-called "weak sustainability", which often prioritizes economic growth and efficiency over ecological integrity.

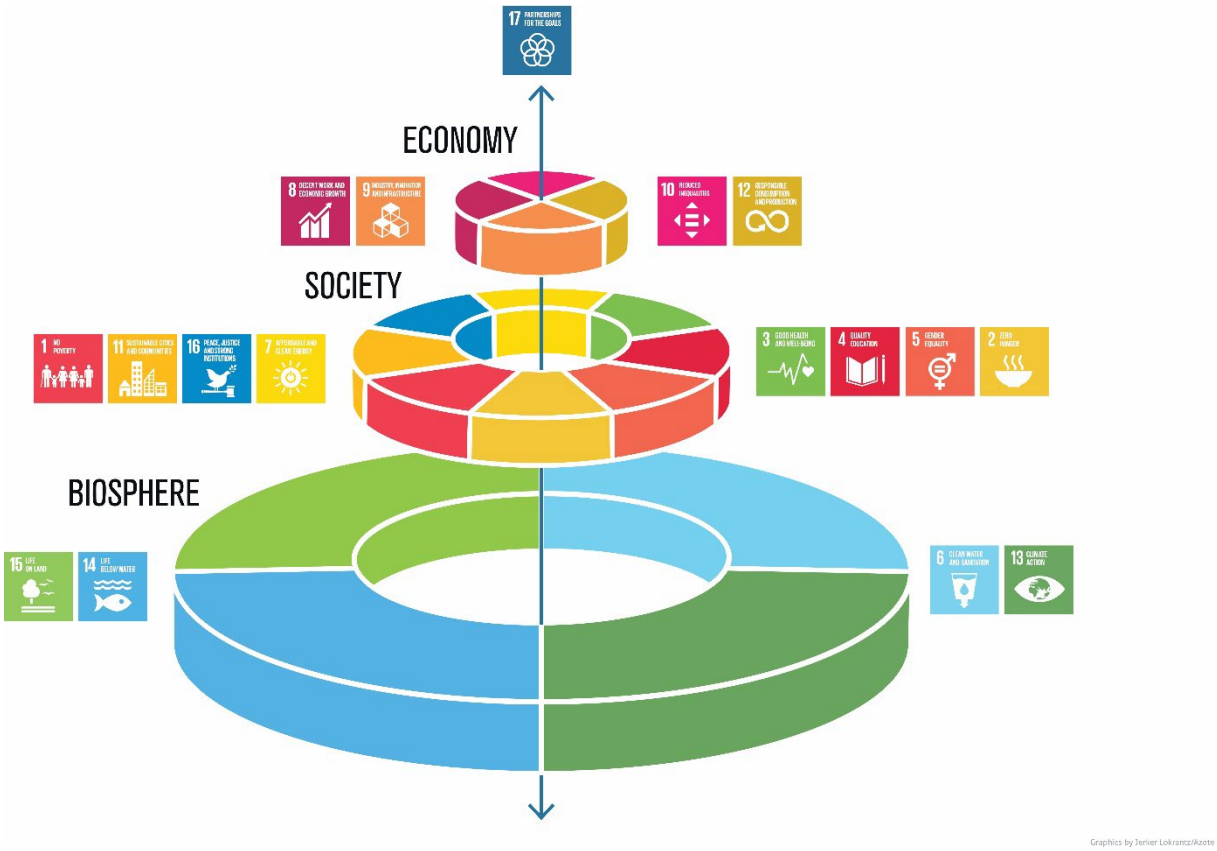

Figure 1: The "SDG wedding cake" model

Illustrating the conviction that sustainable development can only be achieved if the biosphere is protected as the basis for society and economy. Azote for Stockholm Resilience Centre, Stockholm University (CC BY-ND 3.0).

Furthermore, the SDG indicator framework has been criticized for favoring high-income countries, as many indicators prioritize measuring efficiency gains—such as the amount of energy required to generate economic welfare—over the total resource use, including metrics like the overall ecological footprint. This focus can mask the unsustainable consumption patterns of wealthier nations while failing to account for the broader environmental impacts of their economic activities. In fact, as shown in Fig 2, there is a concerning correlation between countries with high SDG index values and those with high ecological footprint values, a trend that also emerged during the MDG era (Wackernagel et al. 2017).

