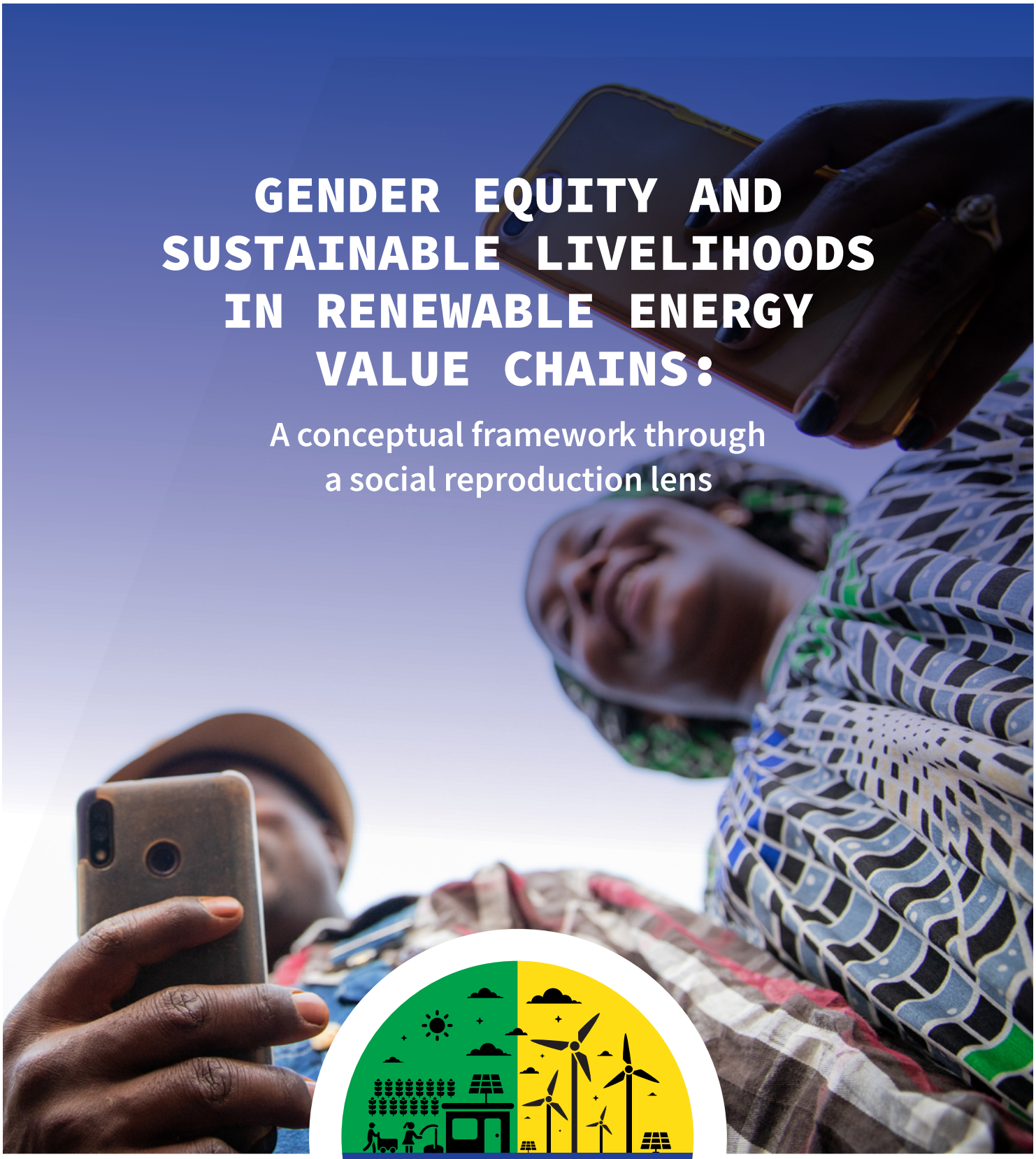
GENDER EQUITY AND SUSTAINABLE LIVELIHOODS IN RENEWABLE ENERGY VALUE CHAINS:

A conceptual framework through a social reproduction lens



Just Energy Transition:
Localisations, Decent Work, SMMEs, and Sustainable Livelihoods

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In the current context of a transitioning global economy, countries around the world are facing new challenges and opportunities to structurally change their economies to increase resilience and productivity, to augment renewable energy production, and to tackle increasing intersecting inequalities.

Many of these challenges are much more intense for the economies in the Global South. The way in which Global South countries are adapting to these global economic changes is particularly visible in their participation in Renewable Energy Value Chains (REVCs). With an overall aim to achieve net zero emissions, the increased demand for the production and consumption of renewable energy in the global economy not only challenges Global South countries to take part in these chains but also to use them to foster development and challenge relations of dependence vis-à-vis the Global North.

Questions on integration with REVCs are pressing in the African continent, particularly given the other critical development challenges faced by the region and its historic relegation to low value-added of the production process in the value chains. At this moment of a global transition to green energy sources, the region faces a variety of opportunities and challenges for the provision of energy as well as to improve sustainability, resilience, and inclusion in energy-related employment and provision (IRENA and AfDB, 2022).

Against the backdrop of the global and specific local contexts, this paper sets out a framework to assess gender equity and sustainable livelihoods in REVCs, from a social reproduction lens. Deploying a social reproduction perspective entails a consideration of the interactions between paid and unpaid work, and between the organisation of work and life, as well as a commitment to foregrounding intersecting inequalities at multiple scales. The concepts of gender equity and sustainable livelihoods are therefore integrated into such framework, to provide a structural understanding of the processes that can lead to the creation of gender equitable employment and sustainable livelihoods in REVCs. While invoking the issue of sustainability, our focus will be on evaluating whether economies are structured in a way such that they provide conditions of longer-term sustainability for livelihoods, rather on any specific livelihood option.

The proposed conceptual framework has three dimensions: (a) the global distribution of value, (b) work and livelihoods, and (c) ecological justice. The use of these dimensions serves the purposes of capturing key aspects of REVCs and related inequalities at multiple scales, from the global to the national and local, and to consider the cross-cutting question of ecological justice as an avenue that Global South transitioning to renewable energy shall pursue. As we will discuss shortly, each of these inter-connected dimensions are crucial to consider if the issue is to be evaluated from a social reproduction lens. An extensive review of the literature on renewable energy and gender as well as on processes of economic development, green energy transitions, social reproduction, work, sustainability, livelihoods and ecological justice underpins the conceptual framework elaborated in this working paper.

While we do not attempt to provide, by any measure, a prescriptive or in-depth analysis for any specific economy of the African continent, we reflect on certain dimensions of the conceptual framework by drawing upon some illustrative examples from South Africa, Kenya, and Ghana. Each of these countries have availability of renewable energy sources, such as wind and solar but also starkly differ in their energy mixes – see Annex 1 for a descriptive account on renewable energy trajectories in these countries. The illustrations are meant to elucidate how the dimensions of our conceptual framework can be considered when evaluating any specific country or set of countries.

In the next section (2), we provide a brief discussion of key concepts that we employ in our framework: renewable energy value chains, social reproduction, gender equity and sustainable livelihoods. The following section (3) presents the conceptual framework, discussing each dimension in turn. The final section (4) provides an assessment matrix that highlights the key questions and approaches that may be considered to guide the analysis of gender equity and sustainable livelihoods from a social reproduction perspective in processes of transition to renewable energy.

SECTION TWO: **CONCEPTS**

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This section descriptively reviews some core concepts that are important for the discussion of gender equity and sustainable livelihoods in renewable energy value chains. Hence, the next three subsections review relevant literature and empirical evidence on the concepts of REVCs (2.1), social reproduction (2.2) and gender equity and sustainable livelihoods (2.3). The defining and unpacking of these core concepts help to provide more analytical nuances to our conceptual framework that we discuss in section 3.

2.1 WHAT ARE RENEWABLE ENERGY VALUE CHAINS?

Value chains refer to a geographically dispersed production process, whereby every link in the production chain, located in a different location, adds a part to the total value of the final product. In various strands of the academic literature, value chains have been argued to act as important channels for fostering economic transformation of Global South economies,[1] specifically by facilitating a transfer of technology, entrepreneurial capability, and by creating jobs and developing production capacities (Taglioni and Winkler, 2016; Crescenzi and Harman, 2023). Much of the mainstream scholarly literature argues that focussing on these comparative advantages and engaging in trade will make Global South economies better off (Humphrey, 1995; Antràs, 2020); some scholars also find that developing governance capacities to support 'learning-by-doing' of technologically more advanced activities can help Global South economies climb up the value chain ladder (Khan, 2019). However, empirical evidence has shown that, contrary to the expectation, Global South countries have mostly been unsuccessful in climbing up the technology and value ladder and their economies remained focussed on static comparative advantages in natural resource extraction and export as well as in unskilled, low-wage labour (Rodrik, 2018; Rohit, 2023).

While we will discuss the concept of Global Value Chains later in this paper (see section 3.1), the context of Global South countries largely being at the lower end of global value creation and realisation is important to consider, and to derive from, when discussing the role of REVCs. This is true in terms of their possibility to bring about economic development of Global South economies as well as their welfare implications with respect to the nature of jobs and the organisation of work and livelihoods associated with them.

We understand REVCs as an integral part of value creation within a globally integrated economy, where different countries contribute to various stages of REVCs, including mining, refining, component manufacturing, deployment and maintenance.

Take, for example, the solar photovoltaic (PV) sector, which relies on metal ores such as copper and aluminium sourced from different African and Latin American countries. These components are then assembled in European or Asian economies before being distributed worldwide, generating value at each step. In the destination countries, these technologies to generate renewable energy get assembled, operated, and maintained, which again produces value at different scales.

Along the globally integrated REVCs, there thus exists vast differences in the creation, valorisation, and realisation of added value and surplus value for the purpose of accumulation. As discussed in the PV sector example above, different economies play varying roles in this REVC ranging from the extraction of minerals needed for the production of renewable energy technologies, to refinery, research and development, component manufacturing, as well as installation, operation and maintenance of wind farms or photovoltaic energy farms.

[1] A note on language: throughout the working paper we deploy the terminology of 'Global South/Global North', 'periphery/core', and 'lower-income higher-income' somewhat interchangeably, largely reflecting the terms used by the literature of reference.

The difference in revenues and added value generated by different activities along REVCs are discussed in Box 1, where we provide a more detailed example for the solar energy value chain.

Box 1: Renewable Energy Value Chain (REVC): Solar Energy

Along the REVC for the planning, procurement, production, installation, and operation of solar energy farms, there exists a vast difference in the value added at each stage of the project.

Research and development, consulting, technology development, financing, as well as postproduction services are the stages where most value is added whereas the manufacturing and the more labour-intensive activities (i.e., procurement, installation, and operation and maintenance) add relatively little value (see IRENA, 2017). Thus, R&D, finance, and technology development represent opportunities to create added value. On the other hand, manufacturing as well as maintenance are the activities with the most potential to create jobs along the solar REVC (construction workers, factory workers and technicians make up 58% of the workforce, engineers 13%, and quality health and safety experts 13%).

However, different from activities in the REVC for electric vehicles for example, the solar energy sector as well as the wind sector represent ways through which Global South countries such as South Africa, Ghana, and Kenya can achieve technological upgrading. This is particularly due to its potential to overcome energy dependency and to disrupt inqualities through increased energy

Source: Authors based on IRENA (2017)

Each economy that participates in REVCs at different production stages generates distinct economic gains with different implications for labour markets. Global North economies, such as European economies, typically produce and export high-tech intermediate goods at the higher end of REVCs (see Fu et al., 2023). This is also due to the existence of high-tech sectors in other industries, which has historically added large amounts of value through manufacturing, research and development, and design at the higher end of global value chains. Dominating the high-tech, high value-added parts of REVCs has led to generation of high wage employment in Global North countries, which is leading to more inclusive green growth in Global North economies (Ibid.). For example, Norway, Germany, and the Netherlands currently contribute 42% of global value-added in REVCs, locating these economies at the top end in the REVCs (Ibid.).

In comparison, the Global South tend to occupy the low-end of REVCs where low-value-added activities dominate.[2] And while in some Global South countries, such as South Africa, Kenya and Ghana there has been a significant increase in high technology renewable energy generation, these markets are dominated by private sector companies, which are most often foreign owned with most of the higher value activities such as production and assembly taking place in other countries. The production of renewable energy technology and infrastructure (e.g., solar modules, wind turbines, lithium-ion batteries) relies on various metals, such as iron, aluminium, copper, lithium, or cobalt, as well as other precious metals. Economies in Latin America, Asia (excluding China) and Africa largely focus on the extraction and export of these commodities needed for production, which adds relatively low value-added along REVCs (see Hornborg, 2020; Jorgenson and Clark, 2009). Furthermore, as Baker and Sovacool (2017) point out for the case of South Africa, high-value local content creation for Global South countries is often limited due to local companies being crowded out by foreign multinationals with access to capital and better technology. As a first step, hence, we need to assess how the REVCs in different contexts are structured. In other words, whether countries participating in REVCs are allowed and able to capture a significant share of value. This value creation and realisation can take the form of technological upgrading, supporting high value-added economic activities, exploring possibilities of less asymmetric value chain relation, or creating skilled employment opportunities for social upgrading, supported by other social infrastructure in the economy, as it will be discussed in sections 3.1 and 3.2, respectively.

While capital intensive activities such as research and development, design and high technology manufacturing are located in Global North economies

[2] Arguably, the distribution of value along the REVC, or any other production chain, reflects more the ability of certain firms to influence prices rather than the objective creation of value (Hickel et al., 2022).

where most value is generated and appropriated along REVCs, the labour-intensive and low value-added activities in such as resource extraction, installation, grid connection and maintenance of wind farms and solar power plants are located in Global South economies (see IRENA and ILO, 2022). The resulting asymmetric flow of resources, including labour, where net transfers from Global South countries to the Global North have become the norm, has led to the creation of new and the deepening of existing inequalities (see section 3.3 for a closer discussion on this).

2.2 WHAT IS SOCIAL REPRODUCTION?

Social reproduction is a core concept of feminist thinking grounded in Marxist and socialist feminisms of the 1970s (Cantillon et al., 2023). There are different ways of conceptualizing social reproduction and deploying social reproduction approaches, which, however, have in common a concern with one or more of these areas: work, exploitation and oppression, depletion and well-being, extraction and survival, and resistance (Mezzadri et al., forthcoming). According to Winders and Smith (2019), different 'imaginaries' can be identified based on how the articulation between social reproduction and capitalist production is understood and theorized. While early social reproduction approaches saw social reproduction as necessary for capitalist production but fundamentally distinct from and subservient to it (e.g. Dalla Costa and James, 1975), contemporary social reproduction feminisms see social reproduction and capitalist production as 'overlapping spheres' (e.g. Bhattacharya, 2017; Mezzadri et al., 2022). We will follow this imaginary and link it with the definition of social reproduction provided by geographer Cindi Katz (2001a: 711):

> *'Social reproduction is the fleshy, messy, and indeterminate stuff of everyday life. It is also a set of structured practices that unfold in dialectical relation with production, with which it is mutually constitutive and in tension. Social reproduction encompasses daily and long- term reproduction, both of the means of production and the labour power to make them work.'*

This definition offers a comprehensive view of social reproduction that bridges three key divides, according to Cantillon et al. (2023). First, it overcomes the divide between the reproduction of human life and that of capitalist relations, highlighting how the two are fundamentally entangled in contemporary capitalism. Second, it emphasizes that capitalist production and social reproduction are not distinct spheres or realms, but they are dialectically related, mutually constituted and in tension, which allows for moving beyond constraining dichotomies of paid/unpaid work, reproductive/productive work. Third, it points to the importance of both everyday practices and long-term, structured, intergenerational ones in shaping the dialectical relation between production and social reproduction.

