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The poverty of sustainability: behavioral choices of drinking water in Kenya and Germany

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Worldwide countries are engaged in technological improvements, changes in legislation, economic incentives, strengthened administrative structures, and political strategies to allocate and distribute water among different sections of the population. These macro measures treat water as an object of social, cultural, and environmental production unit for distribution and allocation, distancing it from the micro behavioral practices of drinking water. The poverty of sustainability stems from the gap between macro instrumental measures and the inner human dimensions that determine the micro practices. This paper explores the disconnect between macro sustainability measures and the micro practice of drinking water choice among individuals and their motives in the city of Nakuru in Kenya and the state of North Rhine-Westphalia in Germany. Both Kenya and Germany have developed top-down policies with a fix-it mindset. Kenya aims to provide drinking water to its population through piped network technology despite being a water-scarce region with inadequate housing and governance. In contrast, Germany, which is rich in water resources with highly regulated governance arrangements, spends billions treating water to attain drinking water quality only for most citizens to buy bottled water to drink. Despite water resources being finite, both of these nations source additional water through instrumental approaches to satisfy the demands of the materialistic world. In this context, the challenge of overcoming the poverty of sustainability remains a topic of debate that can be ameliorated by complementing scientific approaches with nonscientific knowledge and practices.

KEYWORDS

personal sustainability, water supply, poverty, Kenya, Germany

1 Introduction

Worldwide, about two billion people lack access to safely managed drinking water services [United Nations (UN), 2023]. The United Nations endorses (drinking) water as a universal human right, encompassing “sufficient, safe, acceptable, physically accessible, and affordable water for personal and domestic use” [United Nations (UN), 2010]. Water is seen as fundamental to everyone’s health, dignity, and prosperity and is highlighted under the Sustainable Development Goal six. Countries in the Global South are drafting legislation, developing institutional structures, improving water quality standards, and spending billions to ensure that people obtain safe water in adequate quantities. Countries in the Global North are enhancing their water quality standards and coverage to ensure the protection of their citizens. These macro measures treat water as an object of social, cultural, and environmental production, a unit for distribution and allocation, distancing it from the relationships people have with water and land (Krause and Strang, 2016). The latter relationships between water, people, and land

are closely aligned with the inner human dimensions of emotions, consciousness, awareness, power relations, and connectedness (Krause and Strang, 2016). The poverty of sustainability stems from an inadequate understanding of these inner human dimensions and their connection with macro measures, leading to sustainability problems, such as increasing global poverty, climate change, local and international conflicts, environmental pollution, natural disasters, and health insecurity. This paper explores the disconnect between macro sustainability measures of supply and distribution and the micro practice of drinking water choice among individuals and their motives in the city of Nakuru in Kenya and the state of North Rhein-Westphalia in Germany. The following section highlights the discourses surrounding sustainability practices and calls for complementing contemporary sustainability discourses with personal sustainability practices. The third section explores the abovementioned disconnect regarding water supply systems using secondary information and open-ended interviews with officials in the city of Nakuru, Kenya, and from online documents and secondary information on water supply in the state of North Rhein-Westphalia (NRW) in Germany. The findings highlight the existence of the poverty of sustainability in both these countries. The concluding section shows a way forward to achieve sustainability in water management.

2 Sustainability discourse and practice

Sustainability research and practice are stuck. Despite three decades of research and practice, sustainability problems remain and are getting worse. Contemporary sustainability research and practice have focused on the macro level and tend to address external, collective, and global processes (Parodi et al., 2018). This body of research follows a modern scientific and mechanistic worldview. Within this paradigm, technical or political challenges are addressed with a “fix-it mindset” and less as a matter of human consciousness (Parodi et al., 2018). Separation, dualism, dichotomy, and disconnection form parts of the modern worldview. The world is seen as a pure object, free for human use with unrestrained access to resources, which has led to the present conditions of excessive overuse and alienation. With the rise of science and technology, humans have distanced themselves from nature, from each other, and even from themselves. It is presumed that human, individual, and interpersonal aspects can be controlled or left unaddressed leaving a large void in sustainability research and practice (Parodi et al., 2018) leading to the subconscious manifestation of sustainability problems (Wamsler and Bristow, 2022, p. 4–11).