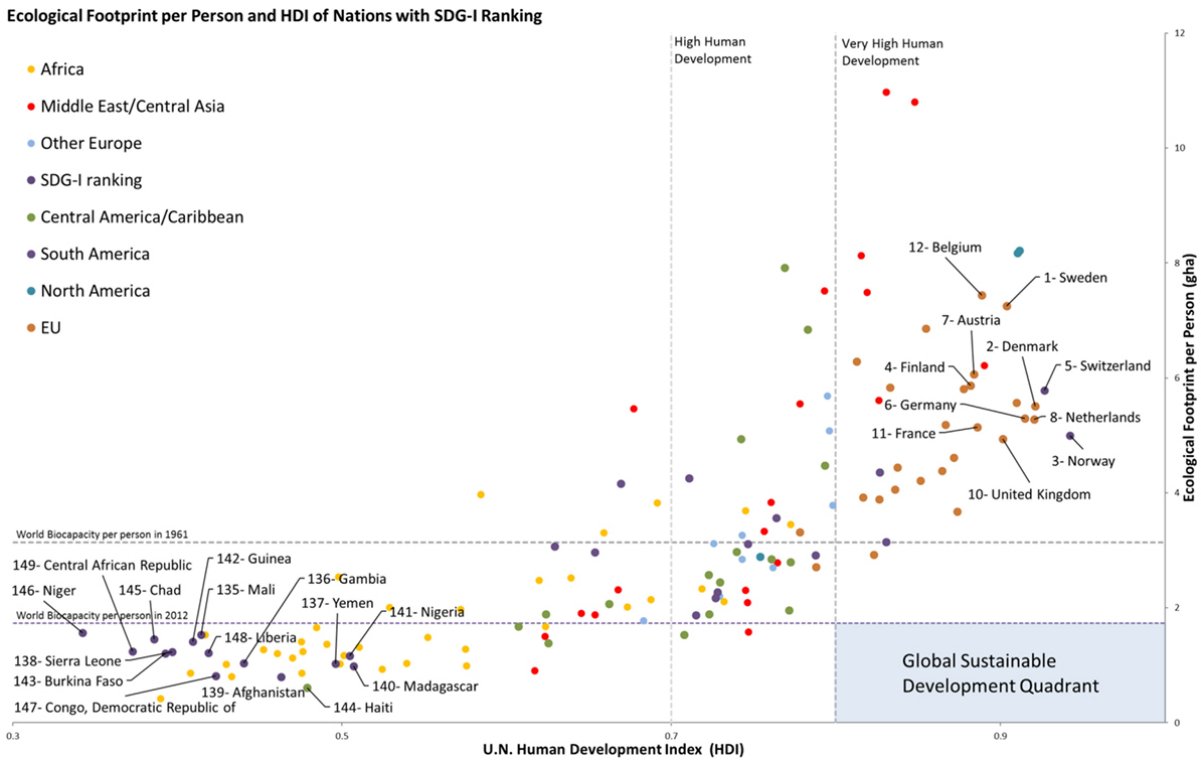

Figure 2: The Ecological Footprint per person and the Human Development Index (HDI) by country.

It highlights how well each nation aligns with fundamental global sustainable development criteria—achieving high human development while staying within resource limits that can be universally maintained. The rankings provided reflect each country's position on the Sustainable Development Goal (SDG) index (only the top and bottom 10 are noted here). This analysis reveals that SDG performance tends to align more with traditional development models than with truly sustainable practices (source: Global Footprint Network 2017).

This relationship suggests that nations performing well on SDG metrics may simultaneously exhibit unsustainable consumption patterns, highlighting the need for a more nuanced approach that addresses the ecological consequences of development alongside social and economic progress. This situation is likely not coincidental, as it places low-income nations at a disadvantage in international negotiations. Often underrepresented in discussions that led to the adoption of the SDGs, these countries may lack the necessary power to influence decisions in their favor. This inequity hampers their ability to advocate for their interests and priorities, further perpetuating existing disparities in global sustainability efforts.

4.2 Interim reflection: Iterative course of the critical debate

At this stage of the discussion, we return to national philosophies and concepts as a way to bridge this gap, as proposed, for example, by Hoffmann and Metz (2017). Their article highlights the depth of dialogue that can emerge when African and Anglo-American intellectual traditions intersect, and it encourages scholars rooted in Western traditions to engage more actively with colleagues from Africa and the broader global South. In particular, they apply a combination of the capabilities approach and Ubuntu ethics in work on poverty. This illustrates the iterative nature of our critical engagement with "plural sustainabilities," in which earlier discussions need to be revisited and revised in light of new insights, gradually deepening the debate and moving toward greater conceptual integration. As this process unfolds, a next intellectual step is required. We therefore conclude with a provisional reflection on the current state of our findings and the open questions they raise, offering a foundation for continued dialogue and future research.

5 Concluding discussion for continuing dialogue

The UN Agenda 2030, with its Sustainable Development Goals (SDGs), embraces the notion of a sustainability transformation. With its historic consensus on a global political framework for such a transformation, it is described as a pivotal moment for collective action (UN 2015: 18). The UN (2015: 21) mentions national realities, policies, and priorities as crucial focuses for implementation, also addressing plurality:

> 51. No single blueprint of sustainability will be found, as economic and social systems and ecological conditions differ widely among countries. Each nation will have to work out its own concrete policy implications. Yet irrespective of these differences, sustainable development should be seen as a global objective (WCED 1987, Chapter 1: A Threatened Future, 51).

Through our interdisciplinary research on "plural sustainabilities" in various socio-geographical contexts, we hope to have demonstrated that policy implications begin with an understanding of the ontological basis of society-environment relations and positionalities in a globalized world with a history of colonialism and colonial continuities. Furthermore, although the SDGs as well as national and transnational narratives all aim to promote sustainability, a critical examination of the status quo reveals that an overemphasis on economic growth and systemic imbalances are present in all examples of sustainability. Fundamental change, especially regarding values and monetary values, is not realized. Ecological civilization focuses on growth, and extractive economic processes occur despite Buen Vivir commitments. Ubuntu has not sufficiently implemented the connection between people, beings, and environments. Although the SDGs were designed to be more balanced than the MDGs in terms of ecological and social weighting, the original vision fades in concrete use and implementation, where the complexity of the agenda is lost. Progress is measured in a way that benefits those who have set the standards for progress for centuries: the financially strong regions. Policies and practices, especially at the local and national levels, embody ideals and values that people want to see in reality: recognition, identity, representation, belonging, togetherness, solidarity, tradition, and ownership of one's past, point of view, basic needs, and autonomy. These ideals are what people strive to achieve in order to live well together.

