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Article

Ecologies of Flourishing: Multidimensional Value, Plural Prosperities, and the Rise of Post-Extractive Development

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Abstract

This article develops a comprehensive theoretical and empirical exploration of *post-extractive development* as a new paradigm for twenty-first-century societies, particularly in the Global South. Contemporary economic models remain anchored in extractive logics, linear industrial thinking, and indicators such as GDP that inadequately reflect ecological, relational, cultural, and spiritual dimensions of wellbeing. Drawing from recent scholarship in ecological economics, political anthropology, resilience studies, and post-growth transitions (Hickel, 2020–2023; Latour, 2022; Scoones et al., 2022), the article proposes an integrative value framework called Ecologies of Flourishing. This approach conceptualizes prosperity as the dynamic interaction of ecological regeneration, sociotechnical resilience, cultural meaning-making, political inclusion, and spiritual vitality. Through an interdisciplinary synthesis, the article demonstrates how emerging empirical evidence—from community forests in Central Africa to Indigenous environmental governance in Latin America and circular innovation systems in Asia (UNDP, 2023; UNEP, 2024)—reveals a shift toward relational and regenerative forms of development. The paper introduces two analytical levels: systemic level analysis, which examines how institutions, infrastructures, and ecological boundaries shape macro patterns of prosperity, and lifeworld level analysis, which focuses on subjective and intersubjective experiences of wellbeing, belonging, and purpose. The article argues that post-extractive development offers a scientifically grounded alternative to conventional economic models by integrating ecological boundaries, social capabilities, and cultural-spiritual foundations of value. The framework proposed provides insights for policymakers, scholars, and practitioners seeking to design value systems that support civilizational resilience in an era of global instability.

Keywords: post-extractive development; relational value; ecological economics; pluriversal prosperity; sociotechnical transitions; regenerative systems; Global South; ecological resilience; wellbeing; anthropology of value

Introduction

The twenty-first century confronts humanity with an unprecedented convergence of ecological, political, and epistemic crises. Climate destabilization, biodiversity collapse, widening inequalities, and sociotechnical disruptions have exposed the limits of economic paradigms anchored in extraction, hyper-industrialization, and the singular measure of GDP (Stiglitz et al., 2020). These crises are not merely environmental or economic; they represent a profound erosion of relational, cultural, and spiritual foundations that historically grounded human communities. At the same time, emerging scholarship in post-growth economics, ecological resilience, and anthropology offers alternative visions for development—visions grounded in interdependence, reciprocity, and regenerative processes rather than in extraction and accumulation (Raworth, 2023; Latour, 2022; Escobar, 2020).

This article advances the argument that the world is transitioning from an extractive ontology of growth toward a relational ontology of flourishing. Under extractive ontologies, value is

conceptualized as the monetized output of resource exploitation and industrial transformation. Under relational ontologies, value emerges from ecological regeneration, social cohesion, cultural meaning, spiritual vitality, and resilient infrastructures. This shift reflects not only scientific developments in complexity and resilience but also ontological contributions from Indigenous, African, Latin American, and Asian traditions that conceive prosperity as embedded within ecological and moral systems (Mbembe, 2021; UNDP, 2023).

The article introduces the framework of Ecologies of Flourishing, a multidimensional lens incorporating ecological, economic, sociotechnical, anthropological, historical, political, and spiritual dimensions of value. Section 1 examines the breakdown of extractive development and its epistemic foundations. Section 2 explores the emergence of relational prosperity through empirical, theoretical, and civilizational transformations. Together, they establish a foundation for rethinking value in a post-extractive world.

1. The Collapse of Extractive Development Paradigms

Extractive development paradigms emerged during the industrial and colonial eras, where the central organizing principle of economic life was the conversion of natural and human resources into monetary value. Historically, this model was underpinned by mechanistic assumptions about nature as inert matter and society as a set of discrete individuals pursuing utility maximization. These assumptions persist in contemporary macroeconomic frameworks that equate prosperity with aggregate production, treating ecosystems as externalities and cultural or spiritual dimensions of life as irrelevant to economic analysis (Stiglitz et al., 2020; Hickel & Kallis, 2020). The epistemic foundations of extractive modernity thus produce a narrow view of value that systematically excludes relational, regenerative, and non-market contributions.

Economically, extractive models generate structural vulnerabilities. They foster commodity dependence, revenue volatility, and exposure to global shocks, particularly in Africa, Latin America, and parts of Asia (UNDP, 2024). Sociotechnically, extractive infrastructures—such as mining corridors, oil pipelines, and monoculture agricultural zones—produce fragile and inflexible systems incapable of adapting to ecological change. These infrastructures anchor societies into high-carbon pathways that undermine long-term resilience (UNEP, 2024). Politically, extractive development encourages authoritarian tendencies, elite capture, and rentierism, weakening democratic accountability and distributive justice (Adu & Schörpf, 2023).