Personal sustainability is about addressing inner human dimensions to foster deeper connections, expand human consciousness, and nourish inner human potential for a better sustainable life (Parodi et al., 2023, p. 276). It regards human beings as responsible and capable agents with their own inner worlds (values, beliefs, attitudes, emotions, and sensations) intrinsically linked to the “outer” world of sustainable behaviors and actions. This sociopolitical world opens a cosmos of sustainable behavior and practice from the micro perspective to bring about changes at the macro scale. It is only when this inner world is explored and experienced individually can changes in the outer world lead to sustainable life across individual, collective, and system levels. Personal sustainability does not oppose but complements macro sustainability measures and is an integral part

of the common discourses, theories, and practices of sustainability. Orlove and Caton (2010) and Herbert (2017) note that water is intrinsically linked to the social political world; they suggest that it is also connected to value, equity, governance, politics, and knowledge and that its materiality is linked to waterscape, watershed, and water regimes. Water and the knowledge surrounding it are diverse and complex (Herbert, 2019). Water is not just an object of social relationships or merely a natural resource, as these manifestations are interconnected and mutually constitutive (Krause and Strang, 2016). Examining its interconnected and mutually constitutive nature can offer significant insights for better management and for designing effective policies for a sustainable future.

3 Case studies and methods

This paper explores the disconnect between macro sustainability measures and the micro practice of drinking water choice among individuals and their motives in the city of Nakuru in Kenya and the state of North Rhein-Westphalia in Germany. Nakuru is the capital of Nakuru County and Kenya’s fourth largest city, with a population of 570,674 (County Government of Nakuru, 2021). The paper draws on field research in Nakuru, Kenya, between February and April 2023, examining secondary documents and data sources on water supply strategy in Kenya. The research involved 20 open-ended interviews with government officials (12), private bottling company employees (3), and informal water providers (5) regarding their water supply operations. It also included 15 open-ended interviews with households in three wards of the city regarding their access to and satisfaction with the city’s water supply. The Nakuru Water Supply and Sanitation Company (NAWASSCO) is the main water supplier to the city’s population. In 2023, NAWASSCO supplied about 40,000 m³ (40 million liters) of water per day (Table 1). This supply covered about 93% of the city’s population (531,030), with the *per capita* supply per person being around 83 L per day (lpcd) (Interview with key official from the company, 2023). This coverage includes water piped into dwellings, housing compounds, and water kiosks. However, the water supply is intermittent, flowing for only a few hours a day, 2 or 3 days per week. The cost of the water supplied varies between 0.38 and 1.15 euros,¹ depending on the consumption, from under 6 m³ to over 300 m³, respectively (NAWASSCO, 2023). On average, it is estimated to be around 0.45 euros per cubic meter (Interview with key official from the company, 2023). To cater to the deficit, informal water providers and private companies supply water to people through jerry cans, piped water, bottled water, and water tankers. In Nakuru, there are three private water companies offering a piped network to settlements (including informal settlements) in order to meet their water requirements. Collectively, they report to have covered 10,000 households, with an average daily supply of 500 L per household per month (Interview with manager from a private company, 2023). They have 400 metered subscribers and over 1,000 unmetered subscribers. The metered subscribers pay around 1 euro per cubic meter, while unmetered subscribers pay a lump sum of around 2.30 euros monthly. Those collecting water from a kiosk pay 0.07–0.14 euros per jerry can

¹ The conversion rate is 130.20 KSh per euro as of March 17, 2023.

TABLE 1 Cost of water supplied in Nakuru and North Rhein-Westphalia.

| | Total population (in millions) | Liters <i>per capita</i> per person (lpcd) | Cost per lpcd (in euros) | Cost per liter of water from informal providers (in euros) | Cost per liter of bottled water (in euros) |
|------------------------|--------------------------------|--|--------------------------|--|--|
| Nakuru City | 0.571 | 83 | 0.45 | 1.00 (metered) | 0.90 |
| | | | | 2.30 per month (unmetered) | |
| | | | | 0.07–0.14 per jerry can | |
| | | | | 38.40 per water tanker | |
| North Rhein-Westphalia | 17.93 | 138 (2019) | 4.83 | NA | 0.59 euros |

Exchange rate as per March 17, 2023 is 1 euro = 130.20 KSh.

