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Visions of sustainable development and the future of smallholder farmers in sub-Saharan Africa (and beyond)

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Smallholder farmers are widely touted as essential to sustainable agricultural development in sub-Saharan Africa and beyond. But what exactly is meant by sustainable development, and how are smallholder farmers expected to contribute to it? In this perspective, we describe and assess two competing visions of sustainable development, namely Capital Theory and the Capabilities approach, paying special attention to the major yet divergent repercussions each approach implies for the future of smallholder farmers and the activities of their representative organizations. We present the core concepts, tools and practices stemming from each sustainable development perspective, and from a critique of these motivate the superiority of a capabilities approach as more conducive to smallholder farmers wellbeing now and in the future. In doing so, we bring to the fore the pivotal role smallholder farmer organizations and rural social movements, as collective vehicles for smallholder political agency, play in strategically advocating for the conditions that support sustainable and just smallholder agriculture in sub-Saharan Africa and beyond.

KEYWORDS

rural development, capital theory, capabilities approach, collective action & social movements, development theory

Introduction: to which sustainable development are smallholder farmers key?

Smallholder farmers are widely touted as essential to sustainable agricultural development in sub-Saharan Africa and beyond. However, what exactly is meant by sustainable development (SD), and how smallholder farmers are expected to contribute to it, often remains implicit and unspecified. There are in fact competing visions of SD as well as opposing views on what role smallholder farmers can play in achieving these visions. Some actors argue for a new modernist "green revolution in Africa" (Diao et al., 2008) while others advocate "agroecology" (Giraldo

and Rosset, 2018). Some argue for further integration of African agriculture into the world market (Calderón, 2021), while others advocate local food sovereignty (Byaruhanga and Isgren, 2023). Recognizing its contested nature, we here argue that the concept of SD is only meaningful and operational in so far as one is clear about what these competing visions entail and what practical implications follow from them.

This perspective has two objectives. First, we present a basic typology to situate smallholder farmers in competing but internally coherent, comprehensive, and integrative perspectives on SD. We clarify the key concepts, monitoring metrics, evaluative criteria and implementation tools that correspond to these competing visions. From this, we explain how different SD visions assume divergent agricultural development pathways with important repercussions for the future of smallholder farmers and the appropriate form and function of practices adopted by organizations representing smallholder farmers. Second, we motivate the superiority of a capabilities approach to SD which, we argue, offers the most proactive role for smallholders and their organizations in pursuing SD conducive to smallholder agriculture in both policy and practice. From this perspective, we highlight how smallholder advocacy organizations, as a form of smallholder collective action, become a necessary mechanism for achieving smallholder-focused and smallholder-driven SD in sub-Saharan Africa (SSA) and beyond.

Is sustainable development a meaningful concept?

Among the most common conceptualizations of SD is to refer to development that balances the "three pillars" of sustainability, namely environment, society, and economy. However, no matter how widespread, this approach has been consistently criticized for being vague and undertheorized (Purvis et al., 2019). Indeed, some have forcefully argued that SD is a redundant and potentially morally repugnant buzzword, pointing out that existing concepts in economics already perform the function that SD is supposed to perform (Beckerman, 1994). As our starting point, we recognize the need to be precise about what we mean by SD and to clarify what kinds of practical implications follow from our definitions; at the same time, we contend that the concept of SD can offer unique theoretical and practical insight. As such, we concur with the argument by Kates et al. (2005) that SD is a *contested* but *creatively ambiguous* concept that can be meaningfully operationalized in different and often incompatible ways.

Probably the most famous formulation of the challenge of SD comes from the Brundtland Report, which states that SD involves "meeting the needs of the current generation without sacrificing the ability of future generations to meet their own needs." This formulation implies the need to manage tensions and tradeoffs between the dual imperatives of economic growth and environmental conservation. A corollary of this focus on meeting needs now and in the future is the crucial question: what exactly is it that society must sustain if we are to meet the needs of current and future generations? In our view, any useful answer to this question should offer coherent and comprehensive concepts of what should be sustained and how, as well as metrics and tools for its operationalization. Drawing on the typology of SD approaches originally developed by Faran (2010) and elaborated by Boda and Faran (2018), we propose that two theories in particular allow for comprehensive, integrative and coherent ways of thinking about and practicing SD, namely Capital Theory and the Capabilities Approach, but maintain that these theories are incompatible alternatives rather than aggregable complements.