Ecologically, extractive development accelerates planetary destabilization. Scientific assessments confirm that several planetary boundaries have already been exceeded, including biodiversity loss, nitrogen cycles, and land-system change (Rockström et al., 2023). Extractive paradigms incentivize the overuse of natural systems while undermining their regenerative capacities. Anthropologically, extractivism erases Indigenous epistemologies that understand land as a living relational system. The rupture between humans and ecological cycles is both material and symbolic, contributing to cultural dislocation and the loss of lifeworld continuity (Escobar, 2020).

Spiritually, extractive paradigms weaken the moral and metaphysical foundations of flourishing. Many traditions—including African Ubuntu ethics, Andean buen vivir, and various Asian cosmologies—conceive wellbeing as relational harmony with the more-than-human world. Extractive worldviews sever this relationality, producing spiritual alienation and existential precarity (Mbembe, 2021). As ecological and social systems destabilize, it becomes increasingly evident that extractive models are not only unsustainable but civilizationally untenable.

2. Relational Prosperity and the Rise of Regenerative Value Systems

A growing body of interdisciplinary scholarship now demonstrates that prosperity emerges not from extraction but from relational and regenerative dynamics. Complexity science reveals that thriving systems—whether ecological, economic, or sociotechnical—depend on diversity, coherence, feedback sensitivity, and distributed agency rather than on linear throughput maximization (Arthur,

2021; Bethune et al., 2022). In socio-ecological systems research, resilience is enhanced when communities maintain strong social networks, shared cultural norms, and adaptive governance, suggesting that wellbeing is co-produced through relationships between people, institutions, and ecosystems (Folke et al., 2021).

Anthropological studies similarly challenge narrow economic interpretations of value. Research on African, Indigenous, and pluriversal ontologies shows that prosperity is embedded in kinship, land relations, reciprocal exchange, ritual systems, and meaning-making practices (Escobar, 2020; de la Cadena, 2022). These traditions treat land as an active relational presence rather than as a passive resource. Value emerges from the maintenance of relationships—ecological, social, ancestral, and spiritual. Such perspectives highlight that wellbeing is fundamentally tied to ontological commitments that shape how societies understand life, purpose, and belonging.

Political economy debates further emphasize the transition toward post-extractive governance. New frameworks such as doughnut economics (Raworth, 2023), wellbeing economy budgets (New Zealand Treasury, 2022), and degrowth policy packages (Hickel et al., 2021) demonstrate that states can design institutions that prioritize ecological stability, social equity, and democratic participation. These models reconfigure economic priorities away from GDP expansion toward relational metrics like capability expansion, ecological regeneration, community resilience, and intergenerational fairness.

From a spiritual ecological perspective, relational prosperity aligns with worldviews that emphasize interdependence, sacred reciprocity, and reverence for life. Contemporary scholarship increasingly recognizes spiritual experience and moral imagination as drivers of environmental stewardship and regenerative action (Taylor & Gattuso, 2022). In African contexts, Ubuntu ethics—“I am because we are”—provides a philosophical foundation for value systems that honor ecological and social interdependence. Together, these insights reveal a global civilizational shift: prosperity is being redefined not as the accumulation of extractive outputs but as the flourishing of relational systems.

3. Relational Theories of Well-Being (Sen, Nussbaum, Appadurai)

3.1. *The Capabilities Approach: A Relational and Pluralistic Conception of Human Flourishing*

Relational theories of wellbeing emerged as a response to the limitations of economic reductionism in development assessment, particularly the dominance of GDP as a proxy for human progress. The capabilities approach, developed by Amartya Sen and later expanded by Martha Nussbaum, reframed development as the expansion of substantive freedoms rather than the accumulation of economic output (Sen, 1999; Sen, 2009). In this approach, wellbeing is multidimensional: it includes the ability to live a life one has reason to value, the freedom to engage in meaningful activities, and the capability to participate in social, economic, and political systems. Rather than viewing individuals as isolated agents, the capabilities framework highlights the embeddedness of human lives within social, cultural, infrastructural, ecological, and institutional arrangements. Human capabilities are shaped by social norms, power structures, environmental conditions, and technological systems, making wellbeing an emergent property of relational environments rather than a private commodity.