Sources: North Rhein-Westphalia (NRW) (2023); GlobalProductPrices.com, 2023; Statistica (2023a,b,c,d).

of 20 L. Households depend on these private suppliers due to their reliability (Interview with Households). The bottled water and plastic bottle operators price water at almost a euro per liter. High-income and middle-income households store water in underground or overground tanks to ensure a continuous supply and purchase water from water tankers for 38.40 euros for 500 L to make up for the deficit (Interview with official from private company, 2023).

The state of North Rhein-Westphalia (NRW) in Germany was chosen as a comparative case, given the availability of online documents and information about its water supply. The information for the state was collected from the NRW, Destatis, and Umweltbundesamt websites. This was supplemented with the average consumption of mineral and medicinal water, coffee, and beer from the Statistica website for Germany (Statistica, 2023a,b,c,d) and extrapolated to the 17.93 million population in NRW. To understand the perspective of the people, the following blogs on water supply were followed: (i) *My Life in Germany* (2018), (ii) *LiveinGermany* (2022), and (iii) *Language101* (2012). These blogs were created by people living in and traveling to Germany and represented their opinions on the water supply situation, which were considered representative of the NRW region, too. The state of NRW, with a population of 17.93 million, is one of the most populous states in Germany [North Rhein-Westphalia (NRW), 2023]. It supplies approximately 1.2 billion cubic meters of drinking water, of which 1.07 billion is made available to private households and commercial establishments [North Rhein-Westphalia (NRW), 2023]. The public water supply in the state covers 98.7% of the population, with an average of 138 lpcd (as of 2019). NRW charges 2.85 euros per cubic meter (0.035 euros per liter) of drinking water (Destatis, 2023). This averages 4.83 euros for 138 lpcd.

In addition to government-supplied drinking water, the population in Germany enjoys mineral and medicinal water supplied by private companies. Its country-wide consumption increased almost tenfold in 50 years, from 12.5 L *per capita* in 1970 to 129.5 L *per capita* in 2022 (Statistica, 2023a). This amount averages around 0.35 lpcd in 2022 for the total population of Germany. The cost of mineral and medicinal water varies depending on the company. On average, the price is 0.59 euros per liter for bottled water in Germany (GlobalProductPrices.com, 2023), which is 20-fold more than government-supplied water. Despite Germany having sufficient water resources and the highest water quality standards and coverage in the world (Umweltbundesamt, 2021), people still pay a large sum for mineral and medicinal water. In addition, households invest in water filters and water softeners to soften hard water. Water softeners account for approximately 10–20% of the total water wasted during

the regeneration process, depending on the hardness of the water, although obtaining precise figures is problematic.

4 Poverty amid scarcity vs. poverty amid plenty

The governments of Kenya and Germany have made substantial progress in reforming their water sectors. The Kenyan government has been instrumental in bringing about water sectoral reforms since 2010, following the formulation of its own constitution. The 2010 Constitution of Kenya marks a significant development in water sectoral reforms in the country, with water provision mandates devolving from national agencies to county governments and basin-level institutions. However, overlapping roles and responsibilities, institutional capacity constraints, and funding shortfalls contribute to challenges facing the water supply in the country. Only 33% of the population (60% of urban and 22% of rural areas) have access to a piped water supply, with 62% of the Kenyan population having access to at least “basic” drinking water services (REAL-Water, 2022). Kenya is a water-scarce country, with around 80% of the land mass classified as arid or semiarid. The country has been making significant efforts to ensure a water supply for its citizens. The right to clean water is enshrined in Article 43 of the Constitution of Kenya and was reaffirmed by the Water Act of 2016 (Government of Kenya, 2010, 2016). However, these laws do not extend to many marginalized groups in Kenya, particularly in the informal settlements. With 60% of urban residents living in informal settlements, access to drinking water remains a challenge (REAL-Water, 2022). First, their informal land tenure is traditionally linked to limited access to water. The lack of tenured access to land is attributable to the water coverage levels in these settlements under which land is managed (Sjostedt, 2011). With poor tenure arrangements, many of the informal settlements access drinking water from public taps, water kiosks, and informal water providers. Many times, people have to walk long distances even to collect water from kiosks and public taps. Water is far from affordable for those living in these settlements. Coverage in some of these settlements is 65.5%, and only 25% of households report a minimum of 50 lpcd (Mokaya et al., 2016). This situation is attributed to a poor and inefficient water distribution system, an unreliable and irrational rationing system, and poor management of water delivery services (Mokaya et al., 2016). Water quality are also concerns in Nakuru (Madadi et al., 2017). The potential of hydrogen (pH) and total suspended solids were above the World Health Organization’s