The focus on the totality of work, paid and (underpaid), and material practices necessary for the reproduction of human life and capitalist relations entails a fundamental shift in the understanding of socio-economic systems: it starts with what allows workers to be able to go to work every morning and, more generally, with what allows people to go about their life (Bhattacharya, 2017; Cantillon et al., 2023). These are vital dimensions of socio-economic life typically neglected in economic thinking.

Crucially, contemporary social reproduction feminism offers a unifying lens to understand the articulations of oppression and exploitation on grounds of class, gender, race, ethnicity, caste, migration status and so forth (Bezanson and Luxton, 2006; Bhattacharya, 2017; Stevano et al., 2021; Mezzadri et al., 2022). By analysing the articulation of social reproduction and capitalist production, the allocation of people to different forms of work, rewarded and valorised by society unevenly, reveals the fundamental existence of inequality and social differentiation in capitalism (Stevano, 2023). Such approach reconnects the understanding of inequality with Marx's original formulation[3] and takes it beyond it by building on Black radical thought and feminisms that have extensively documented how the labouring classes are differentiated and inequalities are co-constituted (e.g. Davis, 1981; Bannerji, 2011). Intersecting inequalities are reproduced through (adverse) integration in and expulsion from labour markets and global commodity chains (Bhattacharyya, 2018; Mezzadri, 2022; Stevano, 2022).

Further, the temporal and spatial dynamics of social reproduction are key to understanding the organization of life and work. The rhythms and spaces of social reproduction can be observed locally, at

[3] In the Grundrisse (1973), Marx explains how distribution is determined by 'the specific kind of participation in production' (95), hence pointing the formation of classes based on the organization of production as the root cause of inequality.

the level of households and communities, but these are interconnected with global socio-economic transformations that link households, communities, markets, and states (Elias and Rai, 2019; Stevano, 2022). Katz (2001a; 2001b) points our attention to the geographies of social reproduction, which reveal how the local is globally constituted through material practices that are specific to historical moments and geographical locations. Such insight bodes well with the need for a multi-scalar analysis – spanning the transnational, national and local dimensions – of transitions to renewable energy in specific contexts (Ghana, Kenya and South Africa) and historical times (the present).

In sum, social reproduction entails an expanded conceptualisation of work, as including paid and unpaid work and how work intersects with the organisation of life, a focus on intersecting inequalities and how they operate at multiple scales, from the local to the global.

2.3 WHAT ARE GENDER EQUITY AND SUSTAINABLE LIVELIHOODS FROM A SOCIAL REPRODUCTION LENS?

A social reproduction lens allows us to unpack and extend the notions of 'gender equity' and 'sustainable livelihoods' by anchoring them in a structuralist understanding of sustainability and inequality. We do not seek to enter the debate on usage of terms here. Instead, we simply make our focus clear and offer a clarification on how we wish to employ the terms. Starting with gender equity, the term is often used interchangeably with 'gender equality' to refer to a condition, or target, where a society is able to dismantle forms of gendered discrimination so that everyone has equal rights and opportunities (Koehler, 2016). At times, gender equity is used in more specific ways, particularly in the fields of health and education, to indicate the specific issues that affect a given gender – most often women – and that need to be catered for (Payne and Doyal, 2010). Equity, although not gender equity specifically, is a central concern in the concept of sustainable livelihoods. Let us turn to a brief introduction to sustainable livelihoods and how it relates to equity considerations.

The concept of sustainable livelihoods was first introduced by the Advisory Panel of the World Commission on Environment and Development in 1987. In the early version of the concept, a livelihood was defined as 'adequate stocks and flows of food and cash to meet basic needs' (WCED, 1987: 2) and 'sustainable livelihood security' could be achieved by households through land ownership, engagement in agricultural or hunting-gathering activities and employment (Ibid.). According to Chamber and Conway (1991), who would later develop a slightly modified and very influential definition of sustainable livelihoods, the Advisory Panel defined sustainable livelihoods as conducive to both equity and sustainability. Equity refers of a 'less unequal distribution of assets, capabilities and especially enhancement of those of the most deprived' (Chamber and Conway, 1991: 4). Under certain circumstances, women may be categorised among the most deprived, especially in light of much evidence indicating the likelihood of gender inequality in asset ownership and/or access in households (e.g. Quisumbing and Pandolfelli, 2010). Sustainability can be understood from an environmental perspective, particularly in terms of the long-term impacts of environmental degradation, but also as self-sufficiency and from a social perspective (Ibid.). Thus, sustainable livelihoods emerges as an integrating concept that brings together equity and sustainability concerns. Building on the 1987 definition, Chamber and Conway (1991: 6) propose the following definition of sustainable livelihood:

> *'a livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels'*

In essence, Chamber and Conway's definition maintains the focus on equity and sustainability but adds that of capability, rooting the concept in Sen's capability approach. Capabilities refer to each person's freedom to achieve the various things that a person may value doing or being, such as being in good health, being educated, being able to take part in social and political decisions and so forth (Alkire, 2005). The ability to do something is both intrinsically and instrumentally important in Sen's approach as it is an indicator of development as freedom that an individual can do the things they value and, at the same time, such ability is conducive to other positive outcomes (Ibid.).

The concept of sustainable livelihoods helpfully brings together social and environmental dimensions that allow people to make a living (Chamber and Conway, 1991). However, by focusing on capabilities primarily at the individual or household levels and considering shocks as exogeneous (Ibid.), it fails to capture the structural and systemic causes of unsustainability and, as such, it does not chime with a social reproduction lens. The sustainable livelihoods approach has been criticised for not accounting for the structural determinants of poverty and vulnerability to climate change, within-household power relations – important from a gender lens - and the spatial dispersion of household relations (Natarajan et al., 2022).

A social reproduction approach embeds gender relations in the functioning of a socio-economic system, in a specific historical, spatial and social context (Mezzadri et al., forthcoming). By considering the organization of work and life, it is evident that gender relations of power operate in conjunction with class, race, ethnicity, and more. Thus, when considering the possibility of both women and men to participate in activities and/or labour markets linked to REVCs, it will need to be premised on the recognition that women (nor men) are not a homogeneous category and there may be specific groups of women more at risk of being adversely integrated into or excluded from employment in renewable energy. Through a social reproduction approach, gender equity/equality is de facto integrated into an intersectional framework that considers inequalities as plural and co-constituted.

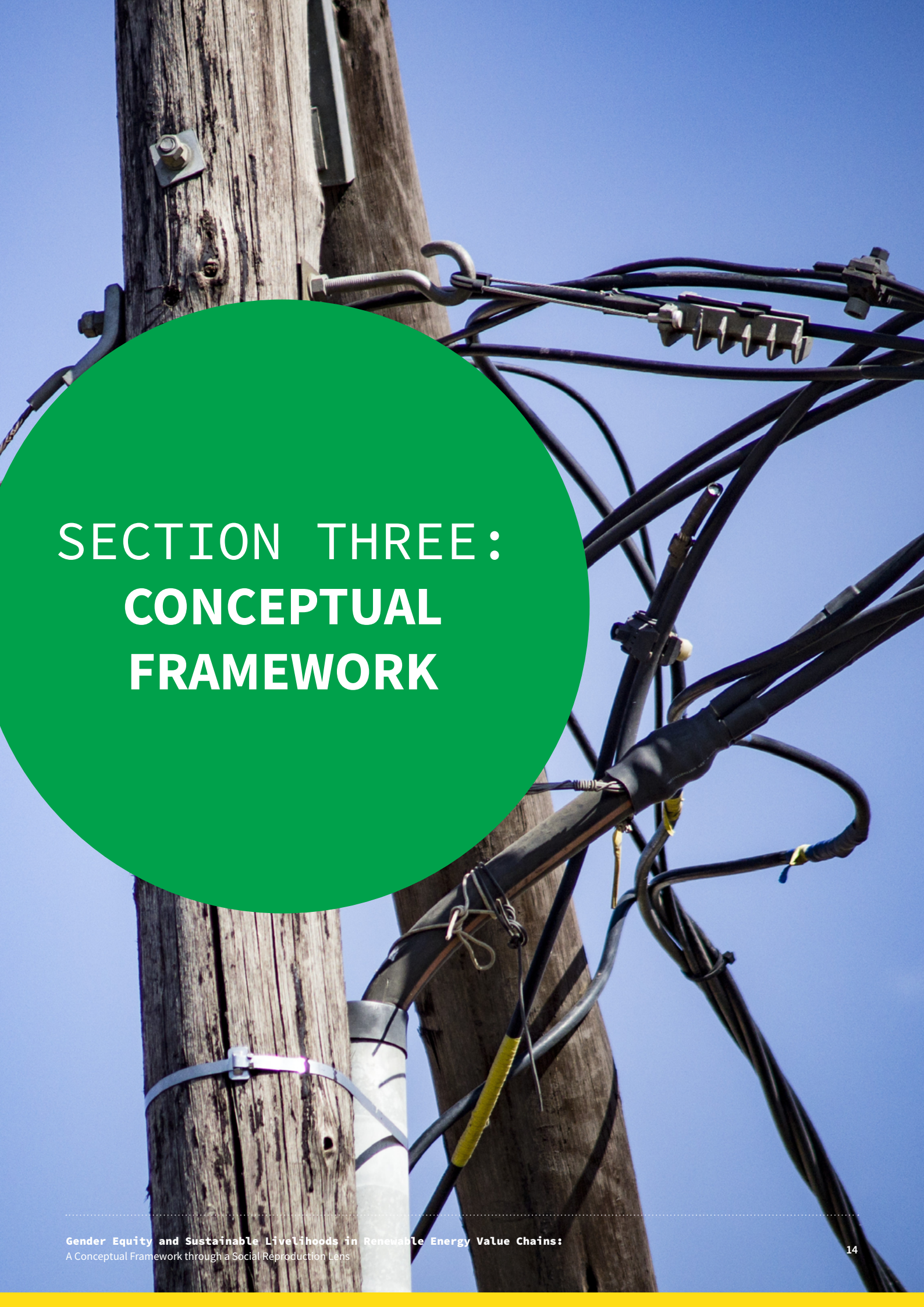
Equity considerations are also part of environmental or ecological justice frameworks that consider whether environmental burdens are distributed equally, seeking to explain and overturn environmental inequality adding onto pre-existing socio-economic vulnerabilities (Schlosberg and Collins, 2014). Transitions to renewable energy are not intrinsically 'just' in that they may entail the uneven distribution of environmental burdens, the exclusion of marginalised communities from decision-making over transition processes, and ecologically unequal exchange perpetuated at the global level (Schlosberg and Collins, 2014; Dorninger et al., 2021; Levenda et al., 2021). Local communities, indigenous people, people of colour and from low-income backgrounds are those at higher risk of environmental injustice during transitions to renewable energy (Levenda et al., 2021). Further, environmental injustices emerge from the material interconnections between the human and more-than-human worlds (Alaimo, 2010). A justice lens to ecological issues foregrounds conflicts of interests between human beings and the rest of nature, highlighting how certain human practices lead to the degradation or destruction of the natural world (Parris et al., 2014). In addition, it is important to explicitly consider the interdependencies between unequal trade relations at a global level, which are consequences of economic imperialism and colonial legacies (Yaka, 2019).

Given the focus of the study on renewable energy chains, it is particularly salient to capture how the reproduction of human life hinges on the reproduction and regeneration of non-human nature. Feminists have long traced parallels between i) the colonization of women and that of land, peoples and nature in the Global South (Mies, 1986), and ii) the failure of economic indicators to account for unpaid reproductive work and environmental conservation (Waring, 1988). However, there is still a long way to a conceptual integration of social reproduction feminism and ecological issues. The few exceptions point to the historical role of reproductive and subsistence workers in the reproduction of human life and the planet, thus making the political argument that the global working classes, who can drive radical change in the face of the climate crisis, are made not only of producers but also of reproducers (Barca, 2020).

In addition, capital accumulation requires the appropriation of unpaid reproductive work as well as free or cheap natural resources and energy (Moore, 2015). However, capitalism has the contradictory tendency of not only squeezing and destabilizing social reproduction through its devaluation (Fraser, 2017) but also of encroaching on non-capitalist spaces and non-commodified work, thus making the work and resources it needs more costly (Moore, 2015). These complexities are crucial to consider 'sustainable livelihoods' from a social reproduction perspective. A society's ability to sustain social and ecological reproduction are embedded in historical and macro-structural processes. We intend to mobilise the Marxist/feminist understanding of socio-ecological reproduction to deepen the meanings of sustainability, therefore considering how sustainable livelihoods in renewable energy chains require an underpinning socio-economic system that prioritises the reproduction of human and non-human life over the generation of profit, equality and justice.

In sum, we operationalise the concept of gender equity and sustainable livelihoods through a social reproduction lens aimed at capturing inequalities from a structural perspective, at multiple scales, and

in the broader framing of environmental/ecological justice. In concrete terms, such operationalisation entails examining i) constraining/enabling factors to the reproduction of life from an intersectional perspective, ii) equity in distribution and participation in decision-making processes of vulnerable groups at the local level, and iii) how countries trade and exchange resources at the global level. On this basis, we set out a conceptual framework detailed in the next section.



SECTION THREE: **CONCEPTUAL FRAMEWORK**

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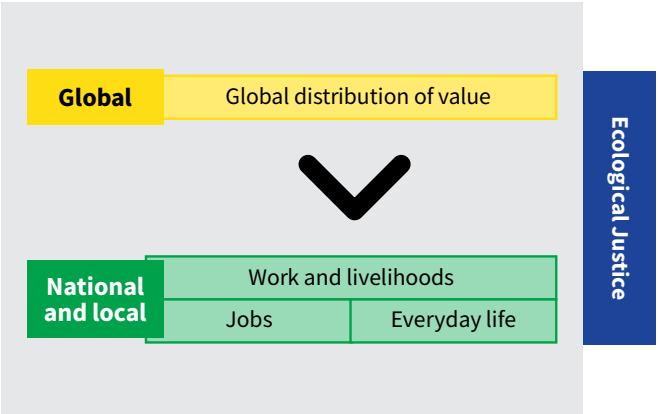
The proposed conceptual framework to assess gender equity and sustainable livelihoods in the context of transitions to REVCs has three dimensions: (a) global distribution of value, (b) work and livelihoods, and (c) ecological justice.