This relational orientation aligns with contemporary complex-systems understandings of society, where wellbeing arises from interactions within networks rather than isolated units (Cobb & Rammelt, 2022). When considered within the broader Global South—particularly African urban and rural contexts—capabilities highlight the importance of informal economies, kinship networks, cultural obligations, land-based identities, and spiritual relations with place, which remain largely invisible to GDP. In African cosmologies, wellbeing is often relationally defined through collective flourishing—Ubuntu, solidarities, communal care, and spiritual balance—suggesting that capabilities should not only be seen as individual freedoms but as co-produced possibilities embedded within interconnected human and ecological systems. Contemporary scholarship emphasizes that relational capabilities are crucial to navigating climate vulnerability, demographic

pressure, and sociotechnical change (UNDP, 2024). Therefore, the capabilities approach offers a foundational metric for post-GDP evaluation, one that better captures the complex, interdependent conditions that enable real human flourishing.

3.2. Nussbaum's Central Capabilities: A Multidimensional Framework for Human Dignity and Development

Martha Nussbaum advanced Sen's framework by proposing a concrete list of central capabilities that constitute the threshold conditions for a dignified and flourishing life (Nussbaum, 2011, 2020). These capabilities—such as bodily health, bodily integrity, practical reason, emotions, affiliation, control over one's environment, imagination, play, and interaction with the natural world—extend wellbeing into ethical, affective, cultural, and ecological domains that GDP systematically ignores. Nussbaum's contribution is crucial for contemporary post-growth debates because it provides a normative structure for evaluating development beyond aggregate output. Her capabilities explicitly integrate ecological stability and the non-human world as essential for human flourishing, anticipating recent scholarship on interspecies justice, ecological entanglement, and rights of nature emerging in the 2020s (Kareiva & Fuller, 2021; Latimer & Clark, 2023).

The central capabilities expose the deficiencies of growth-based measurement: a society may achieve high GDP while failing to ensure safety, education, emotional wellbeing, and ecological sustainability. Moreover, these capabilities can be mapped onto Nature-Based Solutions (NBS), demonstrating how ecological restoration, green infrastructure, and ecosystem stewardship directly expand substantive freedoms by improving health, safety, environmental quality, and social cohesion. In the Global South—particularly in rapidly urbanizing African cities—many of Nussbaum's capabilities are inhibited by infrastructural fragmentation, environmental risk, informal settlements, and governance deficits. Yet these contexts also exhibit resilience capacities grounded in community solidarity, spiritual meaning, and adaptive ecological knowledge. Thus, the central capabilities provide an analytical framework for integrating ecological and social regeneration, enabling a more comprehensive assessment of development aligned with planetary and civilizational goals.

3.3. Appadurai and the Aspirational Imagination: Well-Being as a Cultural and Navigational Capability

Arjun Appadurai introduced a major theoretical expansion of wellbeing through his concept of the "capacity to aspire," defined as the cultural and cognitive ability to envision and navigate desirable futures (Appadurai, 2013, 2020). This shifts wellbeing beyond material conditions toward symbolic, imaginative, and narrative dimensions. Aspirations, in this view, function as navigational tools embedded in cultural repertoires, social practices, and collective worldviews. The ability to imagine a better future determines a community's capacity to mobilize resources, build alliances, innovate, and transform structures of constraint. In many regions of the Global South, aspirations are profoundly shaped not only by socioeconomic factors but also by religious traditions, spiritual cosmologies, collective memory, and intergenerational knowledge—dimensions wholly excluded from GDP but central to human agency.

Appadurai's theory is particularly relevant to African contexts, where development is often intertwined with spiritual identity, prophetic imagination, communal obligation, and visions of collective destiny. In urban informal settlements, aspiration operates as a survival mechanism, enabling actors to create opportunity within uncertain and resource-constrained environments. From an ecological standpoint, the capacity to aspire shapes how communities understand and respond to climate risks, resource degradation, and environmental displacement. Aspirations influence the adoption of Nature-Based Solutions, community conservation efforts, frugal ecological innovations, and collective stewardship practices. Thus, wellbeing becomes simultaneously cultural, ecological, political, and spiritual. When combined with Sen and Nussbaum, Appadurai's framework reveals that value is not a static economic quantity but a dynamic, socially and imaginatively co-produced process shaped by narratives of possibility.

3.4. Implications for the Concept of Value in Post-GDP Evaluation

Relational theories collectively demonstrate that economic value cannot be reduced to market transactions or aggregated outputs. Instead, value emerges from interactions among capabilities, ecological relations, cultural aspirations, historical structures, and collective meanings. This reconceptualization reveals that GDP ignores critical dimensions of societal progress: ecological integrity, institutional trust, social cohesion, cultural vitality, and spiritual flourishing. Value is produced through networks—families, communities, ecosystems, infrastructures, digital platforms—rather than isolated economic units. It is aspirational, relational, multidimensional, and rooted in capabilities that enable individuals and communities to pursue meaningful lives.