maximum guidelines and the Kenya National Environment Management Authority (NEMA) guidelines, with lead and fluoride contaminants detected in significant amounts (Madadi et al., 2017; Gevera and Mouri, 2018). The informal water providers and private water companies have emerged to meet the demand for clean water.

In contrast, the water supply systems in Germany are among the most well-regulated in the world. The country has rich water resources, with 6,279L potentially available for every German inhabitant per day (Umweltbundesamt, 2017). Almost all households and public institutions in Germany, such as schools and hospitals, are connected to the public water supply; all citizens have access to drinking water at all times. Responsibility for the water supply lies with the city authorities, who can commission third parties when needed. Public institutions and private companies work closely together. The involvement of private companies has increased 40% in recent years, supplying over 60% of the water volume (Umweltbundesamt, 2017). The Federal Ministry for Environment, Nature Conservation, and Nuclear Safety (Bundesministerium für Umwelt, Naturschutz, Nukleare Sicherheit und Verbraucherschutz) in Germany drafted the National Water Strategy in June 2021, which was adopted in 2023 [Bundesministerium für Umwelt, Naturschutz, nukleare Sicherheit und Verbraucherschutz (BMUV), 2023]. The strategy is significant, as it aims to ensure high-quality and affordable drinking water at all times everywhere in Germany for the next 30 years (Cullman et al., 2022). Despite these aims, people in Germany have increasingly favored water provided by private companies, for which they are willing to pay a higher price.

4.1 True scarcity vs. lifestyle choices

In Kenya, households are challenged by intermittent and inadequate water availability and quality, leading to various coping strategies to gain access. These coping strategies include relying on multiple water sources, stealing water from broken pipes, and purchasing water from informal water providers. They might also turn to poor-quality water and unhygienic water storage. Inadequate land tenure arrangements in Kenya contribute to this situation, particularly in informal settlements. Land tenure arrangements are directly linked to colonial era policies. Colonialism (and its rules) has significantly altered the urban spaces in which drinking water, sanitation, and related practices are embedded. Colonial planning had a “different cultural understanding of public and private, sacred and profane, appropriate and inappropriate behaviors” (Sharan, 2006, p. 4907, as cited in McFarlane, 2008, p. 419), which shaped spatial planning and sanitation practices. Specifically, the colonial urban planning paradigm promoted safe (from any attacks on the colonial regime), orderly, and clean settlements, as well as “must-pay-for” services (Oldenburg, 1984), thereby protecting Europeans but ignoring natives. The planning did not embrace the socio-culturally pluralistic nature of the societies and their settlement patterns. Urban planning revolved around safeguarding the colonialist interests, with limited regard for the living conditions of the natives (Oldenburg, 1984; Lemanski, 2006; Landman and Makakavhule, 2021). Such practices formed the basis for the growth of informal settlements, unplanned housing, and poor infrastructure planning. Today, aging pipelines provide opportunities for water theft, and informal water operators (such as kiosk operators and community water operators) exploit the poor availability of water

by selling water to low-income residents. Further complicating the situation is the poor water quality. The lack of hygiene and other sanitation factors leads to a high incidence of eye infections, diarrhea, and dental disorders among residents of Nakuru [Department of Health Services (DoHS), 2023]. In recent years, some informal providers have been formalized by government agencies. Such formalization redefines and strengthens the legal capacity of informal providers to basic service in low-income areas (Boakye-Ansah, 2019). However, it risks the exploitation of consumers in informal settlements. Poor housing and the improper disposal of solid waste, insects (e.g., cockroaches, mosquitoes, house flies, and slugs), and animals (e.g., rodents, snakes, mice, lizards, and cats) render consumers in low-income areas vulnerable to diseases [Department of Health Services (DoHS), 2023].