When invoking these dimensions, we depart from individualized notions of sustainability or from a focus on measuring outcomes. Instead, we focus on structures and structural processes that need to be instituted such that they provide conditions for generating and enabling sustainable livelihoods, ecological practices, and a just global distribution of value. The conceptual framework is multi-scalar: the global distribution of value considers global dynamics, the organisation of work and livelihoods targets the national and local levels, ecological justice surrounds and encompasses the other dimensions. Gender relations and intersecting inequalities will appear as a cross-cutting factor shaping the very processes that determine the global distribution of value, labour markets and the everyday organisation of life, and ecological justice. A simplified representation of the key dimensions of the conceptual framework is set out in Figure 1.

Figure 1: Representation of key dimensions of the conceptual framework



Source: Created by the authors

3.1 STRUCTURAL TRANSFORMATION, VALUE CHAINS, AND GLOBAL DISTRIBUTION OF VALUE

In much of the literature on economic development, a so-called peripheral economy was distinguished from a core economy one in terms of its economic structure. A peripheral economy, or what is referred to in the mainstream literature as a less-developed economy, was characterised by a dual or heterogenous economic structure.[4] A peripheral economy was characterised by dual economic structure, comprising a large low-productive traditional, non-capitalist, agricultural sector that absorbed much of the excess labour force in the economy alongside a much smaller accumulation-driven modern, capitalist, industrial sector. A core economy, on the other hand, was expected to be homogenously modern. Following this, the process of development is described in terms of a structural transformation, whereby a dual heterogenous economic structure is expected to transition to a modern industrial, capitalist one along the lines of the advanced capitalist economies, with economic growth (Lewis, 1954; La Porta and Shleifer, 2014; McMillan et al., 2014; Storm, 2015). This was also the expected route for welfare of vast working population, since this structural transformation was expected to facilitate a shift in employment and livelihood sources from subsistence-driven low productive non-capitalist sector, often agricultural and other primary goods sectors, towards better paid, less precarious jobs in the modern, industrial segments of the economy.

Several ensuing debates on economic transformation of the peripheral economies have focussed on how to bring about such a transformation. In the pre-1970s period, this entailed undertaking large-scale State-led/facilitated capital investments in industrial sectors that had strong backward and forward linkages with other sectors, shifting terms of trade to transfer surplus from

[4] In the mainstream literature a developed and less-developed economy are taken as two given stages of the development process. However, critical literature, such as dependency frameworks, world-system theories, among others, have highlighted the common historical process that produces capitalist development in one set of economies and capitalist underdevelopment in the other set. This critical literature, therefore, departs from the terminology of developed and under-developed to introduce the term core, to refer to the economies that were at the centre of this historical development process, and peripheries, to refer to economies that are mainly structured to satisfy the economic needs of the economies in the core to undergo capitalist development (Frank, 1967; Sanyal 2007).

agricultural/traditional segments towards industrial/modern one, re-distribution of income in favour of the class that would increase the demand base for the manufacturing goods (Rodenstein-Rodan, 1961; Bhaduri, 2003; Tregenna, 2009; Hauge and Chang, 2019) . The success of the model in bringing out development qua structural transformation has been mixed and contested, although the East Asian success has been largely attributed to these policies (Sen, 1983; also, see Storm, 2015 for a critical review of the extent to which the process of structural transformation was successful).

However, with the onset of globalisation and liberalisation the earlier vision of large-scale State-led industrialisation to bring about structural change diluted, making way for a more market-led process of development, and an increasing role of international trade and global capital mobility in informing the development process (Akbulut et al, 2015; Storm, 2015). In this context, among the many other shifts, has been the development of a globally dispersed production network, with different economies integrated into different nodes of global value chains (Taglioni and Winkler, 2016). These value chains are seen as a key policy channel to bring about structural change, by directly integrating the less developed agricultural economies into manufacturing production process and facilitating its technological upgradation and industrialisation.

The development project, however, for most part has not seriously considered both the historical role of colonialism as well as the enduring forms of unequal global economic relations in how the less-developed economies are structured and its ensuing impact on the various expected channels of the transformation process, including value chains. The issue of economic development is approached as a techno-bureaucratic exercise to bring about such a structural transformation using the 'right' policy mix. All contradictions emerging out of these processes are, for most part, simply considered to be externalities that would be managed by a general economic improvement (Sen, 1983; Hirschman, 1981). Sen (1983: 748) sums this in quite a vivid description:

'These countries have been expected to perform like wind-up toys and "lumber through" the various stages of development single-minded.'

While some economies have been able to undergo a shift away from agriculture sector, the process of industrialisation has been far from complete in most Global South economies. Consequently, a significant proportion of their exports still consists of primary commodities. Questions are now arising about the feasibility of achieving such a structural transformation in numerous economies of the global South, given both their own growth trajectories and the current structure of the global economy (Rodrik and Stiglitz, 2024; Kesar and Bhattacharya, 2020). However, this is hardly surprising. When we consider the global disparities of power that shape the available policy space and choices for these economies, alongside the contradictions inherent in the development processes themselves, roadblocks to such transformation become evident. Here, we particularly focus on the obstacles related to the value-chain-driven transformation process.

First, historically speaking, the so-called developed (core) and developing (peripheral) economies did not assume these distinctive structural specificities in a vacuum. Instead, they were shaped as such precisely as an outcome of extractive colonial relations that were geared towards satisfying the economic needs of the economies of the core. These relations largely shaped the organisation of these economies during colonial times, having significant persistent impacts. This also suppressed the possibilities of their indigenous paths to (capitalist or non-capitalist) development and a structural transformation along the lines of the now developed economies (Rodney, 1973; Galeano, 1973; Frank, 1967).[5] Critical scholars have highlighted that not only was there an impact of a colonial past in shaping the economic structures of the peripheral countries, rather there has been a continuity in the unequal relation between the countries of the core and periphery (Patnaik and Patnaik, 2016). These unequal power relations are

[5] Indeed, various parts of the world, including the African continent, were shaped along the lines of the distinct economic needs of the colonizing economies of the core. During the colonial period, South Africa and Kenya were part of the macro-region defined by Samir Amin (1972) as the 'Africa of the labour reserves' to indicate their primary economic role as a source of labour for use in extraction and agricultural industries. The indigenous rural populations were turned into segregated communities that supplied male migrant labour to the mines and farms owned and controlled by the settlers, and later for the manufacturing industries of South Africa, Rhodesia and Kenya (Wolpe, 1972). Notable here is the role of racialisation, instituted through a violent State apparatus through a system of apartheid, which facilitated this process of extraction of the black and coloured labour by white settlers (Ibid). In West Africa, instead, there was no known mineral wealth during the colonial time, nor settler colonialism; this macro-region is defined as the 'Africa of the colonial trade economy' (Amin, 1972). Here, the key role to serve the economic needs of the core was the peasant production of export crops, controlled through the monopolistic power of colonial trading companies and taxation imposed by the state (Ibid.). For Ghana, important colonial crops were cocoa, still important today, and palm oil (Girdner et al., 1980; Atlas data, 2023).

argued to often shape and structure the economies of the periphery according to the economic needs of the core. These economic needs may include access to cheap labour and to raw materials for production in the South for the capitalist core (Patnaik, 2009), or the peripheral countries playing the role of markets for final goods produced by the core (Luxemburg, 1951). Harvey (2007) points out that the in the course of its expansion, the formal capitalist sector often over-accumulates and searches venues for profitable investments. These investments, in turn, often take the form of large-scale private investments in the traditional non-capitalist segments in the peripheries, often by encroaching on various common spaces and public resources, thereby displacing petty peasants and other masses that depend on such resources. Patnaik (2009), on the other hand, points to the phenomenon of income deflation of petty producers in the peripheries, which is carried out to suppress global demand during potential inflationary pressures in order to maintain the value of capitalist investments in the core countries. The unequal power in the global arena available to the North, thus, allows for the economies in the South to be selectively transformed, to suit the economic needs of the core, thereby making their process of development non-autonomous.

It is, therefore, no surprise, that this suppression of development an industrial capitalism in the periphery and its structuring for exports of primary commodities as per the economic needs of the core has seen a continuity. For example, while fairly diversified, as indicated by the index of economic complexity where the country ranks 68th out of 133, South Africa's economy is still reliant on the exports of stones (platinum, gold and diamonds) and minerals (iron ores and coal) (Atlas data, 2023). Kenya has become a less complex economy in the past ten years, now ranking 80th out of 133; Kenya's exports have been growing but remain concentrated around Information and Communications Technology (ICT) and agricultural commodities (tea and cut flowers) (Ibid.). Ghana's economy has become significantly less complex in the past decade due to lack of diversification in exports, it now ranks 121st out of 133; the most important exports for Ghana are ICT, gold oil and cocoa beans (Ibid.). South Africa and Ghana have a positive trade balance while Kenya has a negative trade balance (WITS, 2023). All three countries are commodity dependent, except to different degrees, from moderate in South Africa (63.7 %) and Kenya (71.9%), to very high in Ghana (95%) (UNCTAD, 2023). This context is particularly important for examining the extent to which these economies are being integrated into the energy transition landscape as a source of raw minerals, metals, etc., and to what degree this integration facilitates their industrialization and diversification of their export baskets.

Specifically in case of production organisation along value chains, economies in the periphery are usually integrated in the lower-end of the value-chains, which, as we noted above (see section 2.1), is least productive, adds least value to total value of the final product, is technologically least sophisticated and mostly employs labour at low wage rates. Despite years of integration, developing economies continue to remain wedged in the lower end of the chain, while the high-income countries appropriate much of the value (Rohit, 2023; Suwandi, 2019; UNCTAD, 2015). For 2011, the share of OECD countries in the value added by trade in GVCs stood at about 62 percent (UNCTAD, 2015). The share of value added in global value chains by the African economies, as of 2018, was 14 percent, markedly lower than the global average of 30 percent. Much of this is attributed to the participation of African countries being limited to low value natural resource provisioning (UNCTAD, 2018). As ownership structures as well as revenue flows from activities along commodity chains remain concentrated with companies in Global North countries, this has led to asymmetric net transfers of resources from Global South to Global North countries. Critical literature has pointed out that such kind of value chain integration can likely act as ways to extract and transfer value from the economies of the periphery to the core (Suwandi et al., 2019). For example, actors in the Global South having limited control over the production process (Kabeer et al., 2020), while the ecological costs are often passed off to countries in the Global South (Althouse et al, 2023; Ponte, 2020). This has in many cases also led to ecologically unequal exchange[6] (see section 3.3). The resulting unequal outcomes have been deemed as a result of 'global poverty chains' (Selwyn, 2019) or channels of 'new economic imperialism' (Suwandi, 2019).

The disparities are not also simply limited to those between nations; even within nations those organising production or setting up production units are able to appropriate high profits, while workers, given a huge army of surplus population, can be paid at precariously low wages and abysmal working conditions (Kabeer et al., 2020). We discuss here some considerations for

[6] Ecologically unequal exchange can be defined as a theory that 'proposes that countries rich in economic, technological, or military power are more likely to gain access to resources (materials, energy, land, and labor) that are relevant to achieve economic growth and to build technological infrastructure. As a result, resources flow asymmetrically, with net transfers from poorer to richer regions.' (Dorninger et al., 2021: 179).

global dimensions of the unequal distribution of value and take up the issue of within-country employment and value dynamics in the next section (3.2).

Since many economies of the Global South face serious capital and investment constraints, integration into value chains for them has been a channel to attract foreign direct investment and absorb labour into more productive, industrial sectors. Consequently, the national economic policies of developing economies geared towards making their economy appealing for value chains investment by, for example, offering cheap labour, cheap raw material, infrastructural facilities, and so on, often resulting in a race-to-the-bottom among Global South countries (Hauge, 2023). Therefore, when analysing value chain-led development model, assessing what node of the value chain is a country integrated in becomes key. If a country is integrated into a value chain node that is low value adding, with much of the value addition appropriated by the countries embedded in other nodes, it will likely put the country at a disadvantageous position (Ibid.). In the context of renewable energy value chains, the African continent, as noted above, is seen as a major source of raw materials that are critical in green transition. However, to capture more value in this process and for industrialisation and development, it would be critical to develop industrial capacity and be involved in the more sophisticated tasks in the value chain, such as manufacturing of wind turbines, rather than simply in extraction of metals that is exported to other countries for further processing and value addition.

This is important for various reasons. First, raw materials are likely to add less to the value of the product than technologically advanced manufacturing processes. Second, the price primary goods and mineral products in the international market is more volatile than that of manufacturing goods (Chen, 2010; Bidarkota and Crucini, 2000; see here for volatility in price indices in metals). Moreover, with many Global South countries likely opening up their economies to export primary products needed for renewable energy, it is desirable to invest in advanced manufacturing that can be more resilient to price changes in event of saturated markets. It also opens possibilities of more South-South trade and development of self-sustained ecosystems among neighbouring global South economies (UNCTAD, 2015). In fact, a recent study in the context of Brazilian manufacturing sector argues that possibilities of upgradation are higher in regional and domestic value chains (Navas-Alemán, 2011). Third, it is the technologically advanced part of the process that is likely to involve an investment in capital good investment in the economy that can have spillovers in other sectors of the economy. Note that it is not simply the value addition and technological sophistication of the specific production process in question that one needs to focus on while assessing these questions, but also the type of spillovers it is likely to have on other sectors. For example, whether the heavy machinery that may be employed in the extraction of minerals in these countries is manufactured in the country in question or exported from elsewhere will have very different impact on the total value addition of the economy and the import balance (Tregenna, 2009).

Finally, creating conditions for these large-scale investments and technological upgradation today also critically rest on various international dimensions. Peripheral economies face a strong constraint on their spending capacity given the strict austerity measures imposed under the structural adjustment programmes. In fact, debt service payments are still one of the most significant budget items for several governments in the poorest countries, with interest rates quadrupling for several poorest countries in the last decade (World Bank, 2023). In face of historical drain of wealth, reparative and redistributive measures that allow these economies more space to operate to undertake investments to industrialise are crucial. Moreover, this inequality in various global players is also an incentive to explore the scope of more equitable value chains within the region, whereby different countries within the African region can contribute to complementary nodes of the value chains. The scope of such regional value chains to bypass some of these concerns of adding less value added by African economies has been noted in studies (UNCTAD, 2016; 2018).