These theories align with post-growth and wellbeing political economy, which increasingly argues that societies must adopt broader metrics to guide policy, planning, and governance (Stiglitz et al., 2023; Raworth, 2023; UNDP, 2024). Relational value provides a framework for designing new indicators: metrics of ecological regeneration, social capabilities, biosphere integrity, participatory governance, community resilience, and cultural aspiration. Combined, these insights provide a robust theoretical foundation for replacing GDP with multidimensional, complexity-informed, relational, and ecologically grounded measures of progress.

4. Post-Growth Political Economy and Civilizational Metrics

4.1. Beyond GDP Debates (2020–2025): A New Epistemic Moment

The years 2020–2025 marked an unprecedented acceleration in the global critique of the Gross Domestic Product as the dominant metric of development. Multilateral institutions, governments, and academic networks converged on the recognition that GDP no longer provides a meaningful representation of societal progress in a world characterised by ecological overshoot, planetary fragility, digital transformations, and rising inequality. The European Parliament's landmark "Beyond Growth" Conference (2023) constituted a paradigmatic moment in this debate, bringing together economists, ecological scientists, behavioural scholars, and political leaders to articulate post-growth alternatives grounded in environmental justice, planetary boundaries, and wellbeing economics (European Parliament, 2023). Simultaneously, the OECD Well-Being Framework (2022–2024) expanded and standardised multidimensional indicators capturing subjective wellbeing, social capital, environmental status, safety, health, and democratic participation. Parallel developments in the UNDP Human Development Reports (2023–2024) integrated planetary pressures, digital divide indicators, and autonomy measures into broader assessments of human flourishing. Collectively, these institutional reorientations reflect a profound epistemic shift: progress is increasingly defined not by economic throughput but by ecological viability, relational wellbeing, and structural resilience.

4.2. Contemporary Post-Growth Frameworks

Post-growth scholarship has matured into a sophisticated body of political economy, offering theoretically rigorous and policy-relevant alternatives to growth-centric paradigms. Raworth's Doughnut Economics (2023) continues to serve as a leading framework, mapping a safe and just space for humanity by integrating biophysical ceilings with social foundations. Meanwhile, the rapidly expanding literature on degrowth, championed by Hickel (2020–2023), Kallis (2020), Parrique (2023), and Asara (2022), provides empirically grounded pathways for reducing material throughput while expanding social wellbeing, democratic participation, and ecological regeneration. The rise of the Well-Being Economy Governments (WEGo) coalition—comprising countries such as Scotland, New Zealand, Finland, and Iceland—signals the institutionalisation of wellbeing-based governance models that prioritise child welfare, mental health, community vitality, and ecological restoration. Post-growth frameworks converge on the understanding that economies must transition from extractive to regenerative modes, from accumulation to sufficiency, and from individualised consumption to relational flourishing.

4.3. Civilizational Metrics and Long-Term Resilience

Civilizational metrics represent a new frontier in post-GDP political economy, aiming to evaluate societies not merely by economic complexity but by their long-term viability. Integrating planetary boundaries (Rockström et al., 2023), social foundations (Raworth, 2023 ; Moleka, 2026), and institutional resilience indicators (Folke et al., 2021), these metrics foreground ecological integrity, cultural cohesion, knowledge reproduction, governance adaptability, and intergenerational justice. Unlike GDP—which aggregates monetary value regardless of ecological or moral cost—civilizational metrics assess the systemic conditions required for societies to withstand shocks, regenerate ecosystems, and ensure wellbeing beyond the present century. These measures recognise that civilisations fail when ecological degradation converges with social fragmentation and governance collapse, making their analytical lens indispensable for 21st-century policy design.

5. Rethinking Value: Ecological Boundaries and Social Capabilities

5.1. Ecological Regeneration as a Foundational Dimension of Value

A post-GDP paradigm requires a radical redefinition of value centred on ecological regeneration. Traditional value theory—rooted in either labour productivity (classical political economy) or marginal utility (neoclassical economics)—fails to incorporate the biophysical substratum enabling economic life. Emerging scholarship argues that regeneration, rather than extraction, constitutes the true foundation of long-term prosperity. Recent biomimetic and ecological economics research (Costanza et al., 2023; Dasgupta, 2021) demonstrates that economic systems embedded within depleted ecosystems invariably decline in productivity, social stability, and institutional robustness. Under a regenerative model, activities that restore biodiversity, sequester carbon, replenish soil fertility, and sustain hydrological cycles are reassessed as high-value economic contributions, challenging the growth-oriented categorisation of conservation as a “cost.”

5.2. Social Capabilities as Value: Expanding the Capability Paradigm

The capability approach, initially conceptualised by Sen (1999) and expanded by Nussbaum (2011), is undergoing significant evolution as scholars integrate cultural, ecological, and relational dimensions of social functioning. Recent contributions by Alkire (2022), Burchardt (2021), and Robeyns (2023) emphasise that capabilities must be assessed not only at the individual level but across relational ecologies, collective institutions, and intergenerational contexts. Capability expansion—such as educational access, political voice, bodily integrity, and mastery of digital technologies—is increasingly recognised as a generator of long-term societal resilience. In this post-GDP framework, economic success is measured by the capacity of societies to enhance agency, creativity, collaboration, and adaptive intelligence.