High- and middle-income households resort to storing water in underground or overhead tanks for everyday use. To meet their drinking water needs, they buy 25-L plastic cans for daily use. In contrast, low-income households and settlements depend on government-supplied water in public taps or within their compound, and store water in jerry cans and vessels for everyday usage. Water stored in unhygienic containers is prone to contamination, resulting in the spread of infectious diseases. As a countermeasure, international development agencies have provided households with water filters to reduce fluorosis and remove impurities. These water filters are widely displayed in the entrances of houses but rarely maintained, managed, or used. As claimed in interviews with members of households in the area, it is challenging to deal with the “high cost and regular maintenance” of these filters.

In contrast to the inadequacy of water in Kenya, social sentiments and lifestyle changes play a prominent role in the behavioral choices for drinking water in Germany, where residual sentiments from the war and river pollution in the 1970s still cause some households to reject the public water supply. In the postwar era, due to industrial pollution, “even the cattle often refuse[d] to drink water from the Rhine” (Die Welt, 1961, as cited in Deutschlandfunk Kultur, 2008). Experts then pointed out that the Rhine was carrying 29,000 tons of chlorides every day to the German–Dutch border, threatening lives along its banks (Frankfurter Allgemeine Zeitung, June 13, 1958, as cited in Deutschlandfunk Kultur, 2008). Further, most cities on the Rhine during those period did not have sewage treatment plants (Die Welt, March 15, 1961, as cited in Deutschlandfunk Kultur, 2008). The awakening came on June 19, 1969, when the Rhine was declared dead. Downstream from Koblenz, thousands of fish carcasses lined the banks, and people were warned not to wash their hands in the water. There were various citizen initiatives to save the Rhine. However, the impetus to undertake substantial action came after the antinuclear movement in 1971, from which the Greens later emerged (Deutschlandfunk Kultur, 2008). It took almost three decades and consistent effort from the government and industries to restore the Rhine (in 2001). Thus, despite various measures to maintain high-quality standards and abundant availability, postwar sentiments and water pollution images from the 1970s restrict peoples’ choice to drink tap water.

For foreigners, one of the biggest culture shocks is offering a German friend a glass of ordinary tap water (Leitungswasser) and being surprised and somewhat offended when they do not consume it. While inadequate availability and access to drinking water is a cause for concern in Kenya, German people are reluctant to drink tap water

due to postwar sentiments and water pollution images from the 1970s, despite today's high-quality standards and abundant availability. These ideas are echoed among bloggers in Germany: "The traditions come from the postwar/industrial times when tap water was not safe. But today...I cannot imagine unsafe tap water in Germany" (Language101, 2012). The blog continues, "My guess is it's a holdover from post WWII times where there was pollution from war or not as much control over the water system and quality as there is now" (Language101, 2012).