3.2 WORK AND LIVELIHOODS

3.2.1 Jobs and social upgrading

The process of economic development via structural change, as described in the previous section, is considered a pathway for increasing welfare for the working population through secure well-paid wage employment in the more productive sectors. However, for a significant proportion of the population in Global South economies, including South Africa, Kenya, and Ghana, albeit each distinct with its very crucial particularities, this expectation has not panned out. First, for many peripheral economies, specifically in South Asia and Africa, the transition away from agriculture has been sluggish (see here). To the extent

that the transition out of agriculture did happen, the workforce was not necessarily absorbed in high paying secure jobs in the industrial capitalist sector. Instead, the transitioning population largely derived livelihoods by subsisting as small non-agricultural self-employed enterprise owner or a helper in family-based enterprise in the urban areas, driven primarily not by accumulation but by the household's need to secure subsistence. Alternatively, others derived livelihoods from low paid and precarious wage employment (Chen and Carre, 2020; Bhattacharya and Kesar, 2020; Basole 2022; also see some recent statistics here on the persistence of informality in non-agriculture spheres). These two together, the self-employed enterprises and precarious wage employment, comprised what came to be known as the non-agricultural informal employment, and comprises about 86% of the total employment in African region. This huge persistence highlights the failure of the modern, capitalist, industrial sector to absorb large swathes of working population.

The Kenyan economy, for example, has continued to be predominantly agricultural, with 54% of its population deriving employment from the agriculture sector. Even those not in the agriculture sector have not managed to find secure wage employment in the industrial, capitalist segments. Overall, about 87% of Kenya's employment is in the (non-agricultural + agricultural) informal economy. While the dependence on agriculture for Ghana is 30% and majority of employment is in services sector, much of the employment, i.e., 78%, continues to be informal in nature. The South African economy, while having a low dependence in agriculture sector, which can be attributed to the land-ownership patterns and policies under the Apartheid regime (Ngcukaitobi, 2021), continues to have a high dependence on informality, with 42% informally employed, along with a huge proportion of population, 28%, unemployed (see tables 1 and 2).

While the specific forms and dynamics of persistence of informalities in different countries need a deeper analysis (see, for example, Bassier, 2023 for some work on labour market and informality in South Africa), what is evident is the failure of the modern capitalist segments to provide secure employment to a vast proportion of the population. Critical literature on capitalist development in Africa has extensively documented that with the emergence of dispossessed proletarians and capitalists, there was no capital-wage labour class formation but rather the formation of classes of labour relying on combinations of farming, wage, and non-wage work (Bernstein, 2007; O'Laughlin, 1996). Bernstein (2007, p. 6) defines classes of labour as those who 'have to pursue their reproduction through insecure and oppressive – and typically increasingly scarce – wage employment and/or a range of likewise precarious small-scale and insecure 'informal sector' ('survival') activity, including farming in some instances'. Households have multiple sources of income as a result, on average six in Kenya and four in South Africa (Ng'weno and Porteous, 2018). As people struggle to find formal employment or employment that pays decent and regular incomes, informality is widespread and/or un(der)employment is high (see table 2). Sanyal (2007) characterises the process of post-colonial capitalist development and stunted structural transformation as a process of an always incomplete and on-going 'primitive accumulation', whereby, while resources are transferred from the traditional, agricultural, non-capitalist segments to the modern, capitalist ones, the labour that derived the livelihoods from the former is not absorbed in the latter. They, as a result, are forced to reproduce their conditions of livelihoods in the informal economic spaces, under precarious conditions, thereby, in turn, continuously reproducing these spaces. This process, he argues, is a continual feature of post-colonial capitalism.

Table 1: Summary of key economic structure and employment indicators

	GDP per capita (constant 2015 USD)	Export value (USD)	Exports as a % of GDP	Employment in agriculture/ share of women (%)	Employment in industry/ share of women (%)	Employment in services/ share of women (%)
South Africa	5,379.0	147B	31.19	5/4	22/12	72/84
Kenya	1,640.2	12.3B	10.77	54/59	6/2	39/39
Ghana	1,998.2	24.1B	29.91	30/22	21/23	49/55

Source: Compiled by authors using statistics from WITS (2023) and UNCTAD (2023)

Table 2: Summary of key employment indicators

	Share of informal employment (%)	Unemployment (%)	Underemployment (%)	Working poverty (%)
South Africa	42.2 (2022)	28.8 (2022)	4.6 (2022)	7 (2022)
Kenya	86.5 (2019)	5.7 (2021)	7 (2019)	26.4 (2022)
Ghana	78.1 (2015)	3.4 (2017)	7.5 (2015)	8.8 (2022)

Source: Compiled by authors using the most recent statistics available on ILOSTAT (2023)

In this context, the role of value chains in facilitating a transformation needs to also crucially consider its ability to facilitate an absorption of workforce in the industrial, productive, capitalist segments of the economy under secure wage contracts. Especially in the case of REVCs, which often entails large scale dispossession from land where the extraction is to be carried out (Fu et al., 2023; Hickel et al., 2022) and which is likely to involve a destruction in jobs in the dirty energy, fossil-fuel sector (Kleibrink et al., 2023), the question of labour absorption – both in terms of quantity of jobs and quality of jobs - is central. Government intervention, both domestically and internationally, might be necessary to facilitate and manage these transitions, providing support to affected individuals and regions as well as skill development, re-training and adjustments in the education system (Ibid.).

It is often argued that as economies climb up the value chain ladder to more technologically advanced and sophisticated nodes, it is associated with a shift in nature of the jobs towards more skilled, better paid, and more secure ones – a process known as social upgradation (Gereffi, 2014). However, long-term empirical evidence does not square well with this position. A recent work, considering GVC participation for a set of 58 countries across 13 industries between 1970-2008, find a positive relation in productivity growth in the formal manufacturing sector but do not find any evidence for positive employment impacts (Pahl and Timmer, 2020). Other works in cross-country settings also find a reallocation of labour towards low productive sectors and a decreasing employment in sectors that are higher productive (Rohit, 2023). Even in cases where Global South countries climb up the value ladder within GVCs, it does not necessarily translate to labour absorption or a more inclusive growth strategy overall as gains from growth is often not used for more radical redistributive and social policies (see Newman and Takala-Greenish, 2014).

This is not to suggest that the impacts are homogenous in all contexts. For example, the employment conditions have varied between very exploitative and abysmal in context of, say, Bangladesh textile industry (Kabeer, 2019), while have been positively impacted with value chain integration in Senegal in the horticulture sector (Fabry et al., 2022). Better governance structures and setting up of labour accords have been considered a step, even not a leap, in the positive direction for improving the working conditions and contracts (Kabeer, 2019; Kabeer at al., 2020; Ashwin et al., 2020; Ahmed and Peerlings, 2009).

The quality of jobs is crucial especially from a social reproduction lens. In feminist thinking, labour markets have been defined as gendered institutions (Elson, 1999). Women's disadvantage – emerging from care work obligations, limited control of their own body, limited participation in public life, lower education, and skill levels – gives women secondary status in the labour market (Elson and Pearson, 1981). While women's entry into the workforce is often seen as a mechanism for improvement in their livelihood conditions, under circumstances of unregulated labour market with precarious jobs it can be channel to reproduce gender-based inequities. In such a situation, women are further marginalised and are exposed to super-exploitation - not only does the value of non-wage work they perform continues to go unrecognised on, but they also have access to low paid and insecure jobs while the (Ibid.; Elson, 1999). Evidence from various contexts has continuously indicated that women are over-represented in the types of informal work associated with a higher risk of poverty (Chen, 2012). Many women are found among unpaid family workers, industrial outworkers, and casual wage workers (Ibid.). In Sub-Saharan Africa, the feminisation of informality is especially pronounced, with 84 per cent of women working in the informal economy (Meagher 2010).

Therefore, an integration of women in the labour force through precarious work arrangements in export-oriented firms that are integrated into global value chains, allows such firms an access to cheap labour and increases their competitiveness in global markets, while acting as mechanisms to reproduce gender inequality (Elson and Pearson, 1981; Seguino, 1997; Berik, 2017).

Although these patterns are true for women as a group, it is also important to recognise how women from poorer backgrounds, migrants and from specific races and/or ethnicities are particularly vulnerable to exploitative jobs (e.g. Rao et al., 2021; Stevano, 2022). Crucially, higher vulnerability for certain groups of women is often interconnected with more pressing or challenging social reproduction conditions, as it will be discussed in section 3.2.2.[7]

The issue, therefore, is three-fold: (a) whether the economy in question is indeed able to climb up the value chain ladder in order to be able to capture more value in the production process and create stronger spillovers for other industries of interest, and (b) whether sufficient jobs can be created in the process and whether the nature of jobs created are secure and formal in nature such that the fruits of value capture and productivity are translated into extending welfare to the working population, and (c) whether good jobs are created for the most vulnerable.

In terms of the creation of jobs for women, the renewable energy sector employs 32% of women in its workforce, a higher percentage than the oil and gas industry, where women constitute 22% of the workforce (IRENA, 2019). However, women are particularly under-represented in the STEM jobs in renewable energy, where they make up only 28% of the overall employees, and tend to be concentrated in administrative jobs (Ibid.). Additionally, there exist some concerns about the nature of jobs created in the REVCs. For example, South Africa has almost 70,000 jobs per year through the Renewable Energy Independent Power Producer Procurement Programme (IRENA and ILO, 2023). Three quarters of these jobs are in construction, a sector characterised by temporary and low-skilled jobs; the other jobs are in operations and maintenance (Ibid.). The share of women employed in the sector is only 16%, although this increased from 10% in the previous year (Ibid.). Aside from deployment-related jobs, South Africa has some solar and wind manufacturing capacity, which, although is hampered by weak competitiveness with foreign producers and insufficient and variable local demand) (Ibid.).

It is more challenging to find information on the current state of employment in renewable energy in Kenya and, even more so, Ghana, and therefore assess the potential for job creation and the quality of such jobs. The Kenyan energy sector (renewables and non-renewables) is a pillar of the Kenya Vision 2030 (MLSP, 2020). The largest employer is 'electricity generation', which includes hydroelectricity, geothermal and nuclear, and the sector as a whole is dominated by men (75%) (Ibid.). A study commissioned by the government finds that the sector faces shortages in critical skill areas, such as engineering, physical sciences and architecture (Ibid.). The number of people employed in decentralised renewable energy reached 50,000 in 2021, which outnumbers those employed in the utility-scale power sector and includes a share of 41% of women (IRENA, 2022). Kenya saw the implementation of decentralised renewable energy, predominantly solar, through the EU-funded Green Mini-Grid. To install mini-grids in 33 sites the programme created 652 jobs, not necessarily full-time, in agriculture, manufacturing and services, and women account for only 20% of the employed (IRENA and ILO, 2023).

3.2.2 Organisation of everyday life

The organization of everyday life, best observed at the local and microeconomic level, cannot be fully understood unless it is connected to macro-structural processes of change. The spaces and rhythms of life are dictated, although to different degrees, by the national and global trajectories of capital accumulation, both in the context of global production networks and localized labour markets (Elias and Rai, 2019; Stevano, 2022). With neoliberal globalization, the integration of the local and global has become even starker and multi-scalar conceptual approaches are ever more necessary, according to Natarajan et al. (2022: 155):

[7] It is important to keep in mind that this division of labour along the lines of identity also has colonial roots. The colonial division of labour entailed not only the specialisation of certain countries in the production of certain commodities, and the persistence of commodity dependence into the present, but also specific forms of gendered and racialised oppression in production and reproduction (Cantillon et al., 2023). As slave labour was the bedrock of the colonial economy so were forms of control of biological reproduction as well as organisation of family relations in the plantations, mines and home-based production in the colonies that imposed the subordination of women and the devaluation of home production and social reproduction (Reddock, 1984; Mies, 1986; Federici, 2004). Through the global organisation of production and reproduction, Global South economies became heavily implicated in undervalued forms of economic activity, primarily in the extractive and agri-food systems, for the rest of the world – a feature that persists to today (Moore, 2015; Barca, 2020; ILO, 2023).

'The spatial integration of countries, regions, villages, households and individuals, and the attendant mobility of the latter two categories, mean that seeking to understand livelihoods through spatially corralled units of analysis and entry points will be increasingly limited in their explanatory power.'

In this era, social reproduction was re-shaped through processes of fragmentation, re-privatisation and financialisation. Fragmentation refers to erosion of the activities that sustain social reproduction (Cousins et al., 2018), and is a process particularly, although not exclusively, relevant for the Global South. The lack of jobs paying decent and regular wages means that people are forced in juggling multiple forms of unpaid and paid work, often informal and precarious, to make a living (Bernstein, 2010; Mezzadri, 2019; Naidu, 2023). While access to land remains a necessary but insufficient condition for social reproduction in agrarian contexts (Ossome and Naidu, 2021), the liberalisation of agriculture alongside the expansion of extractivism has created conditions for food insecurity and a general precarity of life with a gendered character (Çelik 2023a; 2023b). Further, while social reproduction remains family-centred, the conditions of provisioning have changed. An important dimension is migration, whether transnational or within national borders, which has fragmented the spaces and the times of social reproduction, for example through destabilising social networks and fragmenting families, complicating how families can meet their social reproduction needs (Kunz, 2010; Stevano, 2022).

Another neoliberal process is the re-privatisation of social reproduction, which refers to the shift of responsibility for social reproduction from states onto households (Bakker and Gill, 2003) in contexts where the state had temporarily taken up some social reproduction responsibilities through the creation of a welfare state. With the retreat of the state, families became again the primary providers of welfare. However, this happened in the context of growing capital's encroachment on social reproduction and increasingly atomised societies (Bakker, 2007). In other words, social reproduction was in part re-privatised and in part commodified, exacerbating inequalities between those who can pay for social reproduction and those who have to extend their working day and put at risk their well-being to provide for the family (Floro, 2012). Commodification has often been accompanied or followed by financialisation[8] in two main ways. First, social reproductive sectors have become new frontiers for the expansion of financial capital, especially in health and social care, water, and other utilities, leading to a deterioration of working conditions in these sectors (Bayliss and Gideon, 2020; Dowling, 2022). Second, growing household indebtedness served the emerging forms of privatised welfare provisioning (Roberts, 2016). Within this landscape, the organisation of everyday life, which refers to a component of social reproduction, has become more fragmented and therefore more challenging in spatial and temporal terms, more unequal and more integrated into financial markets.

With no intention of providing a comprehensive account, we now turn to highlighting some of the key themes on the organisation of everyday life that emerge from the literature on South Africa, Kenya, and Ghana. In South Africa, the Apartheid regime and subsequent neoliberal restructuring resulted in fragmented households relying on older people, particularly grandmothers, for financial support and childcare. Male migrant workers were not allowed to settle in urban areas during Apartheid, so they maintained connections with their families in rural areas, often women-headed households, and sent remittances to them (Posel, 2001). In the late 1980s, restrictions on the formation of urban settlements were relaxed, allowing migrant workers to settle in urban areas and weakening ties with rural households (Ibid.). A decline in access to remittances led to a shift towards reliance on social pensions (Hull, 2014). Many households now consist of multiple generations and are headed by a grandparent who supports unemployed and unmarried adult children, who cannot afford the cost of marriage, and often take responsibility for childcare too, especially when mothers are employed (Budlender and Lund, 2011; Hull, 2014; Hunter, 2015).