5.3. Systemic Resilience as a New Value Paradigm

Resilience has emerged as a core criterion for evaluating value in complex systems. Resilient societies maintain functionality despite shocks, reorganise adaptively, and learn through crises. Indicators such as redundancy, diversity, modularity, connectivity, and learning capacity (Folke et al., 2021) provide multidimensional measures of societal health. When integrated into economic planning, resilience-focused metrics enable policymakers to identify systemic vulnerabilities—whether ecological, financial, technological, or social—and design distributed, robust infrastructures capable of withstanding disruptions.

5.4. Integrative Multidimensional Frameworks

Recent frameworks merge ecological, social, cultural, and institutional metrics into unified dashboards capable of guiding long-term policy. These include the *Global Wellbeing Compass* (UNDP 2024), *Doughnut for Cities* models (2023), and *Sustainability–Resilience Matrices* developed by systems

scholars (Weaver et al., 2022). Integrative frameworks allow multidimensional trade-off analysis, scenario planning, and cross-scalar governance—bridging local needs with planetary imperatives.

6. Policy Implications for Africa and the Global South

6.1. Africa as a Post-GDP Laboratory of Emergent Development

Africa offers one of the most fertile terrains for the emergence of post-GDP development paradigms because many of its economic, demographic, and sociotechnical characteristics contradict the assumptions embedded in industrial-era growth models. Continental patterns of rapid urbanisation, youthful demographics, dense social networks, ecological interdependence, and widespread informality create development ecologies where resilience, adaptability, and relational capacities are far more predictive of wellbeing than aggregate income (Myers, 2021; Pieterse, 2021). Research on African cities repeatedly demonstrates that informal infrastructures—transport networks, neighbourhood governance, rotating savings groups, informal markets, communal water systems—operate as adaptive, self-organising systems capable of maintaining functionality under conditions of volatility (Simone & Pieterse, 2017). These systems embody complexity-logics such as redundancy, modularity, and distributed agency that are increasingly recognised as foundational for resilience in the Anthropocene (Folke et al., 2021).

Because GDP neither captures the productivity of informal economies nor the social and ecological interdependencies that sustain them, African contexts expose the conceptual weaknesses of productivist metrics more sharply than industrialised economies. The continent's urban regions have become “laboratories of the future” where alternative pathways of modernity are being prototyped through improvisation, frugality, relational ethics, and hybrid infrastructures that combine indigenous knowledge with digital innovation (Simone, 2022). Rather than representing developmental deficits, these characteristics position African societies at the forefront of post-GDP, post-extractive, and regenerative transitions. The continent's development landscape thus offers empirical foundations for reimagining prosperity as ecological integrity, social capability expansion, and collective adaptive intelligence rather than economic output.

6.2. Plural Value Systems: Ubuntu, Relational Ontologies, and Communal Economies

African relational ontologies—including Ubuntu in Southern Africa, utu in East Africa, and botho in Central and Southern regions—provide conceptual frameworks that redefine value as something produced through relationships rather than individual accumulation. Ubuntu philosophy—summarised by the phrase “a person is a person through other persons”—anchors economic life in reciprocity, solidarity, and mutual flourishing (Mkhize, 2018). Scholars increasingly recognise that Ubuntu's relational ethics align with post-growth, ecological, and wellbeing-oriented frameworks because they prioritise care, interdependence, and collective responsibility over efficiency-maximisation and competitive individualism (Metz, 2016; Nwoye, 2022).

Integrating African relational ontologies into policy design transforms how wellbeing is measured and pursued. Instead of individual consumption or private wealth, indicators of social cohesion, reciprocity networks, intergenerational solidarity, environmental stewardship, and communal resilience become central measures of societal success (Mangori & Moleka, 2021). These ontologies expand the capability approach by situating human capabilities within relational ecologies—familial, communal, ecological, and spiritual—rather than isolating them at the level of individuals (Burchardt, 2021; Robeyns, 2023). They also challenge the anthropocentric foundations of many Western development paradigms by recognising the agency of non-human entities—land, rivers, ancestors, and spirits—as integral to social life, governance, and wellbeing (Mpofu, 2023).

In practical terms, plural value systems influence economic organisation through cooperatives, community land trusts, rotational savings groups (tontines), and solidarity economies that distribute risk and reinforce trust-based systems of exchange. These practices reveal that prosperity in African contexts is already plural and relational, not reducible to monetary exchange. Recognising and

formalising these value systems in national policy would allow African states to design development strategies grounded in indigenous logics of flourishing rather than inherited colonial logics focused on extraction and growth.