Perhaps another reason for the dispreference for tap water is its hardness. The water supplied in Germany is largely groundwater, which has lime and magnesium content that increases its hardness. The average hardness level in Germany is high compared to many other European countries due to geological formations (World Population Review, 2024). There are a few prominent cities where the degree of hardness is particularly high, such as Munich, Hamburg, Regensburg, Cologne, and Berlin; in other areas, the hardness is relatively low, including Bonn. Residents often complain about the effects of hard water on their skin and hair, also noting that it causes an accumulation of white deposits on household appliances and pipes that reduces the longevity of appliances. As one blogger put it, "I do not drink tap water: I do not like the taste. I have the feeling that it's probably just my imagination, but our [house's] tap water has somewhat high calcium content and it just seems to leave an unpleasant aftertaste" (VenisonMogambi, 2012). Another reason is that tap water is "leitungswasser" in German, which literally means "plumbing water" (LiveinGermany, 2022). People may therefore feel a sense of disgust when consuming tap water (LiveinGermany, 2022). As a mark of respect (a vestige of the 1970s), people do not offer "leitungswasser" to guests: "Families having a bit more money prefer offering bottled water to guests" (Language101, 2012). This misconception is also propagated by German restaurants, which prefer selling water to giving away "leitungswasser." Restaurants earn about 12% of their profits from selling alcoholic and nonalcoholic drinks [Germany Trade and Invest (GTAI), 2020, p. 4]. Bottled water also occupies a great deal of space in classrooms and at national and international events in Germany: "The first thing I noticed when I walked into a German lecture theater were all the mega-tall 1.5 L water bottles on everyone's table" (VenisonMogambi, 2012). While many households report hardness affecting their appliances and pipes, tap water quality has significantly improved in the last few decades. In fact, drinking water is subject to the strictest of regulations in Germany. Recently, the Federal Environment Agency (Umweltbundesamt, 2018, 2021) reported that more than 99% of the water quality readings across Germany met or even exceeded the basic requirements of environmental quality; however, whether or not the presence of hard water affects human health was not discussed in these reports. Germany also claims that its *per capita* consumption of drinking water has fallen (Umweltbundesamt, 2017), without realizing that there has been a significant increase in the consumption of mineral and medicinal water [Bundeszentrum für Ernährung (BZfE), 2023]. Meanwhile, Germans consume 463 mL of coffee and 251 mL of beer *per capita* per day per person (Statistica, 2023c,d). Despite Germany having high standards of living, full coverage of drinking water, and a well-regulated water industry, citizens rarely drink public water, preferring other drinks instead. However, according to a 2019 survey 60 percent of over 1000 respondents reported consuming tap water everyday (Statista, 2024).

4.2 A flood of alternatives

Market forces play a significant role in water issues. In Kenya, it is poor water governance and inadequate availability of water that provide opportunity for market players in the water industry to meet the basic requirement. Kenya has witnessed an increasing number of bottled water companies. The Water Bottlers Association of Kenya has listed 75 companies as members in Kenya (WBAK, 2024). There is no official estimate for the number of these companies in Nakuru, but insiders estimate that there are approximately 25 companies operating in and around Nakuru city, supplying different types of water from tankers and piped networks (Interview with official from private company, 2023). In recent years, NAWASSCO kiosk operators have set up community water projects by sourcing groundwater and supplying it through private piped networks. Compared to NAWASSCO, they claim to offer a reliable yet intermittent water supply to the people (Interview with an official from the Private Water Suppliers Association, 2023).

In Germany, amid good governance, surplus water resources, and a highly regulated private industry, market players exploit people's postwar sentiments and emotions to capture a share of the water market. Mineral water is a popular beverage among German consumers, with *per capita* consumption amounting to 130 L per year in 2022. A 2023 survey reported that around 86.1% of the German-speaking population aged 14 and over said they had drunk mineral water in the previous 14 days (Statistica, 2023b). Coming second to water are fruit juices, followed by caffeinated coffee. Around 34.6% of people reported drinking pilsner and imported beer. Around 200 mineral water companies sell more than 500 different brands of mineral water [Genossenschaft Deutscher Brunnen (GDB), 2023]. Most of this consumption is of low-carbonated mineral water ("medium"), with sales of over 3.96 billion liters, followed by sparkling mineral water ("sprudel" or "classic"), with a bottling volume of 3.23 billion liters [Genossenschaft Deutscher Brunnen (GDB), 2023]. In addition, soft drinks, such as spritzers, lemonades, and wellness drinks, occupy a prominent place. Bottled water sits on the tables of national and international conferences and meetings, despite the water quality in the country being of a high standard. Plastic bottles are the norm for bottled water. Most plastic bottles used for soft drinks and water are made from polyethylene terephthalate (PET), which is highly recyclable. However, most plastic bottles end in landfills or the ocean, as less than 7% of those collected globally are turned into new bottles (Laville and Taylor, 2017). Furthermore, bottled water contains thousands of nanoplastics that can invade the body's cells (LaMotte, 2024) and evidence shows that microbial species could multiply beyond measure in the bottled products which could be responsible for water- or food-borne diseases (Curutiu et al., 2019). Growing evidence confirms mineral water, carbonated drinks, energy drinks, coffee, and beer, which are classified as ultra-processed foods have significant association to non-communicable diseases and mental health disorders (Adams et al., 2020; Lane et al., 2024). Getting a glass of tap water in Germany remains a struggle in restaurants and hotels. In most countries, a glass of tap water is complementary, but not in Germany. United Nations has declared where access to drinking water is not a human right. Most restaurants charge for water, and the prices are almost equivalent to or even higher than for a glass of beer.