In Kenya, scattered evidence suggests that employed and migrant women may experience the greatest constraints in the organisation of everyday life, especially in relation to childcare. Workers in horticultural value chains – 43% men and 63% women – reported that they experience time conflicts between domestic responsibilities and employment (Dolan and Sutherland, 2002). For instance, a study of packhouse workers in Nairobi found that a majority of them, 67% of men and 58% of women, had left their children with relatives in rural areas (Ibid.). In the cases where children migrated with parents, they were cared for by one parent, relatives, neighbours, or

[8] Financialisation refers to an epochal shift in capitalism that began in the late 1970s and saw the unprecedented expansion of financial activities, rapid growth of financial profits, permeation of the economy and society by financial relations, and the domination of economic policy by the concerns of the financial sector (Lapavitsas, 2013).

domestic workers and, when these options were not viable, children were left alone (Ibid.). Time use data suggests that Kenyan women spend almost twice as much time on unpaid care work as men and perform comparable hours of paid work (Budlender and Moussiè, 2013). Childcare and domestic work is certainly an issue in Nairobi, where in part it is addressed through the migration of women from rural to urban areas to work as nannies and domestic workers, in the form of local care chains (Dimova et al., 2015).

The importance of urban-rural linkages, or more broadly, connections across space, is a recurrent theme in the literature on livelihoods or everyday life in Africa. For instance, in Ghana, it is a common practice for urban residents to send spouses and children back to the rural areas of origins to establish income-generating activities in times of crisis (Tsikata, 2006). The loss of land and natural resource-based livelihood activities in rural areas underpin the growth of the urban informal economy, informal land markets and insecure livelihoods (Tsikata, 2009). The era of economic liberalisation saw women's increased participation in income-generating activities, such as petty trading and food preparation for sale, and increasing prominence of street food (Levin et al., 1999). In parallel, migration, for example of women and men from the poorer North to the richer South in Ghana (Pickbourn, 2011), changes the conditions of social reproduction, making it more difficult for women to reconcile different forms of paid and unpaid work and forcing them to take care of children while working or resorting to informal care givers (Quisumbing et al., 2007; Waterhouse et al., 2017).

In sum, it is evident that, with context-specific dimensions, the structural and spatial fragmentation of kinships and families is a key challenge for the organisation of everyday life in African countries. The significance of such fragmentation is much exacerbated by the broader context of reduced viability of small-scale agriculture, scarce employment that pays regular and decent income, the absence or very limited presence of the state, and the climate crisis. What is the relevance for gender equity and sustainable livelihoods within processes of transition to REVCs? The spatial and temporal constraints that families, in particular the poorer who cannot resort to commodified forms of social reproduction, face in meeting their social reproduction needs shall be adequately considered in the planning of transitions to REVCs. Such constraints would create barriers to participation in REVCs especially for women who are migrant, poorer, have care responsibilities and more limited social networks. It is crucial to consider not only the creation of jobs that pay decent wages but also to ensure that working conditions are compatible with the reality of social reproduction and that parallel policies and initiatives are put in place to improve and ultimately reverse the fragmentation of social reproduction.

3.3 ECOLOGICAL JUSTICE

The current push of capitalist expansion required for increasing production and consumption of renewable energy is directly related to unequal ecological exchange (see Martinez-Alier et al., 2010). The theory of ecological unequal exchange centres the asymmetric power relations between Global South and Global North countries in the analysis of ecological justice, arguing that the socio-environmental burdens of patterns associated with global value production is shifted from Global North to Global South regions (see Warlenius et al., 2015). This strand of literature explicitly considers material aspects of international trade and postulates that there are asymmetric net transfers of resources (including labour) from Global South to Global North countries (Hornborg, 2020), thereby creating new and deepening existing ecological injustices. From this perspective:

> *Ecological justice can only be achieved when we consider the implications of resource-intensive industrial technology production in the Global North on resource-rich countries in the Global South (Frey et al., 2018; Jorgenson and Clark, 2009). These dependencies and processes – themselves products of unequal trade relations – reproduce not only socio-economic inequalities but also imply various socio-environmental consequences as they shift the environmental burden of global capitalism to poorer, Global South countries (see Wiedmann and Lenzen, 2018).'*

With resource-intensive technology production in the Global North displacing extractive frontiers to the Global South (Schaffartzik and Pichler, 2017), this creates socio-environmental conflicts and environmental injustices.

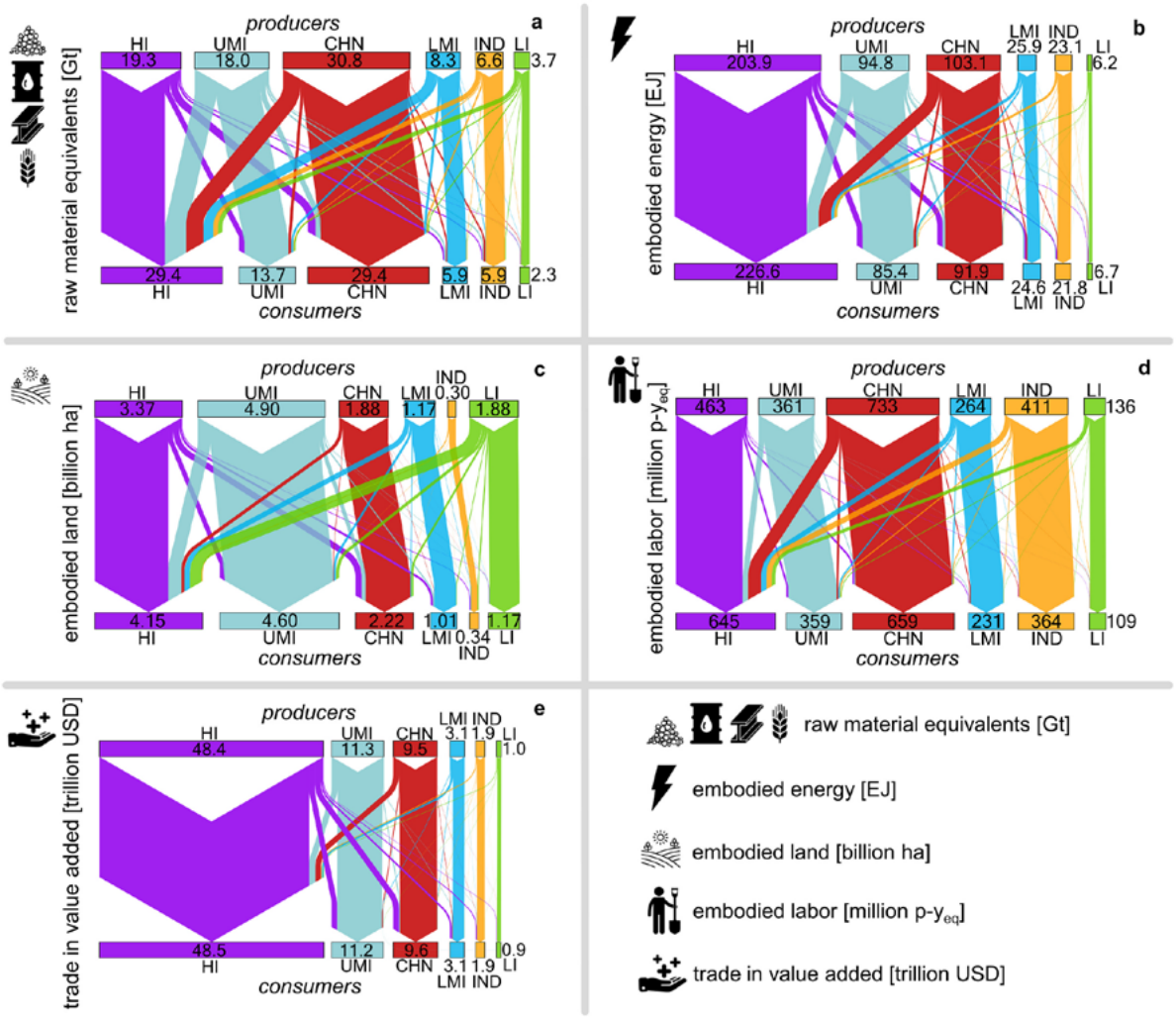
The continuous drive to achieve economic growth and consumption in the Global North are thus sustained by asymmetric economic exchange relations as well as ecologically unequal exchange relations with Global South countries. Global North countries are net-appropriators of materials, land, labour and energy, which enables them to appropriate value higher up the chain and provides them with extra incomes (rents) in global markets. This again allows Global North countries

to continue appropriating resources in future years, thereby perpetuating unequal economic and ecological exchange relations.

As Dorninger et al. (2021: 1) point out, ecological unequal exchange between Global North and Global South countries mainly occurs in four resource groups: raw materials, energy land, and labour, which are all 'embodied in commodities and services traded between regions with differing economic 'power'.' Using data for 2015, their findings suggest that the demand of Global North or High Income (HI) countries for raw materials exceeded their domestic extraction by over 10 billion tons per year, whereas all other regions (Upper Middle Income, UMI; China, CHN; Lower Middle Income, LMI; India, IND; Low Income, LI) were net providers of raw materials (see section a, figure 2). Similarly, HI counties were the largest appropriators of embodied energy. While also being the largest producers of energy, HI nations mainly appropriated energy embodied in traded goods from China and UMI (see section b, figure 2).

Ecological unequal relations in form of resource appropriation, however, has been the starkest in the resources of land and labour. Here, HI countries were appropriating approximately 0.8 billion hectares of land per year, which corresponded to 31% of total global land used (see section c, figure 2). For labour, HI countries were the only net appropriators of labour as a resource, whereas all other countries were net providers of labour (see section d, figure 2). It is unsurprising, then, that HI countries achieved a substantial trade surplus with a value added larger than all other income groups combined. However, this immense trade surplus is only possible due to the appropriation of materials, energy, land, and labour from other countries, demonstrating that unequal trade relations are directly interconnected with ecological unequal exchange. In other words, production, creation, and appropriation of value through processes of accumulation are all linked to significant ecological injustices where asymmetric net transfers of resources take place between Global South and Global North countries.

Figure 2: Production and consumption of resources in high-income HI, upper-middle income UMI, lower-middle income LMI, low-income LI, countries, China (CHN) and India (IND) in 2015

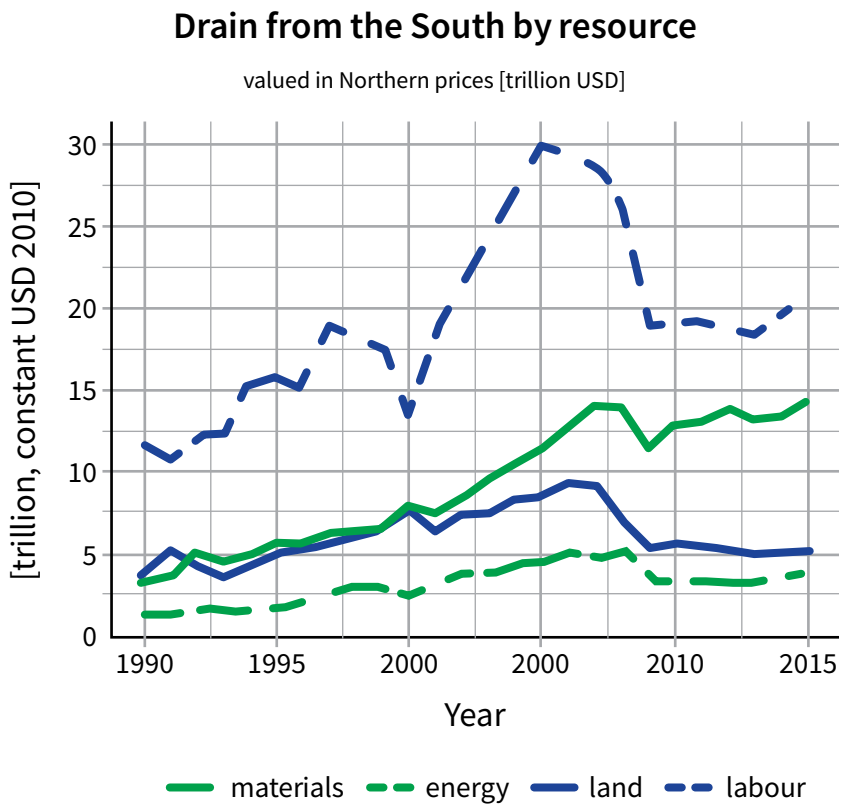


Source: Dorninger et al. 2021: 5

Hickel et al (2022) point out that ecological unequal exchange and environmental injustices caused by the appropriation of resources by Global South countries have led to an imperialist drain from Global South regions. In their aggregated analysis, this drain in 2015 was US$14.1 trillion in raw materials, US$ 5.1 trillion in land, US$3.6 trillion in energy and over US$20 trillion in labour (see figure 3). Hickel et al. (2022) argue that this 'imperialist appropriation' of resources exemplifies the way in which ecological unequal exchange amplifies unequal trade and economic relations, where Global North countries benefit from appropriating the lion's share of value-added trade in the global economy. Achieving ecological justice or environmental justice is thus closely connected to overcoming extractive imperialist and colonial relations that continue to shape trade relations, including those linked to REVCs. Further, at the local level, it is crucial that marginalised and vulnerable communities are meaningfully involved in decision-making processes over transitions to renewable energy (Levenda et al., 2021), especially when such transitions involve land dispossession, labour market changes and unequal distribution of environmental risks or damage.

Participating in economic activities along REVCs provide several opportunities for Global South countries such as South Africa, Ghana, and Kenya not just to achieve economic upgrading, but also to overcome patterns underlining unequal ecological exchange relations. Expanding domestic renewable energy production and consumption could disrupt centralised ownership structures of energy production, which is typically highly concentrated with foreign companies. Investments in renewable energy production through wind turbines or solar panels could thus support a decentralisation of energy production as well as overcome dependence on provision by foreign companies. Freeing up space and land for wind and solar farms could furthermore help to challenge the appropriation of embodied land by Global North countries from the Global South. As land is the resource group with the highest level of appropriation, this could be one avenue to achieve ecological justice. Questions remain regarding the appropriation of raw materials and embodied labour, the two resource groups where appropriation is particularly stark (see figure 2). Hence, the increased participation of South Africa, Ghana, and Kenya in REVCs does by no means imply an overall improvement in value added as well as in the work conditions for workers in general and for female workers in particular.

Figure 3: Drain from Global South, constant 2010 USD



Source: Hickel et al. (2022 : 6)

SECTION FOUR: **ASSESSMENT MATRIX**

SECTION FOUR: ASSESSMENT MATRIX

Based on the conceptual framework set out in this working paper, we propose an 'assessment matrix' that can be used for guidance to evaluate issues of gender equity and sustainability in Renewable Energy Value Chains from a social reproduction lens applied to multiple scales, from the global to the local.