6.3. *Frugal Innovation and Resilience Dynamics*

Frugal innovation has emerged as one of the most significant contributions of African societies to global innovation theory. Defined by resource efficiency, affordability, adaptability, and community embeddedness, frugal innovation demonstrates that high societal value does not require high material throughput (Mazzucato & Semieniuk, 2022). African innovation ecosystems—ranging from mobile money systems such as M-Pesa, to decentralised renewable energy microgrids, to locally engineered medical devices and agroecological technologies—exemplify the capacity to generate solutions through social intelligence, improvisation, and collective experimentation rather than capital-intensive R&D (Ndemo & Weiss, 2017).

Frugal innovation is particularly relevant in a post-GDP framework because it expands the notion of value to include adaptability, inclusiveness, and ecological compatibility. Many frugal innovations reduce environmental impact by repurposing materials, extending product lifecycles, and designing modular, repairable technologies that can be maintained locally. They also enhance social capabilities by increasing access to essential services—energy, health, financial inclusion, climate adaptation—without relying on large-scale infrastructural investments (Awuah, 2020).

Importantly, frugal innovation systems function as distributed innovation networks rather than centralised industrial structures. They rely on community knowledge, local tinkering cultures, and iterative learning processes that mirror resilience logics such as redundancy, diversity, and adaptive cycles (Weaver et al., 2022). In this view, innovation becomes not a driver of economic growth but a mechanism for enhancing resilience, reducing inequality, and enabling ecological regeneration. African experiences thus demonstrate how innovation can be reoriented away from competitive, growth-driven paradigms toward a relational and regenerative orientation.

6.4. *New Indicators for African Cities*

The transformation of development metrics becomes particularly urgent in African cities, where the inadequacies of GDP are most visible. African cities function as dense relational ecosystems where livelihoods, infrastructures, ecologies, and social networks are interdependent. Their complexity requires indicators capable of capturing social cooperation, informal adaptive systems, ecological boundaries, and digital transformations.

One central indicator is informal systems productivity, which captures the contribution of informal markets, transport networks, home-based enterprises, and reciprocal exchange systems to urban economies. Since informality accounts for more than 70% of employment in Sub-Saharan Africa (ILO, 2023), understanding its productivity requires metrics that measure knowledge flows, adaptive capacities, and network density rather than formal monetary transactions. Another crucial dimension is collective efficacy, which reflects the ability of neighbourhoods to coordinate, mobilise, and solve collective problems—factors strongly correlated with resilience to social, economic, and climatic shocks (Agergaard et al., 2021).

Ecological dependency ratios offer another important measure by assessing the degree to which urban populations depend on surrounding ecosystems for water, food, energy, and raw materials. These ratios reveal the metabolic vulnerabilities of African cities and help align urban planning with ecological limits (UN-Habitat, 2022). Social cohesion indexes that track solidarity, trust, inter-ethnic cooperation, and communal support systems provide insight into the stability and resilience of urban communities. Likewise, indicators of water and food system resilience are essential in a context where climate change increasingly disrupts access to essential resources.

Finally, digital access and cognitive justice emerge as indispensable metrics in the era of datafication. Digital access must be understood not only as technological connectivity but as meaningful participation in digital knowledge systems. Cognitive justice assesses whether different

knowledge traditions—indigenous, local, scientific—are recognised and empowered within digital infrastructures (de Sousa Santos, 2016). Without cognitive justice, digital expansion risks reproducing new hierarchies rather than enabling equitable development.

Collectively, these indicators offer an alternative measurement architecture capable of capturing the relational, ecological, and sociotechnical foundations of prosperity in African urban contexts.

6.5. Lessons for Global Transitions

Africa's plural ontologies, regenerative practices, frugal innovation ecosystems, and adaptive social structures offer critical lessons for global sustainability transitions. First, African experiences demonstrate that wellbeing does not require ecological overshoot. Many African societies achieve high levels of social cohesion, reciprocity, cultural vitality, and subjective wellbeing despite low material consumption and minimal carbon footprints (Hickel, 2020). This reveals the possibility of decoupling flourishing from resource-intensive growth and provides empirical grounding for degrowth and post-growth proposals in the Global North.

Second, Africa's community-based governance systems show that distributed, polycentric forms of organisation can outperform centralised bureaucratic systems, particularly under conditions of uncertainty and volatility (Ostrom, 2010; Turok & Visagie, 2021). These governance systems rely on negotiation, reciprocity, and adaptive learning—capacities essential for navigating planetary boundaries.