This working paper presents a discussion among colleagues from various countries, institutions, and disciplines who explore different conceptualizations, concepts, and practices of sustainability. We refer to this discussion as "plural sustainablities" to highlight the importance of understanding the local context and exploring its intersections with national, transnational, and global scales, including ideas, histories, frameworks, and narratives. We do not consider this discussion to be finalized; rather, it is open to new contributions, critiques, and additions, especially since sustainability and related transformations are ongoing and the landscape of "plural sustainabilities" is constantly changing.

Therefore, we conclude this paper by posing questions that we could not yet address or answer, or that require additional expertise. After all, our knowledge and capacity are limited, and interdisciplinary and transdisciplinary sustainability research requires extensive dialogue with many experts.

5.1 Open questions for further discussions and future research

- In the social movement and resistance examples, we saw how people grapple with upscaling and recognition at higher levels. On national and transnational levels, we have accounts of difficulties in downscaling. How can such dynamics work better comprehensively?
- (How) Can good, local practices be scaled up or transferred to other areas?

- How can we feed the idea of “plural sustainabilities” into measuring global progress of sustainability? (How) Can we include qualitative data?
- Is the linear idea of progress in development (from status quo to desired and planned goal) the “right direction” for sustainability transformation? (How) Can non-linear progress be measured?
- How can we work with the tension between preservation and change in sustainability?
- (How) Can sustainability researchers support the mediation between the tensions as outlined in the examples? How politically and normatively charged can transdisciplinary engagement in academia be?
- How can researchers better inform concrete political frameworks such as sustainable development agendas? Who translates between the “worlds” of policy and science in these regards?
- Should all people work towards political goals, such as the SDGs? Are there other targets or future visions to guide sustainability transformation? How can these “guides” cooperate?
- (How) Can deliberations from a foundational level such as “plural sustainabilities,” be used to inform the work of the natural sciences on sustainability or inspire interdisciplinarity?
- (How) Can deliberations from a foundational level, such as “plural sustainabilities,” be used to inform toolboxes for decision-makers and practitioners?
- What would sustainability look like in policy and practice if approached from an eco-centric perspective?
- Even when framed as inclusive or forward-looking, how might current sustainability agendas continue to reflect extractive power dynamics? What kinds of research strategies are useful for identifying these tensions within different political and institutional settings?
- How do patriarchal and ethnically discriminatory structures persist or adapt within sustainability discourse—especially when philosophies like *Buen Vivir* and *Ubuntu* are co-opted by dominant frameworks that privilege historically powerful actors and marginalize local, gendered, and Indigenous ways of knowing?
- How can thoughtful engagement with the political dimensions of sustainability help foster stronger connections between academic research, community-based efforts, and those who are often excluded from formal decision-making processes?
- How can we be more holistic and inclusive—of vulnerable and socio-economically marginalized groups and their worldviews, including of Indigenous Peoples and Local Communities—when referring to “we” in “the future we want”?
- How can sustainable futures move away from business-as-usual, and be also informed by such worldviews, diverse knowledge systems and groups in the realm of “plural sustainabilities” towards 2030 and beyond?

6 References

Abessa D., Famá A., Buruaem L. (2019). The systematic dismantling of Brazilian environmental laws risks losses on all fronts. Nat Ecol Evol, 3, 510–511. https://doi.org/10.1038/s41559-019-0855-9.

Acosta, A. (2016). El Buen Vivir Sumak Kawsay, una oportunidad para imaginar otros mundos. Icaria Editorial.

Adolphs R. (2013). The biology of fear. *Current biology*: CB, 23(2), R79–R93. https://doi.org/10.1016/j.cub.2012.11.055

Ajl, M. (2021). *A People's Green New Deal*. London: Pluto Press.

Altmann, P. (2016). Buen Vivir como propuesta política integral: Dimensiones del Sumak Kawsay. *Revista Latinoamericana de Políticas y Acción Pública*, 3(1), 55-74

Asike, J. C. (2016). The philosophical concept of "Ubuntu" as dialogic ethic and the transformation of political community in Africa. OGIRISI: a New Journal of African Studies, 12(Special Issue). https://doi.org/10.4314/og.v12is1.1

AU (no date). "Agenda 2063: The Africa We Want". Online: https://au.int/en/agenda2063/overview (last access: June 24, 2025).

Avilés-Irahola, D. & Youkhana, E. (2024). *The links between the Buen Vivir and Decolonial Feminism: an approach drawn from experiences in Bolivia and Ecuador.* ZEF Working Paper Series 228. https://www.zef.de/fileadmin/webfiles/downloads/zef_wp/ZEF_Working_Paper_228_web.pdf

Balogun, K., Weru, K., & Shen, X. (2023). "Freedom from want": A critical reflection in the face of the Anthropocene. *Journal of Human Development and Capabilities, 24*(2), 274–283. https://doi.org/10.1080/19452829.2022.2161493

Behrend, H. (2015). Land degradation and its impact on security. In I. Chabay, M. Frick, & J. Helgeson (Eds.), *Land restoration: Reclaiming landscapes for a sustainable future* (pp. 13–26). Elsevier.

Berkes, F. (2012). Sacred Ecology: Traditional Ecological Knowledge and Resource Management. Routledge.