Dimension	Key questions	Key approaches to consider
Global distribution of value	What is the proportion of total value of the final product value that is added by the country? / What is the level of technological sophistication of the tasks carried out in the country?	Contribute to the nodes of the production process that adds a significant value to the total value of the final product, such as manufacture of technologically sophisticated input.
	What is the degree of price volatility of, and competition to, the product exported by the country?	Diversify the product basket to avoid heavy reliance on exporting mineral commodities that are then refined and employed in manufacturing process only in other countries; diversify the set of buyers to avoid facing monopsonist pricing; evaluate gains from other South-South partnership so as to avoid competitive pressures from other economies in the region.
	What is the degree of spillovers from value chain production process to other sectors in the country?	Evaluate the gains from developing a specific node of the value chain based not only on the immediate gains but also on (a) technological spillovers from investing in a specific nodes of the value chains onto other sectors of the economy (for example, capital goods manufacturing can have spillovers on other sectors by developing technology used in other sectors), (b) backward and forward linkages of the specific node of value chains with other sectors (for example, a sector can have indirect impact of employment generation in another complementary sector)

Dimension	Key questions	Key approaches to consider
	What is the possibility of developing equitable value chains within a region, say, the African continent?	Evaluate whether all parts of the production process can be organised between countries within a region on more equitable terms and whether the dependence of vehicle currencies of the core countries can be decreased?
Work and livelihoods	Is the economy of a given country able to climb up the value chain ladder and create spillovers for industries of interest?	Design and implementation of appropriate industrial policy, with a view to foster technological innovation and promoting spillovers across industries
	Would a transition to renewable energy lead to the creation of a sufficient number of good quality jobs?	Employment creation policies to be at the core of renewable energy investments
	Would a transition to renewable energy create jobs compatible with the everyday life, especially for women from marginalised backgrounds?	Creation of employment that can accommodate the spatial and temporal constraints facing workers
		Active participation of the state and the employer (when private) in social reproduction, through the creation of early-childhood education institutions and provision of nutritious food to workers and their families
		Public investment in infrastructure that can ease space and time constraints, such as roads and affordable transportation
		Creation or revival of forms of de-commodified and socialised social reproduction, such as community-run spaces for children and the youth, communal kitchens and spaces for entertainment
		Social movements engaged in political education on gender roles and norms
Ecological justice	Would an increased focus on wind and solar energy in a given country lead to lower levels of appropriation of land and labour, thus disrupting ecological unequal exchange?	Participation at higher end of REVCs to be supported by public policies and investments into development of capacities in high-technology sectors

Dimension	Key questions	Key approaches to consider
	Would an increase in renewable energy lead to a decentralisation and a democratisation of energy production and consumption?	Use of land for wind turbines and solar panels to counter tendencies of appropriation of embodied land by Global North countries
	Can the participation in activities along REVCs not only be productivity escalators leading to economic upgrading but also to more ecological equality?	The creation of employment in REVCs that considers productivity escalators for economic upgrading as well as inclusivity for gendered and racialised workforce
		An overall active role of the state in investments into infrastructure and land, the development of technological capacities (both in the public and private sector), and the training of the workforce
		Inclusion of local and marginalised communities, including women, in decision-making processes over renewable energy transitions.

REFERENCES

Akbulut, B., Adaman, F., & Madra, Y. M. (2015). The decimation and displacement of development economics. *Development and Change*, *46*(4), 733-761.

Alaimo, S., (2010) Bodily Natures: Science, Environment, and the Material Self. Indianapolis: Indiana University Press.

Alkire, S. (2005). Why the capability approach?. *Journal of human development*, 6(1), 115-135.

Althouse, J., Cahen-Fourot, L., Carballa-Smichowski, B., Durand, C., & Knauss, S. (2023). Ecologically unequal exchange and uneven development patterns along global value chains. *World Development*, *170*, 106308.

Ahmed, N., & Peerlings, J. H. (2009). Addressing workers' rights in the textile and apparel industries: Consequences for the Bangladesh economy. *World Development*, *37*(3), 661-675.

Antràs, P. (2020). Conceptual aspects of global value chains. *The World Bank Economic Review*, *34*(3), 551-574.

Ashwin, S., Kabeer, N., & Schüßler, E. (2020). Contested understandings in the global garment industry after Rana Plaza. *Development and Change*, *51*(5), 1296-1305.

Atlas data (2023). Atlas data of economic complexity. https://atlas.cid.harvard.edu/

Baker, Lucy and Sovacool, Benjamin K. (2017). The Political Economy of Technological Capabilities and Global Production Networks in South Africa's Wind and Solar Photovoltaic (PV) Industries (September 3, 2017). Political Geography 60

Bakker, Isabella. 2007. "Social Reproduction and the Constitution of a Gendered Political Economy." *New Political Economy* 12 (4): 541–56.

Bakker, Isabella, and Stephen Gill. 2003. *Power, Production, and Social Reproduction: Human In/Security in the Global Political Economy*. New York: Palgrave Macmillan.

Bannerji, H. 2011. "Building from Marx: reflections on 'race', gender, and class". In Educating from *Marx: Race, Gender, and Learning*, 41– 60. Basingstoke: Palgrave Macmillan.

Barca, S. (2020). *Forces of reproduction: Notes for a counter-hegemonic anthropocene*. Cambridge University Press.

Basole, A. (2022). Structural transformation and employment generation in India: Past performance and the way forward. *The Indian Journal of Labour Economics*, *65*(2), 295-320.

Bayliss, K and Gideon, J. (2020). The privatisation and financialisation of social care in the UK, SOAS Department of Economics Working Paper No. 238, London: SOAS University of London.

Berik, G. (2017). Revisiting the feminist debates on international labor standards in the aftermath of Rana Plaza. *Studies in Comparative International Development*, *52*(2), 193-216.

Bezanson, K. & M. Luxton (eds) 2006. *Social Reproduction: Feminist Political Economy Challenges Neoliberalism*. Montreal: McGill- Queen's University Press.

Bhaduri, Amit (2003) "Structural Change and Economic Development: On the Relative Roles of Effective Demand and the Price Mechanism in a 'Dual' Economy", in Rethinking Development Economics, edited by Ha-Joon Chang, pp. 219-233. London and New York: Anthem Press.

Bassier, I. (2023). Firms and inequality when unemployment is high. *Journal of Development Economics*, *161*, 103029.

Bernstein, H. (2007, March). Capital and labour from centre to margins. In *Living on the Margins conference*.https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=d54a64931238f19d49b7c2ef59701ba26ab3e8c9

Bhattacharya, Snehashish, and Surbhi Kesar. "Precarity and development: Production and labor processes in the informal economy in India." *Review of Radical Political Economics* 52, no. 3 (2020): 387-408.

Bhattacharya, T. (ed.) 2017. *Social Reproduction Theory: Remapping Class, Recentering Oppression*. London: Pluto Press.

Bhattacharyya, G. 2018. Racial Capitalism: Questions of Reproduction and Survival. Lanham, MD: Rowman & Littlefield.

Bidarkota, P., & Crucini, M. J. (2000). Commodity prices and the terms of trade. *Review of International Economics*, *8*(4), 647-666.

Budlender, D. and Lund, F. (2011). "South Africa: A legacy of family disruption." *Development and Change* 42.4 (2011): 925-946

Budlender, Deborah and Moussié, Rachel (2013) 'Making Care Visible: Women's unpaid care work in Nepal, Nigeria, Uganda and Kenya' ActionAid.

Chen, M. (2012). **T**he Informal Economy: Definitions, Theories and Policies. WIEGO Working Paper 1.

Chen, M., & Carré, F. (2020). *The informal economy revisited: Examining the past, envisioning the future* (p. 326). Taylor & Francis.

Cantillon, S., Mackett, O. and Stevano, S. (2023). *Feminist Political Economy. A Global Perspective*. Newcastle upon Tyne: Agenda Publishing.

Chambers, R., & Conway, G. (1991). *Sustainable rural livelihoods: practical concepts for the 21st century*. Institute of Development Studies (UK).

Chen, M. H. (2010). Understanding world metals prices—Returns, volatility and diversification. *Resources Policy*, *35*(3), 127-140.

Cousins, B., Dubb, A., Hornby, D., & Mtero, F. (2018). Social reproduction of 'classes of labour'in the rural areas of South Africa: Contradictions and contestations. *The Journal of Peasant Studies*, *45*(5-6), 1060-1085.

Crescenzi, R., & Harman, O. (2023). Harnessing Global Value Chains for regional development: How to upgrade through regional policy, FDI and trade (1st ed.). Routledge. https://doi.org/10.4324/9781003356141

Çelik, C. (2023a). Global food insecurity as a crisis of social reproduction for the classes of labour. *Human Geography*, *16*(2), 193-199.

Çelik, C. (2023b). The social reproduction of natural resource extraction and gendered labour regimes in rural Turkey. *Journal of Agrarian Change*. DOI: 10.1111/joac.12535

Dalla Costa, M. & S. James 1975. *The Power of Women and the Subversion of the Community*, 3rd edn. Bristol: Falling Wall Press.

Davis, A. 1981. *Women, Race and Class*. London: Random House.

Dimova, M., Hough, C., Kyaa, K., & Manji, A. (2015). Intimacy and inequality: Local care chains and paid childcare in Kenya. *Feminist Legal Studies*, *23*(2), 167-179.

Dolan, C., & Sutherland, K. (2002). Gender and employment in the Kenya horticulture value chain. *Globalisation and Poverty Discussion Paper*, *8*.

Dorninger, C., Hornborg, A., Abson, D.J., von Wehrden, H., Schaffartzik, A., Giljum, S., Engler, J.-O., Feller, R.L., Hubacek, K., Wieland, H., 2021. Global patterns of ecologically unequal exchange: Implications for sustainability in the 21st century. Ecological Economics 179, 106824.

Dowling, E. (2022). *The care crisis: What caused it and how can we end it?*. Verso Books.

Durand, C., & Milberg, W. (2020). Intellectual monopoly in global value chains. *Review of International Political Economy*, *27*(2), 404-429.

Elias, J. & S. Rai 2019. "Feminist everyday political economy: space, time, and violence". *Review of International Studies* 45 (2): 201– 20.

Elson, D. (1999). Labor markets as gendered institutions: equality, efficiency and empowerment issues. *World development*, *27*(3), 611-627.

Elson, D. and Pearson, R. (1981) 'Nimble fingers make cheap workers': An analysis of women's employment in third world export manufacturing. Feminist Review, 7(1): 87-107.

Fabry, A., Van den Broeck, G., & Maertens, M. (2022). Decent work in global food value chains: Evidence from Senegal. *World Development*, *152*, 105790.

Federici, S. 2004. *Caliban and the Witch: Women, the Body and Primitive Accumulation*. New York: Autonomedia.

Floro, M. S. (2012). *The crises of environment and social reproduction: Understanding their linkages* (p. 13). Department of Economics.

Frank, A. G. (1967). *Capitalism and underdevelopment in Latin America* (Vol. 93). NYU Press.

Frey, P. K. Gellert, & H. F. Dahms (Eds.) (2019). Ecologically unequal exchange: Environmental injustice in comparative and historical perspective. Cham: Springer International Publishing.

Fu, Q., Gong, Q., Zhao, X.-X., & Chang, C.-P. (2023). The effects of international sanctions on green innovations. Technological and Economic Development of Economy, 29(1), 141–164.

Galeano, E. (1973). Open Veins of Latin America. New York. *Monthly Review*, *28*.

Gereffi, G. (2014). Global value chains in a post-Washington Consensus world, *Review of International Political Economy, 21*(1), 9-37.

Girdner, J., Olorunsola, V., Froning, M., & Hansen, E. (1980). Ghana's agricultural food policy: Operation feed yourself. *Food Policy*, 5(1), 14–25.

Gruby, R.L., Enrici, A., Betsill, M., Le Cornu, E., Basurto, X. (2021) Opening the black box of conservation philanthropy: A co-produced research agenda on private foundations in marine conservation. Marine Policy 132, 104645
Hauge, J. and Chang, H.J., 2019. The role of manufacturing versus services in economic development. *Transforming industrial policy for the digital age*, pp.12-36.

Harvey, D. (2007). *A brief history of neoliberalism*. Oxford University Press, USA.

Hickel, J., Dorninger, C., Wieland, H., Suwandi, I., 2022. Imperialist appropriation in the world economy: Drain from the global South through unequal exchange, 1990–2015. Global Environmental Change 73, 102467.

Hirschman, A. O. (1981). *Essays in trespassing: Economics to politics and beyond*. Cambridge University Press.

Hornborg, A. (2020) Energy, space, and movement: toward a framework for theorizing energy justice, Geografiska Annaler: Series B, Human Geography, 102:1, 8-20.

Hull, E. (2014).The Social Dynamics of Labor Shortage in South African Small-Scale Agriculture, *World Development,* vol. 59, pp. 451-460.

Humphrey, J. (ed.) (1995), Special issue on 'Industrial Organization and Manufacturing Competitiveness in Developing Countries,' World Development, 23 (1), 1–162.

Hunter, M. (2015). The political economy of concurrent partners: toward a history of sex–love–gift connections in the time of AIDS. *Review of African Political Economy*, *42*(145), 362-375.

Ikeme, J. (2003): Equity, environmental justice and sustainability: incomplete approaches in climate change politics. Global Environmental Change 13 (2003): 195-206.

International Labour Organisation (ILO) (2023). *The value of essential work*. World Employment and Social Outlook 2023. Geneva: ILO.

IRENA (2017), Renewable energy benefits: Leveraging local capacity for solar PV, International Renewable Energy Agency, Abu Dhabi.

IRENA (2019), Renewable Energy: A Gender Perspective. IRENA, Abu Dhabi.

IRENA (2022), Solar PV: A gender perspective, International Renewable Energy Agency, Abu Dhabi.

IRENA (2023), Socio-economic footprint of the energy transition: South Africa, International Renewable Energy Agency, Abu Dhabi.

IRENA Coalition for Action (2023), Finding common ground for a just energy transition: Labour and employer perspectives, International Renewable Energy Agency, Abu Dhabi.

IRENA and AfDB (2022), Renewable Energy Market Analysis: Africa and Its Regions, International Renewable Energy Agency and African Development Bank, Abu Dhabi and Abidjan.

IRENA and ILO (2023), Renewable energy and jobs: Annual review 2023, International Renewable Energy Agency, Abu Dhabi and International Labour Organization, Geneva.

Jorgenson, A., Clark, B. (2009). The Economy, Military, and Ecologically Unequal Relationships in Comparative Perspective: A Panel Study of the Ecological Footprints of Nations, 1975–2000." Social Problems 56:621–46.

Kabeer, N., Huq, L., & Sulaiman, M. (2020). Paradigm shift or business as usual? Workers' views on multi-stakeholder initiatives in Bangladesh. *Development and Change*, *51*(5), 1360-1398.

Kabeer, N. (2019). 13 The evolving politics of labor standards in Bangladesh. *Labor, Global Supply Chains, and the Garment Industry in South Asia: Bangladesh after Rana Plaza*, 7.