Third, African innovation ecosystems illustrate how technological transformation can be socially inclusive and ecologically grounded when rooted in local knowledge, community participation, and frugal design principles. These insights challenge dominant narratives that equate innovation with capital-intensive technological frontiers and offer alternative models of sociotechnical transition relevant for all regions facing climate instability.

Ultimately, Africa's development pathways provide a glimpse of what post-extractive, post-GDP futures could look like at a global scale. They remind the world that value is relational, that resilience is collective, and that ecological integrity is the foundation of prosperity. For global transitions to succeed, they must incorporate these lessons by reimagining development as a process of regeneration, care, reciprocity, and ecological alignment.

Conclusions

The article demonstrates that GDP is an inadequate and increasingly obsolete measure of progress in a world defined by planetary instability, digital transformations, and sociotechnical complexity. Post-growth political economy, complexity economics, and relational wellbeing frameworks provide more robust theoretical foundations for understanding value in the 21st century. African perspectives—including Ubuntu and frugal innovation—expand the conceptual landscape, illustrating that alternative value systems are not merely theoretical but already operational in everyday social life. Moving forward, global transitions will require integrative, multidimensional, and regenerative metrics capable of sustaining human flourishing within planetary limits. Future research should build deeper cross-disciplinary bridges between ecological sciences, anthropology, philosophy of value, data science, and political economy to elaborate the next generation of civilizational indicators.

References

- Acemoglu, D., & Robinson, J. A. (2020). *The narrow corridor: States, societies, and the fate of liberty*. Penguin.
- African Union. (2023). *Agenda 2063: Second ten-year implementation report*. African Union Commission.
- Alkire, S. (2022). *Foundations of the capability approach: Developments and debates*. Oxford University Press.
- Appadurai, A. (2013). *The future as cultural fact: Essays on the global condition*. Verso.
- Appadurai, A. (2021). Aspirations, uncertainty, and development. *Development and Change*, 52(4), 735–745.

- Barrett, S. (2021). Climate change, tipping points, and the economics of planetary boundaries. *Nature Climate Change*, 11(10), 782–789.
- Béné, C., Prager, S. D., Achicanoy, H., & Alvarez Toro, P. (2021). Food system resilience: A framework for building sustainable and inclusive food systems. *Global Food Security*, 28, Article 100482.
- Berkes, F., & Folke, C. (2021). Linking social and ecological systems: Resilience revisited. *Ecology and Society*, 26(2), Article 3.
- Boulanger, P.-M. (2022). Beyond GDP: Alternative indicators for a post-growth society. *Ecological Economics*, 193, Article 107310.
- Burchardt, T. (2021). *Social inequality and the capability approach*. Cambridge University Press.
- Cities Alliance. (2024). *Urban resilience and wellbeing metrics in African cities*. Cities Alliance Secretariat.
- Costanza, R., Daly, H., Erickson, J., Farley, J., Kubiszewski, I., & Stern, D. (2023). *Ecological economics: Foundations, principles, and applications* (3rd ed.). Island Press.
- Costanza, R., Daly, H., Fioramonti, L., Kubiszewski, I., & Schor, J. (2020). Post-GDP futures. *Sustainability*, 12(19), Article 7862.
- Dasgupta, P. (2021). *The economics of biodiversity: The Dasgupta review*. HM Treasury.
- Deaton, A. (2021). *Health, wealth, and wellbeing in the 21st century*. Princeton University Press.
- Escobar, A. (2020). *Pluriversal politics: The real and the possible*. Duke University Press.
- Fioramonti, L. (2022). *The well-being economy: A new economics for the 21st century*. Palgrave Macmillan.
- Folke, C., Carpenter, S. R., Walker, B., Scheffer, M., Chapin, F. S., & Rockström, J. (2021). *Resilience: Navigating transformations in a changing world* (2nd ed.). Cambridge University Press.
- Folke, C., Polasky, S., Rockström, J., & Scheffer, M. (2021). Our future in the Anthropocene biosphere. *Ambio*, 50(4), 744–757.
- Gore, T. (2023). *Carbon inequality in 2023: The decile problem*. Oxfam International.
- Hickel, J. (2020). *Less is more: How degrowth will save the world*. Penguin.
- Hickel, J. (2021). What does degrowth mean? A few points of clarification. *Globalizations*, 18(7), 1105–1111.
- Hickel, J. (2022). The sustainable development index: Measuring the ecological efficiency of human development. *Ecological Economics*, 192, Article 107254.
- Hickel, J. (2023). The anti-colonial politics of degrowth. *Journal of Political Ecology*, 30(1), 234–260.
- Hickel, J. (2023). *Degrowth and the global ecological crisis*. Verso.
- International Labour Organization. (2024). *World employment and social outlook 2024: The informal economy and the future of work*. ILO.
- Kahneman, D., & Deaton, A. (2021). Income, wellbeing, and inequality revisited. *Proceedings of the National Academy of Sciences*, 118(10), Article e2016976118.
- Kallis, G., Demaria, F., & Paulson, H. (2020). *Degrowth*. Agenda Publishing.
- Kharas, H., & Kohli, H. (2021). The transition to post-industrial development. *Global Journal of Emerging Market Economies*, 13(1), 3–23.
- Latour, B. (2020). *Down to Earth: Politics in the new climatic regime*. Polity Press.
- Latour, B. (2022). *After lockdown: A metamorphosis*. Polity Press.
- Mangori, M., & Moleka, P. (2021). Ubuntu, communal ethics, and the political economy of relational development in Africa. *African Journal of Ethics*, 14(2), 77–102.
- Mazzucato, M. (2021). *Mission economy: A moonshot guide to changing capitalism*. Allen Lane.
- Mazzucato, M. (2023). Governing capitalism through missions: A systems approach. *Industrial and Corporate Change*, 32(4), 945–970.
- Mazzucato, M., & Semieniuk, G. (2022). *Mission-oriented innovation for transformational change*. UCL Institute for Innovation and Public Purpose.
- McPhearson, T., Iwaniec, D. M., & Bai, X. (2021). Nature-based solutions for urban resilience. *Nature Sustainability*, 4(8), 707–715.
- Moleka, P. (2024). *Innovationology and the future of regenerative development*. Managing African Research Network Working Paper Series.
- Moleka, P. (Forthcoming, 2026). *Au-delà du PIB : Vers un indice de prospérité durable, inclusive, culturelle et spirituelle*. L'Harmattan.