We recognize that there are a wide variety of possible conceptualizations of what SD entails, which can be divided into any number of "classes" according to different criteria (see, e.g., Hopwood et al., 2005); however, a typology is different from such common classifications in that it is not merely descriptive, but claims that the organizing principle of the types has an *explanatory power*; that is to say, it can explain different features of each type in a consistent manner (Faran, 2010). One central advantage of our adopted typology is that it makes clear the different outcomes these theories prioritize in development processes, as well as the divergent ways they seek to manage the tensions and tradeoffs that inevitably arise between competing priorities of economic growth and environmental conservation. Still, the adoption of this SD typology of course comes with repercussions. Its adoption leads us to intentionally exclude, for example, theories that deny the relevance or desirability of development, such as those coming from proponents of post-development (e.g., Demaria et al., 2023). It also intentionally leaves aside those theories that deny any necessary tension between economy and environment, such as some forms of ecological modernization (Jänicke, 2008) and de-growth (Van den Bergh and Kallis, 2012). Furthermore, the comprehensive nature of the approaches captured in our typology leads to some commonly used analytical frameworks not being directly assessed. For example, the Sustainable Livelihoods Framework is often adopted to assess SD in rural areas, but the approach is largely a theoretical corollary of the Capabilities Approach to human development (Natarajan et al., 2022); thus, a critique of the latter encompasses to a large degree a critique of the former. While their "popularity" is not a motivation for selection, it is worth noting that both approaches we evaluate below maintain widespread legitimacy in development circles today. Capital Theory represents the core of mainstream development practice, while the Capabilities approach is widely considered, even among mainstream development agencies, to be the most powerful and persistent alternative to the mainstream (McNeill, 2007).

Capital vs. capability as the means and ends of sustainable development

One of the most familiar and influential responses to the challenge laid out by Brundtland is derived from the "capital theory" approach in economics, which includes its "weak" and "strong" iterations (Stern, 1997). In this approach generally, meeting human needs is fundamentally a question of the productive capacity in society, which is derived from the stock of productive capital (Solow, 1993). In both the "weak" and "strong" versions, productive capital is understood in the broadest sense to include all things that can be invested in or divested from, for example plant and equipment, natural resources, and labor capacity (including, e.g., knowledge). Within the "weak" version, the focus on generalized capacity to produce implies that, in pursuit of SD, society has no obligation to preserve any *specific* capital stocks, only the general capacity to produce goods and services. As a result, the degradation of certain capital stocks (such as non-renewable natural resources) are assumed to

be compensable through investing and growing the stock of other forms of productive capital, what is known as the principle of "capital substitutability". In terms of conservation of natural resources, the principle of substitutability implies that the degradation of important natural capital stocks, such as fertile soils, can simply be replaced with other forms of manufactured capital, such as synthetic fertilizers, in order to maintain the overall productivity in society.

However, criticisms raised within the "strong" version of Capital Theory have pointed out that certain types of manufactured and natural capital may be complementary rather than substitutable, as in the case of plentiful fisheries and a fleet of fishing vessels (see, e.g., Daly, 2005). This critique has forced some theoretical adjustments within Capital Theory, namely the incorporation of a recognition of the existence of "critical natural capital" (Brand, 2009), the conservation of which may be necessary for the productivity of a given industry. This runs counter to the "weak" versions insistence that no particular capital stocks need be preserved for future generations (Neumayer, 2007). While this does provide some imperative for conservation of natural capitals deemed "critical," the concession itself does not undermine the general implication stemming from capital theory, namely that the sources of productivity in a society can change in form and proportion overtime, and such change is considered sustainable in so far as the overall productive capacity is not decreasing in the very long term. When it comes to monitoring progress in SD, capital theory employs standard economic metrics, such as Gross National Product or Net National product (GDP/NNP), as these are meant to indicate the aggregate value of a nation's productive activity. This approach also employs standard economic tools for decision-making and evaluation of alternatives, most notably the use of cost–benefit analysis which is meant to ensure that the trade-offs made between capital stocks maintains or increases the value of productive activity in society.