Bjorkhaug, H., McMichael, P., & Muirhead, B. (2019). *Finance or food? The role of cultures, values, and ethics in land use negotiations.* University of Toronto Press.

Blanchette, I., Gavigan, S., and Johnston, K. (2014). Does emotion help or hinder reasoning? The moderating role of relevance. Journal of Experimental Psychology: General, 143(3), 1049–1064. https://doi.org/10.1037/a0034996

Bonfert, B. (2022). Community-supported agriculture networks in Wales and Central Germany: Scaling up, out, and deep through local collaboration. *Sustainability, 14*(12), 7419. https://doi.org/10.3390/su14127419

Bonilla Maldonado, D. (2019). El constitucionalismo radical ambiental y la diversidad cultural en América Latina: Los derechos de la naturaleza y el buen vivir en Ecuador y Bolivia. *Revista Derecho del Estado, 42*, 3–23. https://doi.org/10.18601/01229893.n42.01

Borgwardt, A. (2024). *Nachhaltigkeit an Hochschulen* (Eine Stunde für die Wissenschaft No. 12 / FES impuls). Friedrich-Ebert-Stiftung. https://library.fes.de/opac/id/7926307

Brand, U., & Wissen, M. (2013). Crisis and continuity of capitalist society-nature relationships: The imperial mode of living and the limits to environmental governance. *Review of International Political Economy, 20*(4), 687–711. https://doi.org/10.1080/09692290.2012.691077

Brightman, M., & Lewis, J. (2017). Introduction: The anthropology of sustainability—Beyond development and progress. In M. Brightman & J. Lewis (Eds.), *The anthropology of sustainability* (pp. 1–34). Palgrave Macmillan.

Brüntrup, M, Hornidge, A. K. (2022): Science Futures Between "intensification" and "conservation"discourses on African rural development, https://crc-trr228.de/b05-science-futures/

Carlowitz, H. C. von (1715). *Sylvicultura oeconomica*

Castellanos Tisoc, E. (2021). *La naturaleza como titular de derechos: un nuevo enfoque desde el constitucionalismo Latinoamericano.* Essay. Red-IDD. https://red-idd.com/files/2021/2021GT04_002.pdf

Convention on Biological Diversity (CBD). (2022). *The Kunming-Montreal Global Biodiversity Framework*. https://www.cbd.int/doc/c/e6d3/cd1d/daf663719a03902a9b116c34/cop-15-l-25-en.pdf

CEPAL – Economic Commission for Latin America and the Caribbean. (2023). *Violencia feminicida en cifras: América Latina y el Caribe* (Bulletin No. 2). https://repositorio.cepal.org/server/api/core/bitstreams/556c1a40-c2c3-42b9-a3f5-cf6ce0353546/content

Coulson, A. (1977). Agricultural policies in mainland Tanzania. Review of African Political Economy, 4(10), 74-100.

Crippen, M. (2021b). Africapitalism, ubuntu, and sustainability. Environmental Ethics, 43(3), 235–259. https://doi.org/10.5840/enviroethics202111929

Cudlínová, E., Giacomelli Sobrinho, V., Lapka, M., & Salvati, L. (2020). New forms of land grabbing due to the bioeconomy: The case of Brazil. *Sustainability, 12*(8), 3395. https://doi.org/10.3390/su12083395

De Moor, T. (2008). The silent revolution: A new perspective on the emergence of commons, guilds, and other forms of corporate collective action in Western Europe. *International Review of Social History, 53*(S16), 179–212. https://doi.org/10.1017/S0020859008003660

DeBlasi, A. (2015). Selling Confucius: The negotiated return of tradition in post-socialist China. In K. J. Hammond & J. L. Richey (Eds.), *The sage returns: Confucian revival in contemporary China* (pp. 67–92). State University of New York Press.

Degens, P. (2023). Solidarische Landwirtschaft als konviviale Ökonomie. *Zeitschrift für Kultur- und Kollektivwissenschaft, 9*(2), 51–80. https://doi.org/10.14361/zkkw-2023-090204

Deutsche UNESCO-Kommission, Fachausschuss Wissenschaft. (2024). *Gleichberechtigte Wissenschaftskooperation weltweit: Positionspapier der Deutschen UNESCO-Kommission*.

Devine, J. A., Ojeda, D., & Yie Garzón, S. M. (2020). Formaciones actuales de lo campesino en América Latina: conceptualizaciones, sujetos/as políticos/as y territorios en disputa. Antípoda. Revista De Antropología Y Arqueología, 1(40), 3-25. https://doi.org/10.7440/antipoda40.2020.01

Devine, J., Ojeda, D., & Yie, T. (2020). Environmental justice and territorial struggles in Latin America. Geoforum, 108, 259-270.

Diekmann, M., & Theuvsen, L. (2019). Soziale Nachhaltigkeit durch Community Supported Agriculture. *Soziologie und Nachhaltigkeit, 5*(1), 91–110. https://doi.org/10.17879/sun-2019-2473.

Diko, D. (2023). Advancing agriculture through Indigenous Knowledge Systems (IKS) in South African indigenous or black communities. *International Journal of Research in Business and Social Science, 12*, 266–277. https://doi.org/10.20525/ijrbs.v12i2.2333

Escobar, A. (2018). *Designs for the pluriverse: Radical interdependence, autonomy, and the making of worlds*. Duke University Press.