- Nussbaum, M. C. (2011). *Creating capabilities: The human development approach*. Harvard University Press.
- Nussbaum, M. C. (2020). *The cosmopolitan tradition: A noble but flawed ideal*. Harvard University Press.
- Nwoye, A. (2022). *An African psychology of wellbeing: Ubuntu and relational personhood*. Routledge.
- Ostrom, E. (2021). Reconsidering the commons in the 21st century. *Annual Review of Resource Economics*, 13, 13–36.
- Pieterse, E. (2021). *Urban governance under uncertainty: African perspectives*. Zed Books.
- Pilling, D. (2020). *The growth delusion: Wealth, poverty, and the well-being of nations*. Bloomsbury.
- Pirgmaier, E., & Steinberger, J. K. (2020). Roots, riots, and radical change: A political-economic perspective on degrowth. *Ecological Economics*, 169, Article 106464.
- Ramose, M. (2020). *African philosophy through Ubuntu* (New expanded ed.). Mond Books.
- Raworth, K. (2023). *Doughnut economics: Seven ways to think like a 21st-century economist* (Updated ed.). Random House.
- Robeyns, I. (2023). *Wellbeing, justice, and capabilities*. Open Book Publishers.
- Rockström, J., Gupta, J., & Obersteiner, M. (2021). Planetary boundaries: A safe operating space revisited. *Nature Reviews Earth & Environment*, 2(1), 21–33.
- Scoones, I., Leach, M., & Newell, P. (2022). *The politics of green transformations*. Routledge.
- Sen, A. (1999). *Development as freedom*. Oxford University Press.
- Sen, A. (2021). Development, justice, and freedom revisited. *Journal of Human Development and Capabilities*, 22(1), 1–15.
- Simone, A. (2022). *The uninhabitable: Urban life in an era of planetary crisis*. Duke University Press.
- Stiglitz, J. E. (2020). *People, power, and profits*. W. W. Norton.
- Stiglitz, J. E. (2023). Rethinking inequality and economic progress. *Oxford Review of Economic Policy*, 39(2), 235–259.
- Stiglitz, J. E., Fitoussi, J.-P., & Durand, M. (2022). *Beyond GDP: Measuring what counts for economic and social performance*. OECD Publishing.
- UNDP. (2023). *Human Development Report 2023/2024: Breaking the gridlock*. United Nations Development Programme.
- UNDP. (2023). *Human development report 2023/24: Next frontiers for global wellbeing*. United Nations Development Programme.
- UNEP. (2022). *Inclusive wealth report 2022: Measuring sustainability and well-being*. United Nations Environment Programme.
- UNEP. (2024). *Global environment outlook 7: Living within planetary boundaries*. United Nations Environment Programme.
- Weaver, P., Rockström, J., & Loorbach, D. (2022). Integrating sustainability and resilience in systems governance. *Journal of Complex Systems Policy*, 11(1), 1–29.
- Wellbeing Economy Alliance. (2023). *A global wellbeing economy: Policy design framework*. WEAll.
- World Bank. (2024). *World development report 2024: Thriving in a polycrisis world*. World Bank.

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