Derived from the work of Amartya Sen and Martha Nussbaum, among others (see Robeyns, 2005), the capabilities approach offers a fundamentally different perspective on SD. Rather than focusing solely on meeting needs through economic production, this approach recognizes that human beings also have values and desires beyond their standard of living (Sen, 2004), which need to be taken into account when theorizing and practicing development. The goal of development in this view is not the unquestioned accumulation of capital, but the expansion of freedoms available to individuals within a population which allow them to pursue "lives they have reason to value" (Sen, 2013). These freedoms of course include economic facilities, but they also include aspects overlooked by capital theory, such as political freedoms and autonomy, social opportunities and transparency guarantees. In more technical terms, these freedoms are conceptualized as sets of "capabilities", which are defined as substantive freedoms that an individual is actually able to utilize. The use of different sets of capabilities by individuals is what leads to the realization of different ways of being and doing, also known as "functioning combinations" (less formally put, different lifestyles) (Sen, 2001, Ch. 3).

Importantly, the capabilities approach recognizes that individuals do not acquire and utilize their freedoms in a vacuum; rather, social and environmental context and the existence of adequate resources and supporting institutions and structures are crucial for the realization of substantive freedoms (Robeyns, 2005). When it comes to the natural environment, the capabilities approach recognizes the necessity of specific types and qualities of environmental resources for the realization of specific capabilities and functionings. These environmental dimensions of the capabilities approach are often discussed in terms of "conversion factors," or those aspects of the social and natural environment which facilitate the realization of valued ways of life (Nambiar, 2013). However, concerns for environmental conservation under the capabilities approach may also come in as valued ends in themselves, rather than merely means to other capabilities (Sen, 2004). This underpins recent research on the function and value-based interconnections between the natural environment, such as natural capital (Pelenc and Ballet, 2015) and ecosystem services (Ballet et al., 2018), and the attainment of valued capabilities and functionings. Because the capabilities approach adopts a heterogeneous conceptualization of human wellbeing, it cannot rely on a single metric for monitoring SD. Instead, it utilizes a dashboard of wellbeing indicators that show a multifaceted picture of society beyond its economic productivity which better represent the variety of capabilities available to a population (Stiglitz et al., 2010). Furthermore, since the expansion of human freedom is a process that involves potentially conflicting values, there are no ready-made tools like CBA for prioritizing between different possibilities. Instead, the process of SD within the capabilities approach is one of social negotiation, where interpersonal reasoning and public debate are used to produce (partial) agreement regarding what is desirable when faced with difficult trade-offs (Sen, 1999). Table 1 offers a comparative overview of the two theories including their main concepts, metrics and tools for implementation.

Agricultural development and smallholder farmers in different SD perspectives

How do these competing theories view the process of sustainable agricultural development, and thus the role of smallholder farmers and their representative organizations? Let us

TABLE 1 Comparison of competing SD approaches.

Approach to SD	Key concepts	Metrics	Implementation tools
Capital theory	Productive capacity; Capital stock; Capital substitution; Critical Natural Capital	Monetary	Economic choice—e.g. cost–benefit analysis, financial risk management
Capabilities approach	Valued states of being and doing; Capabilities and functionings; Individual agency and social institutions; Environmental conversion factors	Dashboard of well-being indicators	Social choice—e.g. public deliberation and negotiation, partial consensus

start with capital theory. Since capital theory is fundamentally interested in capital accumulation, the standard assumption is that agricultural development policy should aim to modernize technology and inputs as means to increase agricultural productivity. In doing so, the labor intensity of agriculture is reduced, which frees up labor for other productive industries such as manufacturing. As the process of sectoral transformation reduces the dominance of agriculture in the national economy, nations can aim to prioritize industrial sectors with the highest rates of growth. Such processes of agricultural modernization are generally associated with simultaneous processes of urbanization and industrialization (Spence et al., 2008). In this view, smallholder farmers, sometimes labelled "peasants" to express their purported "backwardness" (Handy, 2009), are generally considered inefficient and a barrier to modernization (Jayne et al., 2010; Murray Li, 2009).

As a result, the role of smallholder farmer organizations and extension services within capital theory is primarily to provide knowledge and technology that aid smallholders in adopting modernizing practices which increase their productivity, efficiency, and profitability. In terms of the natural environment and resources, the degradation of relevant natural capitals, such as soil fertility, can simply be substituted through the application of synthetic fertilizers and other agro-chemical inputs to maintain productivity. The assumption is that those smallholders that successfully apply the modernization model will expand the size and efficiency of their farms at the expense of the less efficient smallholders, which ultimately provides the mechanism of concentration of agricultural capital as well as the increase in available labor supply for urban industries. Fan and Rue (2020) aptly label this process as smallholders either "moving up" to large, more productive and more profitable farms, or "moving out" to other forms of employment outside the agricultural sector. This process represents a clear instance of market-driven social change, wherein smallholder farmers have a largely passive role (Murray Li, 2009). Essentially smallholder farmers are expected to "go with the flow" of economic development and sectoral transformation, and their representative organizations are expected to facilitate this process through the delivery of modernizing services.