Eyzaguirre, P. (2001). Global Recognition of Indigenous Knowledge: Is this the Latest Phase of Globalization? Indigenous Knowledge and Development Monitor 8 (1).

FAO. (n.d.). *Sustainable land management*. Retrieved May 28, 2025, from https://www.fao.org/land-water/land/sustainable-land-management/en/

Folke, C., Biggs, R., Norström, A. V., Reyers, B. & Rockström, J. (2016). Social-ecological resilience and biosphere-based sustainability science. Ecol. Soc. 21, art41.

Foster, R. W. (2015). The tenacious persistence of Confucianism in imperial Japan and modern China. In K. J. Hammond & J. L. Richey (Eds.), *The sage returns: Confucian revival in contemporary China* (pp. 13–38). State University of New York Press.

Fukuda-Parr, S., & Hegstad, T. S. (2018). " 'Leaving no one behind' as a site of contestation and reinterpretation." Journal of Globalization and Development, 9(1).

Fukuda-Parr, S. (2018). Sustainable Development Goals. In T. G. Weiss & S. Daws (Eds.), *The Oxford handbook on the United Nations* (2nd ed.). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780198803164.013.42

Gangemi, A., Dahò, M., & Mancini, F. (2021). Emotional Reasoning and Psychopathology. Brain sciences, 11(4), 471. https://doi.org/10.3390/brainsci11040471

Gare, A. (2010). "Toward an Ecological Civilization: The Science, Ethics, and Politics of Eco-Poiesis." *Process studies*, 39(1): 5-38.

Geall, S., & Ely, A. (2018). "Narratives and Pathways towards an Ecological Civilization in Contemporary China." *The China quarterly* (London), 236: 1175-1196.

Geels, F. W., & Locatelli, G. (2024). Broadening project studies to address sustainability transitions: Conceptual suggestions and crossovers with socio-technical transitions research. *International Journal of Project Management, 42*(7), Article 102646. https://doi.org/10.1016/j.ijproman.2024.102646

Gehringer, A., Kowalski, S. (2023). Delimitating Sustainability and Its Dimensions. In: Mapping Sustainability Measurement. Sustainable Development Goals Series. Springer, Cham. https://doi.org/10.1007/978-3-031-47382-1_3

Geiss, I. (1969). Pan-Africanism. *Journal of Contemporary History, 4*(1), 187–200. http://www.jstor.org/stable/259800.

Gilgan, S., & Balogun, K. (2021). *Report on the expert workshop 'Revisiting sustainability: Challenges for science and policy'*. Bonn Alliance for Sustainability Research. https://doi.org/10.48565/bonndoc-135

Global Footprint Network. (2017). Making the Sustainable Development Goals consistent with sustainability. https://www.footprintnetwork.org/2017/09/01/making-sustainable-development-goals-consistent-sustainability/.

Green, F. (2021), Ecological limits: Science, justice, policy, and the good life. Philosophy Compass, 16: e12740. https://doi.org/10.1111/phc3.12740

Gudynas, E. (2014). "Buen vivir sobre secuestros, domesticaciones, rescates y alternativas." In Oviedo Freire, A. (Ed). *Bifurcación del Buen Vivir y el Sumak Kawsay.* (pp 23-45)- Quito:Yachay

Gudynas, E. (2014). "Buen vivir sobre secuestros, domesticaciones, rescates y alternativas." In Oviedo Freire, A. (Ed). *Bifurcación del Buen Vivir y el Sumak Kawsay.* (pp 23-45)- Quito:Yachay.

Hailey, J. (2008). *Ubuntu: A literature review* (pp. 1–26). Tutu Foundation.

Heyen, D. A., & Wolff, F. (2019). Drivers and barriers of sustainability transformations: A comparison of the "Energiewende" and the attempted transformation to organic agriculture in Germany. *GAIA, 28*(S1), 226–232.

Hoffmann, N., & Metz, T. (2017). What can the capabilities approach learn from an Ubuntu ethic? A relational approach to development theory. *World Development, 97*, 153–164.

International Work Group for Indigenous Affairs (IWGIA). (2022). *The Indigenous World 2022: Tanzania*. https://iwgia.org/en/tanzania/4643-iw-2022-tanzania.html

Jacob, D., Birkmann, J., Bollig, M., Bonn, A., Nöthlings, U., Ott, K., Quaas, M., Reichstein, M., Scholz, I., Malburg-Graf, B., & Sonntag, S. (2022). *Research priorities for sustainability science*. German Committee Future Earth.

Jacob, J. (2024). A Background History of the Sustainable Development Goals. *Sustainable Development.*, *33*(3), 3747–3759. https://doi.org/10.1002/sd.3317

Johansson, E. L. (2021). Participatory futures thinking in the African context of sustainability challenges and socio-environmental change. *Ecology and Society, 26*(4), Article 3. https://doi.org/10.5751/ES-12660-260403

Kates, R. W., Clark, W. C., Corell, R., Hall, J. M., Jaeger, C. C., Lowe, I., McCarthy, J. J., Schellnhuber, H. J., Bolin, B., Dickson, N. M., Faucheux, S., Gallopin, G. C., Grübler, A., Huntley, B., Jäger, J., Jodha, N. S., Kasperson, R. E., Mabogunje, A., Matson, P., ... & Svedin, U. (2001). Sustainability science. *Science, 292*(5517), 641–642. https://doi.org/10.1126/science.1059386

Keltner, D., Sauter, D., Tracy, J. L., Wetchler, E., & Cowen, A. S. (2022). How emotions, relationships, and culture constitute each other: Advances in social functionalist theory. *Cognition & Emotion, 36*(3), 388–401. https://doi.org/10.1080/02699931.2021.1973836

Kern, K., et al. (2008). Sub-national sustainable development initiatives in federal states in Germany. In G. P. (Ed.), *Pursuit of sustainable development* (pp. 144–166). Routledge. https://doi.org/10.4324/9780203928165-16

Khomba, J. K., & Kangaude-Ulaya, E. C. (2013). Indigenisation of corporate strategies in Africa: Lessons from the African Ubuntu philosophy. *China-USA Business Review, 12*(7), 672–689.