Katz, C. 2001a. "Vagabond capitalism and the necessity of social reproduction". Antipode 33 (4): 709– 28.

Katz, C. 2001b. "On the grounds of globalization: a topography for feminist political engagement". Signs: Journal of Women in Culture and Society 26 (4): 1213– 34.

Kesar, S., & Bhattacharya, S. (2020). Dualism and structural transformation: The informal manufacturing sector in India. *The European Journal of Development Research*, *32*, 560-586.

Khan, M. H. (2019). Knowledge, skills and organizational capabilities for structural transformation. *Structural Change and Economic Dynamics*, *48*, 42-52.

Kleibrink, A., Pegels, A., Fink, M., & Scholz, W. (2023). *Green jobs and the city: Towards a just transition in developing countries* (No. 1/2023). IDOS Policy Brief.

Koehler, G. (2016). Tapping the Sustainable Development Goals for progressive gender equity and equality policy?. *Gender & Development*, *24*(1), 53-68.

Kunz, R. (2010). The crisis of social reproduction in rural Mexico: Challenging the 're-privatization of social reproduction' thesis. *Review of International Political Economy*, *17*(5), 913-945.

La Porta, R., & Shleifer, A. (2014). Informality and development. *Journal of economic perspectives*, *28*(3), 109-126.
Lapavitsas, C. (2013). The financialization of capitalism: 'Profiting without producing'. *City*, 17(6), 792-805.

Levenda, A. M., Behrsin, I., & Disano, F. (2021). Renewable energy for whom? A global systematic review of the environmental justice implications of renewable energy technologies. *Energy Research & Social Science*, 71, 101837.

Levin, C. E., Ruel, M. T., Morris, S. S., Maxwell, D. G., Armar-Klemesu, M., & Ahiadeke, C. (1999). Working women in an urban setting: Traders, vendors and food security in Accra. *World Development*, 27(11), 1977–1991.

Lewis, W. A. (1954) Economic development with unlimited supplies of labour. *The Manchester School*, 22(2): 139-91.

Luxemburg, R. 1951. *The Accumulation of Capital*. New Haven, CT: Yale Univ. Press.

Martinez-Alier, J., Kallis, G., Veuthey, S., Walter, M., Temper, L., 2010. Social Metabolism, Ecological Distribution Conflicts, and Valuation Languages. Ecological Economics 70, 153–158. https://doi.org/10.1016/j.ecolecon.2010.09.024

Marx. K. (1973). *Grundrisse*. London: Penguin Books.

McMillan, M., Rodrik, D., & Verduzco-Gallo, Í. (2014). Globalization, structural change, and productivity growth, with an update on Africa. World Development, 63, 11–32

Meagher, K. (2010). The empowerment trap: gender, poverty and the informal economy in sub-Saharan Africa, in Chant, S. (ed.) The International Handbook of Gender and Poverty: Concepts, Research, Policy, Edward Elgar Publishing, Gloucestershire, UK.

Mezzadri, A. (2022). The social reproduction of pandemic surplus populations and global development narratives on inequality and informal labour. Development and Change, 53(6), 1230-1253.

Mezzadri, A., Newman, S., & Stevano, S. (2022). Feminist global political economies of work and social reproduction. *Review of International Political Economy*, *29*(6), 1783-1803.
Mezzadri, A., Rai, S. and Stevano, S. et al. (forthcoming). Pluralising Social Reproduction Approaches. *International Feminist Journal of Politics.*

Mies, M. 1986. *Patriarchy and Accumulation on a World Scale: Women in the International Division of Labour.* London: Zed Books.

Mohai, P., Pellow, D., Roberts, T. (2009) Environmental Justice. Annual Review of Environment and Resources 2009 34:1, 405-430

Moore, J. W. (2015). *Capitalism in the Web of Life: Ecology and the Accumulation of Capital*. Verso Books.

Naidu, S. C. (2023). Circuits of Social Reproduction: Nature, Labor, and Capitalism. *Review of Radical Political Economics*, *55*(1), 93-111.

Natarajan, N., Newsham, A., Rigg, J., & Suhardiman, D. (2022). A sustainable livelihoods framework for the 21st century. *World Development*, *155*, 105898.

Navas-Alemán, L. (2011). The impact of operating in multiple value chains for upgrading: the case of the Brazilian furniture and footwear industries. *World development*, *39*(8), 1386-1397

Newman, S., and Takala-Greenish, L. (2014). African Industrialisation: Is Global Value Chain Development the Answer? Presented at Joint South Africa-EU initiative, TIPS and Dialogue Facility Conference: International Conference on Manufacturing-Led Growth for Employment and Equality 20-21 May 2014, Johannesburg, South Africa

Ngcukaitobi, T. (2021). *Land matters: South Africa's failed land reforms and the road ahead*. Penguin Random House South Africa.

Ng'weno, A. and Porteous, D. (2018). *Let's be real: The informal sector and the gig economy are the future, and the present, of work in Africa*. Centre for Global Development, CGD Note, October 2018. Available here, accessed 11 December 2023.

O'Laughlin, B. (1996). Through a divided glass: dualism, class and the agrarian question in Mozambique. *The Journal of Peasant Studies*, *23*(4), 1-39.

Ossome, L. & S. Naidu 2021. "The agrarian question of gendered labour". In *Labour Questions in the Global South*, P. Jha, W. Chambati & L. Ossome (eds), 63– 86. Singapore: Springer Nature.

Parris, Christie L., Karen A. Hegtvedt, Cathryn Johnson, and Lesley Watson. (2014). "Justice for All? Factors Affecting Perceptions Environmental and Ecological Injustice" Social Justice Research 27(1):67-98.

Patnaik, U., & Patnaik, P. (2016). *A theory of imperialism*. Columbia University Press.

Patnaik, P. (2009). *The value of money*. Columbia University Press.

Payne, S., & Doyal, L. (2010). Gender equity or gender equality in health?. *Policy and Politics*, *38*(1), 171.

Ponte, S. (2022). The hidden costs of environmental upgrading in global value chains. *Review of International Political Economy*, *29*(3), 818-843.

Posel, D. (2001). How do households work? Migration, the household and remittance behaviour in South Africa. *Social Dynamics*, *27*(1), 165-189.

Pahl, S., & Timmer, M. P. (2020). Do global value chains enhance economic upgrading? A long view. *The journal of development studies*, *56*(9), 1683-1705.

Pickbourn, L. J. (2011). *Migration, remittances and intra-household allocation in northern Ghana: Does gender matter?* Doctoral dissertation, University of Massachusetts Amherst.

Quisumbing, A. R., & Pandolfelli, L. (2010). Promising approaches to address the needs of poor female farmers: Resources, constraints, and interventions. *World development*, 38(4), 581-592.

Quisumbing, A. R., Hallman, K., & Ruel, M. T. (2007). Maquiladoras and market mamas: Women's work and childcare in Guatemala City and Accra. *The Journal of Development Studies*, *43*(3), 420-455.

Rao, S. *et al*. 2021. Work and social reproduction in rural India: lessons from time- use data, Working Paper 535. Amherst, MA: Political Economy Research Institute, University of Massachusetts – Amherst.

Reddock, R. 1984. *Women, Labour and Struggle in 20th Century Trinidad and Tobago, 1898– 1960*. The Hague: Institute of Social Studies.

Roberts, A. (2016). Household Debt and the Financialization of Social Reproduction: Theorizing the UK Housing and Hunger Crises, in Soedeberg, S. (ed.) *Risking Capitalism* (*Research in Political Economy, Vol. 31*), Emerald Group Publishing Limited, Leeds, pp. 135-164. https://doi.org/10.1108/S0161-723020160000031009

Rodrik, D. (2018). New technologies, global value chains, and developing economies. Working Paper No. 25164, NBER. https://www.nber.org/papers/w25164

Rosenstein-Rodan, P. N. (1961). Notes on the theory of the 'big push'. In *Economic Development for Latin America: proceedings of a conference held by the International Economic Association* (pp. 57-81). London: Palgrave Macmillan UK.

Rohit, K. (2023). Global value chains and structural transformation: Evidence from the developing world. *Structural Change and Economic Dynamics*, *66*, 285-299.

Rodney, W. (2018). *How Europe Underdeveloped Africa*. Verso Books.

Sanyal, K. (2007). *Rethinking capitalist development: Primitive accumulation, governmentality and post-colonial capitalism*. Routledge.

Schaffartzik, A., Pichler, M., (2017). Extractive Economies in Material and Political Terms: Broadening the Analytical Scope. Sustainability 9.

Schlosberg, D., & Collins, L. B. (2014). From environmental to climate justice: climate change and the discourse of environmental justice. *Wiley Interdisciplinary Reviews: Climate Change*, 5(3), 359-374.

Seguino, S. 1997. "Gender wage inequality and export- led growth in South Korea". *Journal of Development Studies* 34 (2): 102– 32.

Sen, A. (1983). Development: Which way now?. *The economic journal*, *93*(372), 745-762

Selwyn, B. (2019). Poverty chains and global capitalism. *Competition & Change*, *23*(1), 71-97.

Stevano, S. (2023). Centring social reproduction in the study of development. Development Studies Association blog post, https://www.devstud.org.uk/2023/02/14/centring-social-reproduction-in-the-study-of-development/ (accessed on 22 November 2023).

Stevano, S. (2022). Classes of working women in Mozambique: an integrated framework to understand working lives. *Review of International Political Economy*, *29*(6), 1847-1869.

Storm, S. (2015). Structural change. *Development and Change*, *46*(4), 666-699.

Suwandi, I. (2019) *Value Chains: The New Economic Imperialism*. Monthly Review Press

Suwandi, I., Jonna, R. J., & Foster, J. B. (2019). Global commodity chains and the new imperialism. *Monthly Review*, *70*(10), 1-24

Svarstad, H., Anja Sletten, Riikka Paloniemi, David N. Barton, Maryanne Grieg-Gran. (2011). Three types of environmental justice - From concepts to empirical studies of social impacts of policy instruments for conservation of biodiversity. PolicyMix Report Issue No 1

Taglioni, D., Winkler, D., 2016. Making Global Value Chains Work for Development, in: Making Global Value Chains Work for Development, Trade and Development. The World Bank, pp. i–xxii. https://doi.org/10.1596/978-1-4648-0157-0_fm

Tregenna, F. (2009). Characterising deindustrialisation: An analysis of changes in manufacturing employment and output internationally. *Cambridge journal of economics*, *33*(3), 433-466.

Tsikata, D. (2006). *Living in the Shadow of the Large Dams: Long Term Responses of Downstream and Lakeside Communities of Ghana's Volta River Project*. Leiden and Boston: Brill.

Tsikata, D. (2009). Gender, Land and Labour Relations and Livelihoods in Sub-Saharan Africa in the Era of Economic Liberalisation. *Feminist Africa*, (12), 11-30.

United Nations Conference on Trade and Development (UNCTAD) (2015). Global Value Chains and South-South Trade. Geneva: Economic Cooperation and Integration among Developing Countries, UCNTAD.

United Nations Conference on Trade and Development (UNCTAD) (2018). World Investment Report, 2018. Geneva: Economic Cooperation and Integration among Developing Countries, UCNTAD.

United Nations Conference of Trade and Development (UNCTAD) (2023). The state of commodity dependence 2023. https://unctad.org/publication/state-commodity-dependence-2023

Walker, G. (2010): Environmental justice, impact assessment and the politics of knowledge: The implications of assessing the social distribution of environmental outcomes. Environmental Impact Assessment Review 30 (2010): 312-318.

Waring, M. 1988. *If Women Counted: A New Feminist Economics*. London: HarperCollins.

Warlenius, R., Pierce, G., Ramasar, V. (2015): Reversing the arrow of arrears: The concept of "ecological debt" and its value for environmental justice. Global Environmental Change 30, 21–30.

Waterhouse, P., Hill, A. G., & Hinde, A. (2017). Combining work and child care: The experiences of mothers in Accra, Ghana. *Development Southern Africa*, *34*(6), 771-786.

WCED (1987). Food 2000: Global Policies for Sustainable Agriculture, a Report of the Advisory Panel on Food Security, Agriculture, Forestry and Environment to the World Commission on Environment and Development. London: Zed Books.

Wiedmann, T., Lenzen, M. (2018) Environmental and social footprints of international trade. Nature Geosci 11, 314–321

Winders, J., & Smith, B. E. (2019). Social reproduction and capitalist production: A genealogy of dominant imaginaries. *Progress in Human Geography*, *43*(5), 871-889.

WITS (2023). World Integrated Trade Solution, trade statistics. World Bank. Accessed on 8/12/2023.

Wolpe, H. (1972). Class, race and the occupational structure. In *Collected seminar papers* (Vol. 12, pp. 98–119). Institute of Commonwealth Studies.

World Bank (2023). International Debt Report 2023. Washington DC: World Bank.

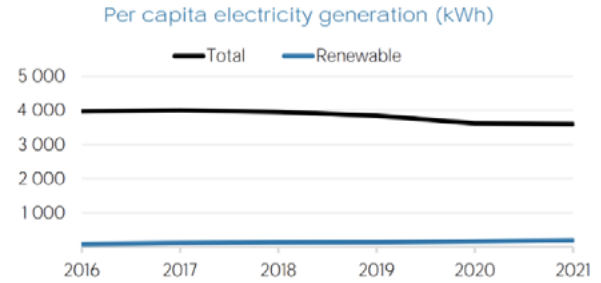
Yaka, Ö. (2019), Rethinking Justice: Struggles For Environmental Commons and the Notion of Socio-Ecological Justice. Antipode, 51: 353-372.

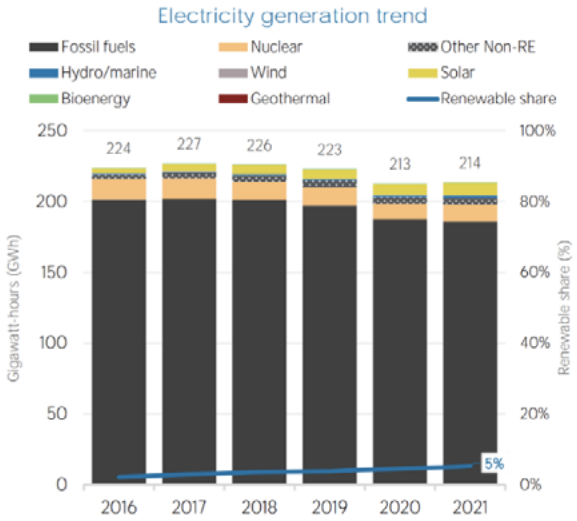
ANNEXURE 1. ELECTRICITY GENERATION, CAPACITY UTILISATION AND INSTALLED CAPACITY IN SOUTH AFRICA, KENYA, AND GHANA

South Africa's energy mix is very much dominated by non-renewable energy, which in 2021 made up 95% of all generated electricity. Fossil fuels and nuclear energy are hence outweighing renewable energy sources, such as hydro and marine (4%), solar (1%) and wind (0%) (see graph 1). However, given that the capacity utilisation for fossil fuels and nuclear energy are at 47% and 69% respectively, whole solar and wind are at 16% and 1%, there is potential for massive expansion of energy generation using renewable sources (see graph 2). In recent years, the trend for installed capacity has reflected this potential to utilise the unused capacity in wind and solar energy generation, as both have seen a substantial increase in installed capacity (see graph 3).