5 Overcoming the poverty of sustainability

The poverty of sustainability arises from a mismatch between macro sustainability measures and micro sustainability practices, which leads to sustainability problems. As the case studies from Kenya and Germany illustrate, government strategies, programs, and standards have focused on the collective and outer aspects of sustainability rather than human consciousness, emotions, and worldviews. Both Kenya and Germany have developed top-down strategies with a fix-it mindset seeking to motivate people to engage with these issues rather than accommodating the inner worlds of human consciousness (Parodi et al., 2018, p. 194). Despite being a water-scare nation with poor housing, Kenya aims to provide water to its entire population through piped network technology. Germany is rich in water resources and has one of the highly regulated governance arrangements. It spends billions on sourcing and treating water at high-quality standards for domestic purposes, but rarely its citizens' trust government supplied water. These nations and policymakers need to come out of the dominant social paradigm and mindset (materialism, consumerism, and economic growth) to engage, connect and build trust with their people (Wamsler and Bristow, 2022). This requires enormous leadership to show people that they could be happy with a different kind of lifestyle and that the current model is not meeting their needs, including emotional needs, social needs, and health needs (Wamsler and Bristow, 2022).

Both nations are in a rat race to source and supply more and more water, following materialistic values despite global recognition of the finite natural resources. This reflects an exploitative mindset. Kenya is concerned about honoring the right to water for its citizens. At the same time, Germany is concerned about maintaining high water quality and coverage without realizing its people do not trust government supplied water. Both these countries could explore indigenous knowledge for water conservation (Masika et al., 2022; Linton and Pahl-Wostl, 2023), supplementing rainwater for drinking water production (Hofman-Caris et al., 2019; Morote et al., 2021), educating children, and creating awareness on the quality and safety of public water supply for a sustainable lifestyle. The poverty of sustainability also arises from the inability of development agencies to regulate the unsustainable practices of private companies. The inefficiency of water supply in Kenya and Germany has given way to private water companies at the cost of the environment and public health. Though private companies are important for providing basic water needs, it comes at a cost of sustainability. Both these nations have sold over their responsibility of providing the 'right' to water to private companies, which are exploiting the sentiments, emotions, and needs of the people.

Contextualizing strategies and programs remain at the core of sustainability research and practice, which means doing away with the fix-it mindset. It is about how well we can transform based on our contextual understanding of a place, being compassionate to individuals and communities, and becoming partners in the well-being of all people and living beings (Buchanan and Kern, 2017). The mindset of development agencies is the root cause of this crisis (Wamsler and Bristow, 2022). All our policies and strategies and the way we think about issues are predicated on this rigid mindset that separates the external collective world from human inner consciousness (Wamsler and Bristow, 2022). The key to a sustainable transformation remain within personal and human aspects (Parodi et al., 2018, p. 5). Education and capacity development for decision-makers and the

public is key to nourishing transformative capacity (Wamsler and Bristow, 2022). Thus, overcoming the poverty of sustainability needs to transcend science. Albert Einstein once remarked, "We cannot solve problems by using the same kind of (scientific) thinking we used when we created them"; we have to think and act differently (as cited in Parodi et al., 2018). This approach means going beyond science—not abandoning but complementing it (Parodi et al., 2018). There is a great opportunity to link scientific approaches with non-scientific knowledge and practices, be they traditional philosophies and inner practices or individual inner and bodily experiences (Wendhack, 2018).

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.

Ethics statement

The studies involving human participants were reviewed and approved by the German Institute of Development and Sustainability (IDOS) and the National Committee of Science and Technology (NACOSTI) Kenya ethics committee. The studies were conducted in accordance with the local legislation and institutional requirements. The patients/participants provided written informed consent to participate in this study.

Author contributions

SS: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

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Conflict of interest

The author declares 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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