Kirman, A. (2010). The economic crisis is a crisis for economic theory. *CESifo Economic Studies, 56*(4), 498–535.

Klein, J. T. (2021). *Beyond interdisciplinarity: Boundary work, communication, and collaboration* (1st ed.). Oxford University Press.

Kom, Z., Nicolau, M. D., & Nenwiini, S. C. (2024). The use of Indigenous Knowledge Systems practices to enhance food security in Vhembe District, South Africa. *Agricultural Research*. https://doi.org/10.1007/s40003-024-00716-8

Kothari, A., Salleh, A., Escobar, A., Demaria, F., & Acosta, A. (2019). Introduction: Finding pluriversal paths. In A. Kothari et al. (Eds.), *Pluriverse: A post-development dictionary*. Tullika Books.

Kurth, T., et al. (2023). *The case for regenerative agriculture in Germany—and beyond*. NABU. https://www.nabu.de/imperia/md/content/nabude/landwirtschaft/230323-the_case_for_regenerative_agriculture_longversion-engl.pdf

Laurent, É. (2024). *Just transitions*. Edward Elgar Publishing.

Liu, C., Chen, L., Vanderbeck, R. M., Valentine, G., Zhang, M., Diprose, K., & McQuaid, K. (2018). A Chinese route to sustainability: Postsocialist transitions and the construction of ecological civilization. *Sustainable Development, 26*(6), 741–748.

Mabele, M. B., Krauss, J. E., & Kiwango, W. (2022). Going back to the roots: Ubuntu and just conservation in Southern Africa. *Conservation and Society, 20*(2), 92–102.

Malakar, K. D., Kumar, M., Anand, S., & Kuzur, G. (2023). Climate vulnerability and socio-ecological transformation. In *Climate change and socio-ecological transformation*. *Advances in Geographical and Environmental Sciences*. Springer. https://doi.org/10.1007/978-981-99-4390-6_4

Marinelli, M. (2018). How to build a 'Beautiful China' in the Anthropocene: The political discourse and the intellectual debate on ecological civilization. *Chinese Journal of Political Science, 23*(3), 365–386.

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*(4), 370–396. https://doi.org/10.1037/h0054346

Materechera, S. A. (2021). Relevance of Indigenous Knowledge Systems in sustaining agriculture under smallholder farming in Sub-Saharan Africa. In W. Leal Filho, R. Pretorius, & L. O. de Sousa (Eds.), *Sustainable development in Africa* (World Sustainability Series, Chap. 3). Springer. https://doi.org/10.1007/978-3-030-74693-3_3

McGregor, D. (2004). Coming full circle: Indigenous knowledge, environment, and our future. *American Indian Quarterly, 28*(3/4), 385–410.

Meadows, D. L., & Club of Rome. (1972). *The limits to growth: A report for the Club of Rome's project on the predicament of mankind*. Universe Books.

Mies, M. (2015). *Patriachat und Kapital*. bge-Verlag.

Mignolo, W. (2018). Foreword. On pluriversality and multipolarity. In B. Reiter (Ed.), *Constructing the pluriverse: The geopolitics of knowledge* (pp. ix–xvi). Duke University Press.

Miller, D., et al. (2021). Introduction. In *Boundaries and justice* (Vol. 4, pp. 1–14). Princeton University Press.

Montaña Mestizo, V., Robledo Escobar, N., & Yie Garzón, S. M. (2022). La categoría campesino y sus representaciones en Colombia: Polisemia histórica y regional. *Revista Colombiana de Antropología, 58*(1), 9–24.

Moore, H. L. (2017). What can sustainability do for anthropology? In *The anthropology of sustainability* (pp. 67–80). Palgrave Macmillan.

Moore, R. L. (2015). Like the air we breathe: Confucianism and Chinese youth. In K. J. Hammond & J. L. Richey (Eds.), *The sage returns: Confucian revival in contemporary China* (pp. 129–155). State University of New York Press.

Mugumbate, J. R., & Chereni, A. (2020). Editorial: Now, the theory of Ubuntu has its space in social work. *African Journal of Social Work, 10*(1). ISSN 2409-5605.

Nabudere, D. W. (2001). The African renaissance in the age of globalization. *African Journal of Political Science / Revue Africaine de Science Politique, 6*(2), 11–28.