Graph 1: Electricity Generation, South Africa

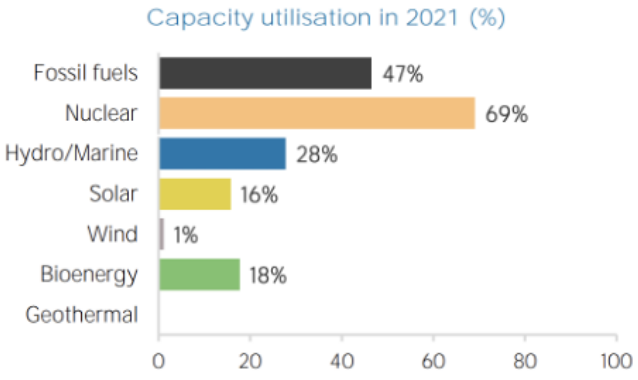
Generation in 2021	GWh	%
Non-renewable	202 554	95
Renewable	11 027	5
Hydro and marine	1 825	1
Solar	8 526	4
Wind	266	0
Bioenergy	410	0
Geothermal	0	0
Total	213 580	100





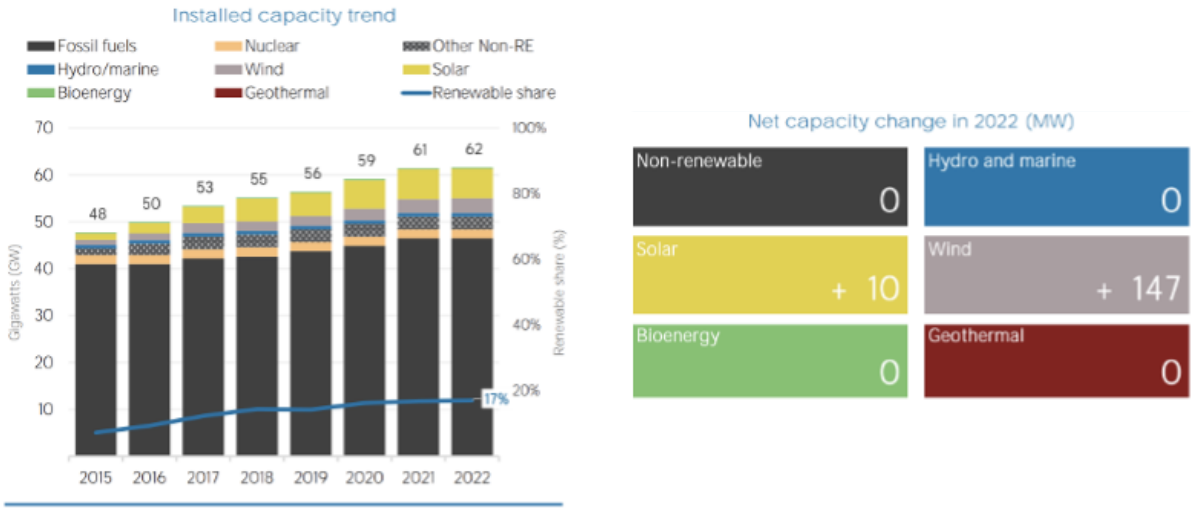
Source: IRENA, 2023a

Graph 2: Capacity Utilisation, South Africa



Source: IRENA, 2023a

Graph 3: Installed capacity trend and net capacity change, South Africa

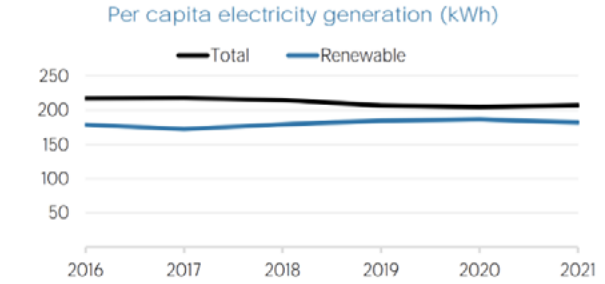


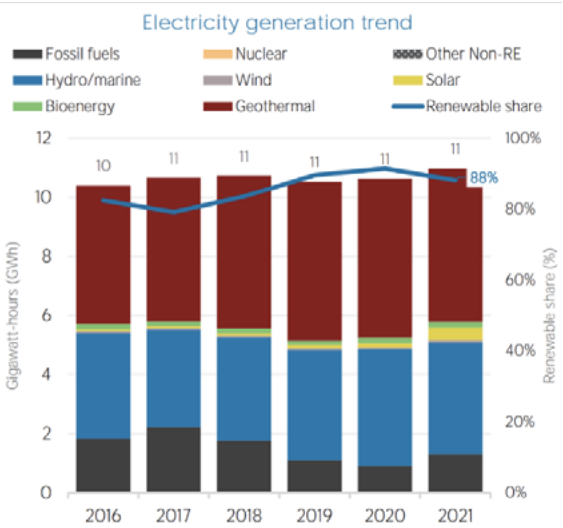
Source: IRENA, 2023a

Meanwhile, the renewable energy picture looks drastically different in **Kenya**. While renewable energy made up 88% of all generated electricity in 2021, solar and wind energy only contributed to 4% and 1% respectively (see graph 4). Capacity utilisation of solar and wind are still quite low in Kenya, particularly with regards to wind energy (graph 5). And while recent trends show that the country is augmenting its solar as well as wind capacity drastically, there is still a lot of potential for expanding the use of wind and solar energy generation (see graph 6).

Graph 4: Electricity Generation, Kenya

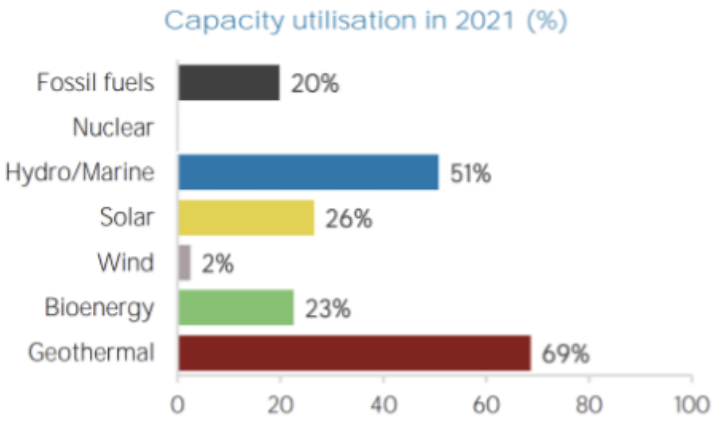
Generation in 2021	GWh	%
Non-renewable	1 301	12
Renewable	9 663	88
Hydro and marine	3 781	34
Solar	422	4
Wind	83	1
Bioenergy	195	2
Geothermal	5 183	47
Total	10 965	100





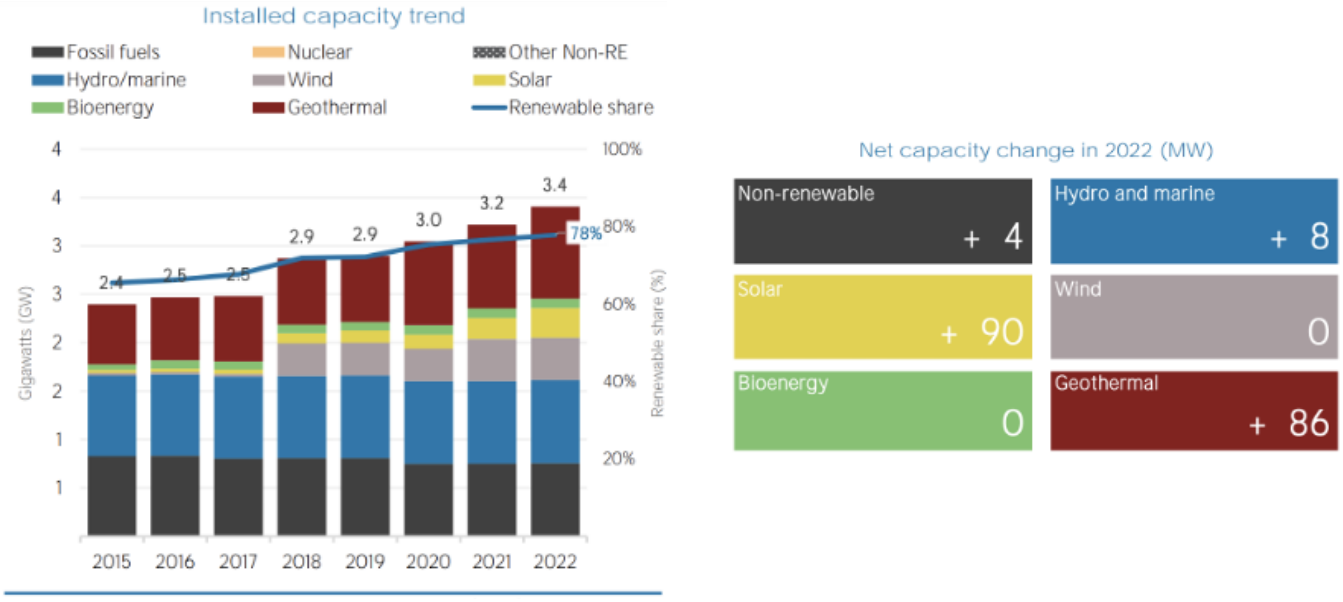
Source: IRENA, 2023b

Graph 5: Capacity Utilisation, Kenya



Source: IRENA, 2023b

Graph 6: Installed capacity trend and net capacity change, Kenya

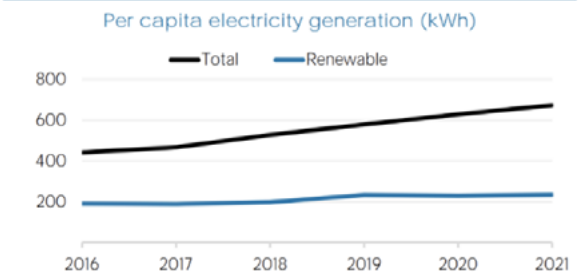


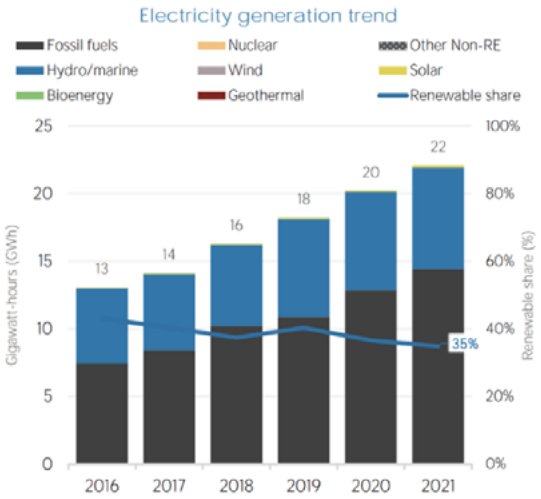
IRENA, 2023b

In **Ghana**, the energy mix is dominated by fossil fuels on one hand (65% of all generated electricity) and by hydro and marine energy (34%) on the other. Solar and wind energy only make up for 1% of all generated electricity in Ghana (see graph 7). Different from South Africa and Kenya, and despite the fact that capacity for both renewable sources of energy is largely underutilised (graph 8), there was little change to the installed capacity of wind and solar in recent years (see graph 9).

Graph 7: Electricity Generation, Ghana

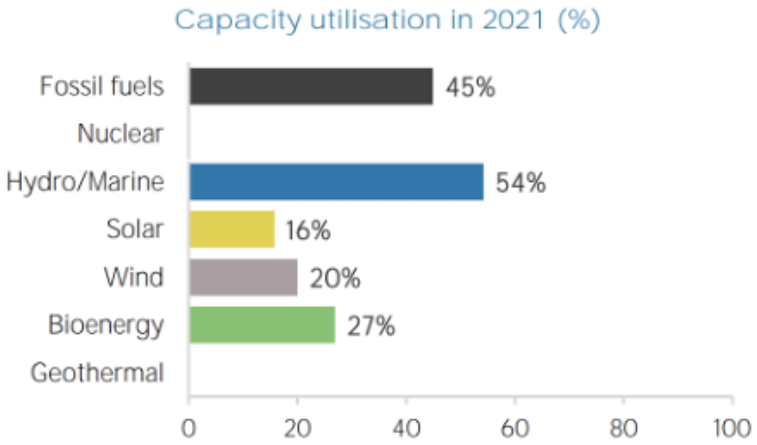
Generation in 2021	GWh	%
Non-renewable	14 408	65
Renewable	7 690	35
Hydro and marine	7 521	34
Solar	149	1
Wind	0	0
Bioenergy	20	0
Geothermal	0	0
Total	22 098	100





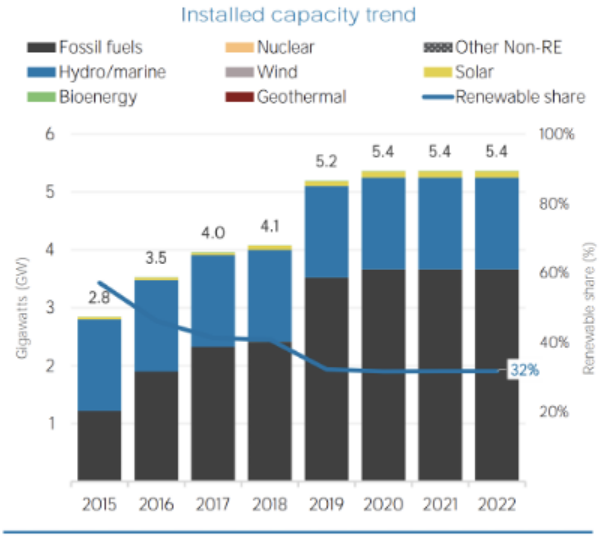
Source: IRENA, 2023c

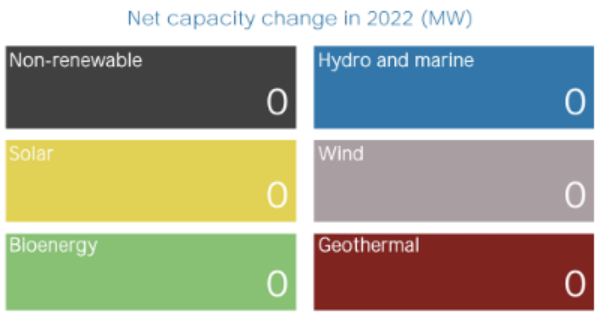
Graph 8: Capacity Utilisation, Ghana



Source: IRENA, 2023c

Graph 9: Electricity Generation, Ghana





Source: IRENA, 2023c