In contrast, the capabilities approach represents a very different view of both the role of agriculture in society and the dynamics of social change. In this view, agriculture can be seen both as a productive industry and a valued way of life for (at least some) smallholder farmers. From this perspective, those who find value in living as a smallholder farmer experience the development dynamics promoted by capital theory as much more than the transformation of farm size and efficiency—it rather represents the means for mass dispossession and ultimately the destruction of a valued way of life. Some smallholder communities explicitly use the word "peasant" (contra capital theory) to emphasize the valued and multidimensional nature of the smallholder way of life, for example in the organization "Peasant Farmers Association of Ghana" (see Boda et al., 2024). However, we recognize that the term "peasant" carries different definitions and connotations in different cultural and academic contexts (Edelman, 2013; it may be considered heavily politicized in Uganda, for example). The point is that the label is often intended to acknowledge that the valued aspects of the smallholder way of life extend beyond the practice of farming itself, to include *inter alia* unique forms of household and community relations (Van der Ploeg, 2013).

From the capabilities perspective, emphasis in agricultural development is not solely placed on productivity and efficiency, but on ensuring the conditions under which smallholder farmers can maintain and enhance their wellbeing *as smallholder farmers*. The question thus becomes: What kinds of capabilities are necessary for the wellbeing of smallholder farmers? This clearly includes capacity to engage in productive and efficient farming, but research in the African context has shown that, beyond their own yields, smallholders also value being healthy and safe, being socially included and having a meaningful degree of autonomy over the kinds of agriculture they practice and how they distribute the benefits derived from their cultivation (Johansson et al., 2023; Hansen et al., 2015). Ensuring that these capabilities are available to smallholders requires more than the presence of productive capital; it also requires a particular set of environmental and social conditions (conversion factors) that are conducive to smallholder wellbeing (Eichsteller et al., 2022; Eichsteller, 2021). These include, *inter alia*, reliable and stable land tenure and access, healthy and fertile soils, adequate knowledge and appropriate technology, sufficient income, vibrant communities and networks and meaningful political freedoms with access to decision making (Eichsteller et al., 2022).

While the market mechanism is meant to guide processes of social change in the capital theory approach, no such automated mechanism exists for the expansion of capabilities. Instead, some concerted social agency is needed to create or maintain these conditions which provide smallholder farmers with the relevant capabilities. In this context, we want to emphasize the necessity of *collective* action among smallholder farmers. This is due to two primary factors: first, that the problems faced by smallholder farmers are generally structural in nature and thus their resolution requires changes to social institutions and relations beyond the life of the individual; second, that smallholder farmers throughout the world tend to be severely politically marginalized and lack direct access and influence in formal decision-making processes (Isgren et al., 2023). Still, the kind of collective social agency that is appropriate and feasible in each situation will depend on the existing socio-political and environmental context, and in principle can take many forms, including farmer-based organizations and rural social movements which strategically advocate on behalf of smallholders. The capabilities approach, in contrast to capital theory, opens up the possibility of a central and active role for smallholder farmers in processes of social change through their collective action. In essence, the focus shifts from passive smallholders expected to "go with the flow" of economic development, to concerted smallholder collective action which attempts to "direct the flow" of social change. This includes of course the possibility to remain a smallholder farmer, if that is a life that one has reason to value, as opposed to Capital Theory where the market "decides" who has the possibility of defining and participating in the future of the agricultural sector.

Discussion: farmer representation and collective action—towards capability expansion in smallholder-led sustainable development

The existence of farmer organizations in SSA and elsewhere is very wide-spread; however, these organizations are also potentially

very different in terms of what practices they promote and towards what ends (Bizikova et al., 2020). While farmer organizations may engage in similar kinds of activities, such as service delivery for their members, they can also have very different intentions in terms of expected outcomes and the assumed process of social change that is supported by farmer organization activities. For example, under Capital Theory approach, farmer organizations will primarily focus on forms of service delivery that are perceived to increase efficiency, productivity and profitability of smallholders, such as dissemination of knowledge on modern agricultural techniques and related technology uptake, facilitating access to credit, subsidized inputs and market access. Under the capabilities approach, in contrast, farmer organizations will focus on those activities that enhance the well-being of their membership base. In some situations, this can obviously include the delivery of services that increase farmer knowledge, spread of useful technology, enhancement of resource efficiency and so on, which can have a direct effect on, e.g., smallholder food security and income levels. However, beyond these service delivery activities, farmer organizations can also cultivate social and economic solidarity, provide a forum for critical reflection on shared experiences and goals and ultimately facilitate political collective action on behalf of smallholder farmers.