Nwozor, A., Okidu, O., & Adedire, S. (2021). Agenda 2063 and the feasibility of sustainable development in Africa: Any silver bullet? *Journal of Black Studies, 52*(7), 688–715. https://doi.org/10.1177/00219347211021099http://www.jstor.org/stable/23493943

Neumayer, E. (2010). *Weak versus strong sustainability: Exploring the limits of two opposing paradigms* (3rd ed.). Edward Elgar. https://doi.org/10.4337/9781849805438

Niestroy, I. (2016). *How are we getting ready? The 2030 Agenda for Sustainable Development in the EU and its Member States: Analysis and action so far*. Deutsches Institut für Entwicklungspolitik (DIE). https://www.ps4sd.eu/wp-content/uploads/2017/07/2016-Niestroy-Are-we-getting-ready.pdf

Nilsson, M., Vijge, M. J., Alva, I. L., et al. (2022). *Interlinkages, integration, and coherence: The governance of the Sustainable Development Goals*. Utrecht University Research Portal.

Omisore, A. G. (2018). Attaining Sustainable Development Goals in sub-Saharan Africa: The need to address environmental challenges. *Environmental Development, 25*, 138–145. https://doi.org/10.1016/j.envdev.2017.09.002

Pham, M. T. (2007). Emotion and rationality: A critical review and interpretation of empirical evidence. *Review of General Psychology, 11*(2), 155–178. https://doi.org/10.1037/1089-2680.11.2.155

Reyes-García, V., Fernández-Llamazares, Á., Aumeeruddy-Thomas, Y., Benyei, P., Bussmann, R. W., Diamond, S. K., … Brondizio, E. S. (2022). Recognizing Indigenous peoples' and local communities' rights and agency in the post-2020 Biodiversity Agenda. *Ambio, 51*(1), 84–92.

Rist, S., & Dahdouh-Guebas, F. (2006). Ethnosciences—A step towards the integration of scientific and indigenous forms of knowledge in the management of natural resources for the future. *Environment, Development and Sustainability, 8*, 467–493.

Rivera-Núñez, J. (2024). *Agroecología y resistencia campesina: Experiencias de sostenibilidad desde los territorios rurales en América Latina*. Editorial CLACSO.

Rivera-Núñez, T. (2024). ¿Post conservación de territorios indígenas y campesinos en América Latina? *Journal of Political Ecology, 31*(1), 137–157. https://doi.org/10.2458/jpe.5287

Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, III, F.S., Lambin, E., Lenton, T.M., Scheffer, M., Folke, C., Schellnhuber, H., Nykvist, B., De Wit, C.A., Hughes, T., van der Leeuw, S., Rodhe, H.,

Sörlin, S., Snyder, P.K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R.W., Fabry, V.J., Hansen, J., Walker, B.H., Liverman, D., Richardson, K., Crutzen, C., Foley. J. (2009). A safe operating space for humanity. *Nature* 461: 472-475 DOI 10.1038/461472a

Rockström, J. (2015). *Bounding the planetary future: Why we need a great transition*. Great Transition Initiative. https://greattransition.org/publication/bounding-the-planetary-future

Rodenbiker, J. (2021). Making ecology developmental: China's environmental sciences and green modernization in global context. *Annals of the American Association of Geographers*, 1–18.

Schlosberg, D. (2007). *Defining environmental justice: Theories, movements, and nature*. Oxford University Press.

Secretariat of the Permanent Forum on Indigenous Issues. (2009). *State of the World's Indigenous Peoples* (pp. 4–7). United Nations.

Seehawer, M. K. (2018). Decolonising research in a Sub-Saharan African context: exploring Ubuntu as a foundation for research methodology, ethics and agenda. *International Journal of Social Research Methodology*, 21(4), 453–466. https://doi.org/10.1080/13645579.2018.1432404

SoLaWi. (n.d.). *Vision und Grundprinzipien*. https://www.solidarische-landwirtschaft.org/das-konzept/vision-und-grundprinzipien/

Spangenberg, J. H. (2011). Sustainability science: a review, an analysis and some empirical lessons. *Environmental Conservation, 38*(3), 275–287.

Sprenger, G., & Großmann, K. (2018). Plural ecologies in Southeast Asia. *Sojourn (Singapore), 33*(2), ix–xxii.

Sun, X., Gao, L., Ren, H., Ye, Y., Li, A., Stafford-Smith, M., . . . Bryan, B. A. (2018). China's progress towards sustainable land development and ecological civilization. *Landscape Ecology, 33*(10), 1647–1653.

Svampa, M. (2019). *Las fronteras del neoextractivismo en América Latina*. Fondo de Cultura Económica.

Teuber, S., Ahlrichs, J. J., Henkner, J., Knopf, T., Kühn, P., & Scholten, T. (2017). Soil cultures–the adaptive cycle of agrarian soil use in Central Europe. Ecology and Society, 22(4).

Thorén, H., Nagatsu, M., & Schönach, P. (2021). Interdisciplinarity. In C. P. Krieg & R. Toivanen (Eds.), *Situating sustainability: A handbook of contexts and concepts* (pp. 21–38). Helsinki University Press.

Todorov, V., & Marinova, D. (2011). Modelling sustainability. *Mathematics and Computers in Simulation, 81*(7), 1397–1408. https://doi.org/10.1016/j.matcom.2010.05.022

Towers, G. (2000). Applying the political geography of scale: Grassroots strategies and environmental justice. *The Professional Geographer, 52*(1), 23–36.

Truffer, B., Murphy, J. T., & Raven, R. (2015). The geography of sustainability transitions: Contours of an emerging theme. *Environmental Innovation and Societal Transitions, 17*, 63–72.

Tserendorj, G., Marinova, E., Lechterbeck, J. et al (2021). Intensification of agriculture in southwestern Germany between the Bronze Age and Medieval period, based on archaeobotanical data from Baden-Württemberg. *Vegetation History and Archaeobotany, 30*, 35–46. https://doi.org/10.1007/s00334-020-00814-x

United Nations. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development*. https://sdgs.un.org/2030agenda

United Nations Convention on Biological Diversity UN CBD. (2021). *Kunming* Declaration*: Declaration from the High-Level Segment of the UN Biodiversity Conference 2020 (Part 1) under the theme: "Ecological Civilization: Building a Shared Future for All Life on Earth" (Final Draft)*. https://www.cbd.int/doc/c/7e98/2f9d/48911d524e4a4a7e7d8e6b74/kunmingdeclaration-en.pdf

United Nations Environment Programme UNEP. (2021, February 18). *Our global food system is the primary driver of biodiversity loss* [Press release]. https://www.unep.org/news-and-stories/press-release/our-global-food-system-primary-driver-biodiversity-loss

Vargas-Chaves, I. & Cumbe Figueroa, A. (2023). Los derechos de la naturaleza en Colombia, Ecuador y Bolivia: De la gramática constitucional y los procesos de reconocimiento, a una nueva interpretación. (2023). *Revista Catalana De Dret Ambiental*, *14*(1). https://doi.org/10.17345/rcda3571

Vedaste, N., & Muzee, H. (2018). A critical review of Agenda 2063: Business as usual? *African Journal of Political Science and International Relations, 12*(8), 142–154. https://doi.org/10.5897/AJPSIR2018.1114

Vélez Triana, J. S. (2023). Political ontologies of Colombian Amazonia: Peasant resistance in protected areas. *Society & Natural Resources, 36*(10), 1200–1216. https://doi.org/10.1080/08941920.2023.2193019

Vilsmaier, U., & Klein, J. T. (2023). Boundary work. In T. Philipp & T. Schmohl (Eds.), *Handbook transdisciplinary learning*. transcript.

Wackernagel, M., Hanscom, L., & Lin, D. (2017). Making the Sustainable Development Goals consistent with sustainability. *Frontiers in Energy Research, 5*, Article n.pag. https://doi.org/10.3389/fenrg.2017.00018

Wang, W., Halik, U., Aishan, T., Radchenko, T. A., & Shi, L. (2019). Public awareness of ecological civilization construction in an arid land oasis city: Evidence from Urumqi, a city along the “Belt and Road.” *Sheng Tai Xue Bao (Acta Ecologica Sinica), 39*(14), 5070–5076. https://doi.org/10.5846/stxb201808101361

White House Council on Environmental Quality (CEQ) & White House Office of Science and Technology Policy (OSTP). (2022, December 1). White House releases first-of-a-kind indigenous knowledge guidance for federal agencies. https://www.whitehouse.gov/ceq/news-updates/2022/12/01/white-house-releases-first-of-a-kind-indigenous-knowledge-guidance-for-federal-agencies/

Whyte, K. P. (2017). Indigenous climate change studies: Indigenizing futures, decolonizing the Anthropocene. *English Language Notes, 55*(1–2), 153–162.

Widlok, T. (2022). Introduction: Why scale matters. In *Scale Matters* (pp. 7–18). transcript Verlag.

World Commission on Environment and Development WCED. (1987). *Our common future*. Oxford University Press. http://www.un-documents.net/our-common-future.pdf

Yang, M.-l. (杨美连). (2021). 论 ‘生态人’ 培育的当代价值及其实现路径 [Study on the contemporary value of the cultivation of “Ecological Man” and its realization path]. 黑龙江生态工程职业学院学报 *(Journal of Heilongjiang Vocational Institute of Ecological Engineering)*, *34*(1), 10–12.

Yu, H., Yu, B., & Yu, Y. (2025). Global climate governance in transition and China's contribution. In M. Mayer, E. Kavalski, M. Rudyak, & X. Zhang (Eds.), *Routledge handbook on global China*. Routledge, Taylor & Francis Group.

Zhang, Y., Fan, J., Chen, S., Li, T., & Yu, Z. (2019). A quantitative evaluation on ecological city construction level of urban agglomeration in the middle reaches of Yangtze River. *Journal of Coastal Research*, *98*(sp1), 300–305.

Zhou, L., Bao, X., Yu, J., Zhang, Y., & Feng, R. (2019). Recent initiatives and developments in the ecological utilization of marine resources (EUMR) in China. *Journal of Coastal Research*, *93*(sp1), 443–449.

zef
Center for
Development Research
University of Bonn

Working Paper Series

Authors: Sandra Gilgan, Dennis Avilés-Irahola, Kehinde Balogun, Tina Beuchelt, Lisa Biber-Freudenberger, Michael Brüntrup, Marcelo Inacio Da Cunha, Kristina Großmann, Estela Herbas Baeny, Jakob Rhyner, Juan Sebastián Vélez Triana, Fernanda Wanderley.

Contact: Dr. Sandra Gilgan Dechenstr. 3-11, 53115 Bonn, 0228 73 60594, s.gilgan@uni-bonn.de

Image credit: Arash hedieh, Unsplash

Published by:
Zentrum für Entwicklungsforschung (ZEF)
Center for Development Research
Genscherallee 3
D – 53113 Bonn
Germany

Phone: +49-228-73-1861
Fax: +49-228-73-1869
E-Mail: presse.zef@uni-bonn.de

www.zef.de