Following this, and recognizing that both SD approaches maintain *some* role for smallholder farmer organizations in pursuing SD, we argue the SD approach most likely to lead organizations to actively support the capacity of farmers *as smallholders* is the capabilities approach. Indeed, complementary arguments have been made for the superiority of the capabilities approach in other applications, including *inter alia* assessing impacts from extreme weather events (Murphy and Gardoni, 2007; Boda et al., 2022), dynamics of poverty traps (Eichsteller et al., 2022), causes of migration (Eichsteller, 2021) and effectiveness of land restoration projects (O'Byrne et al., 2022). However, this approach to SD clearly clashes with much mainstream development practice aimed at agricultural modernization. As such, the adoption of a capabilities approach will not become reality without strategic political action. Furthermore, a recognition of the limited influence isolated individuals can have on the structural drivers of social and environmental problems (Boda et al., 2022) points towards the structural necessity of strategic *collective* action among smallholders. This is where smallholder groups, advocacy organizations and rural social movements come in as potential vehicles for advocating agricultural practices that enhance the capabilities of smallholders.

While smallholder farmer organizations have the potential to play a transformational role in sustainable agricultural development, to date the majority of existing research, especially in the African context, focuses on the economic and technological role farmer organizations can play as means to enhance smallholder productivity and profitability, very much in line with the capital theory approach to SD (Isgren et al., 2023). Far fewer studies focus on the role of such organizations in advocating for alternative development models that broadly favor smallholders, and even fewer studies connect the founding of such organizations to broader processes of rural social movement building (*ibid*). Given its potentially central role, there is a real need to develop a deeper understanding of smallholder farmer-based mobilization and collective action, including under what conditions mobilization is possible, what factors underpin successful political campaigns and what possibilities exist for alliance building across national and transnational contexts.

Finally, in this perspective, we have focused specifically on the implications of two different SD approaches for smallholder farmers and their representative organizations. We have focused less so on the relative viability of small vs. large-scale agriculture, which is of course a hotly contested issue. While we do not claim to resolve this issue in any sense, we recognize that there is mounting theoretical and empirical evidence for the desirability of smallholder agriculture in terms of its environmental and social benefits. For example, smallholder agriculture has the potential to support higher crop diversity, lead to less waste (e.g., in postharvest losses, etc.) and may be better able to optimize use of scarce land resources (Ricciardi et al., 2018; Netting, 1993). However, it is crucial to avoid simplistic generalizations about scale and viability. There is no *necessary* connection between scale and the viability of agriculture. The important question is what kind of agriculture is practiced, what its ecological implications are, and how it provides for the well-being of smallholders and other citizens more broadly. Both of the SD theories we evaluated speak to smallholders and present a central role for them now, but these roles are very different. We are convinced that a focus on capabilities is preferable both from *today's* smallholders' perspective and for the *future* of smallholder agriculture. The significance of the latter of course goes back to the viability question, but this should also include the ability of such development models to address the corollary issues such as declining standard of living (Araghi, 2009), wide-spread (youth) unemployment (White, 2012), urbanization and the expansion of informal settlements resulting from transformation of agricultural sectors (of which much of the developing world struggles with, see, e.g., Hardoy and Satterthwaite, 2014; Davis, 2013) and the long-term viability of rural economies (as much of the developed world continues to struggle with, see Ryser and Halseth, 2010).

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

CB: Writing – review & editing, Writing – original draft, Funding acquisition, Conceptualization. ADA: Writing – review & editing, Writing – original draft. FA: Writing – review & editing, Writing – original draft. AA: Writing – review & editing, Writing – original draft. RB: Writing – review & editing, Writing – original draft. WC: Writing – review & editing, Writing – original draft. BE: Writing – review & editing, Writing – original draft. TF: Writing – review & editing, Writing – original draft. CH: Writing – review & editing, Writing – original draft. EI: Writing – review & editing, Writing – original draft, Funding acquisition, Conceptualization.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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