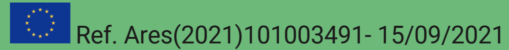
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A Just Transition to Circular Economy

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# GENDER JUSTICE AND CIRCULAR ECONOMY

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JUST2CE

A Just Transition to Circular Economy

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JUST2CE

A Just Transition to Circular Economy

## PROJECT No. 101003491

Just2ce will assess the current state of transition towards the circular economy in relevant economic sectors and analyse possible transition scenarios, as well as their outcomes and impacts. It will identify the key factors that can stimulate or hinder this transition. Natural resources are extracted and transformed into products, which are eventually discarded. As many natural resources are finite, it is important to keep materials in circulation for as long as possible. This makes the transition to circular economy more vital than ever but is a responsible, inclusive, and socially just transition to a circular economy possible or even desirable? What technical, political, and social factors can enable or hamper such transformation? The EU-funded JUST2CE project will answer these questions. It will explore the economic, societal, gender and policy implications of the circular economy paradigm. The project's findings will shed light on how to ensure democratic and participatory mechanisms when designing and managing such technology.

### History Chart

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# Executive Summary

Adopting a Feminist Ecological Economics (FEE) perspective, this report defines a gender-just Circular Economy (CE) as one based on a redefinition of value that includes unpaid services provided in households, communities and nature to sustain the social and environmental context of human life. This implies centring the definition of value on social and environmental care, i.e. the work that counters the depleting effects of the market economy upon both humans and the environment, granting the regeneration, restoration and healthy functioning of people and environments. New economic indicators that can adequately account for the value of social and environmental care are thus essential to the development of a gender-just CE.

Key findings

1. Gender is not a synonym with women. It indicates social norms that shape social performance, including the division of labour in society, and economic valuation. Women are an internally differentiated category, intersected by class, race/ethnicity, ability and other differentiations; consequently, gender justice does not coincide with gender equality.
2. Social and environmental reproduction are interconnected through care work. Care work is performed in households, communities and the environment, mostly (but not exclusively) by women. Due to gender constructs that associate them with reproductive and care work, women tend to be underrepresented in the valued economy, and overrepresented in the unvalued (or low-value) economy. This also applies to women in the CE.
3. Gender and value constructs are deeply co-constitutive. Gender norms associate value with the production of commodities, and devalue social and environmental reproduction, assigning it to socially marginalized subjects, mostly (but not exclusively) women. Consequently, gender justice cannot be achieved without also transforming value.
4. Feminist Ecological Economics shows that GDP growth is based on socially necessary but devalued reproduction; this makes it unsustainable. Consequently, FEE proposes to measure wealth in terms of social provisioning and re-productivity, rather than growth of productivity.
5. CE is shaped by gender. Nevertheless, most of the systematic ways of approaching production processes from a life cycle perspective, do not contemplate gender differences in the organization or at the consumer end, and much less a value transformation based in gender justice principles.
6. CE holds potential for promoting gender justice, but this goal has not been pursued so far; to do so a broader transformation of valuation mechanisms would be required in CE, in the sense of redefining the value produced in CE as formed by both paid and unpaid work.
7. Gender justice does not consist in including women in the value-oriented CE, but in making the CE care-oriented. To be gender just, the CE must aim at closing the loop between productive (i.e. valued) and reproductive (i.e. devalued) work.

JUST2CE

A Just Transition to Circular Economy

# Table of Contents


1. Introduction 7

2. Feminist Ecological Economics 8

   i. FEE and sustainability 10

   ii. FEE and care 11

   iii. Social provisioning and quality of life indicators 11

3. **Circular Economy from a gender perspective** 13

   i. Gender and care in the valued CE 14

   ii. Gender and care in the unvalued CE 16

4. Conclusions 18

5. References 19

6. Appendix. Bibliometric analysis and literature review 21


# List of abbreviations

| | |
|---|---|
| **CE** | *Circular Economy* |
| **FEE** | *Feminist Ecological Economics* |
| **UNIDO** | *Industrial Development Organization of the United Nations* |
| **GDP** | Gross Domestic Product |
| **QoL** | Quality of Life |
| **HDI** | Human Development Index |
| **UNDP** | United Nations Development Program |
| **GPI** | Genuine Progress Indicator |

| | |
|---|---|
| **SDGs** | Sustainable Development Goals |
| **P** | Phosphorus |
| **SMEs** | Small and Medium-sized enterprises |
| **CEN** | Confederation of Navarre Entrepreneurs |
| **PEC** | Public Ethics of Care |
| **NYC** | New York City |
| **WOS** | Web of Science |
| **JFE** | Journal of Feminist Economics |
| **EEJ** | Ecological Economics Journal |

# [1] Introduction

This report investigates the meaning of "gender justice" for a just transition to CE. A preliminary note is necessary to introduce the concept of gender, and clarify that **gender is not a synonym for the female sex, but** – as defined by the H2020 expert group on Gendered Innovation – **'refers to socio-cultural norms, identities and relations that, together, shape and sanction "feminine" and "masculine" behaviours, and which are complex and change across time and place.'** (European Commission 2020: 14). Feminist political economy frames gender as a function of the social division of labour, rather than as a pre-determined category, and investigates its relevance to how an economy is organized and performed. Furthermore, gender is not the only element that characterizes people's position in the social division of labour, because it intersects with a broader set of social differentiations, such as racial or ethnic origin, age, socioeconomic status, sexual orientation, or disability. Since these multiple differentiations further shape the social division of labour along value hierarchies, gender justice can only be achieved by taking all of them into account. Nevertheless, the dominant approach in economic policies and planning is that of overlapping gender with 'women', considering the latter as a pre-determined and homogeneous category.

This report offers conceptual tools for expanding our understanding of gender in the context of CE. Our starting point is a recent report on CE and gender from the Industrial Development Organization of the United Nations (UNIDO 2022), which shows

1. an over-representation of women in "low-value added, informal and end-of- pipe activities of the circular economy, including recycling, reuse and waste management"
2. an under-representation of women in "higher value-added circular activities such as industrial eco-design, the development of circular products and other activities involving greater use of advanced technologies"

The initial problem raised by this report, that of women's exclusion from value-added CE, can be taken as an entry point into a discussion of economic valuation mechanisms more broadly. In the UNIDO framework, women are understood as a category of discriminated people, and gender justice as an approach aimed at tackling such discrimination. Nevertheless, **the root causes of gender discrimination, as well as the unequal valuation of different sectors of the CE, remain unquestioned.** This report adopts a broader definition of gender justice, which aims at questioning and ultimately reframing both gender and value inequalities. Our analysis is based on the approach of Feminist Ecological Economics (FEE), reviewed in section 1, which allows to see reproductive work in all its forms (biological, social, environmental – all of them mostly performed by women) as a fundamental contribution to sustainability. This raises the question: **how could the CE redress the under or devaluation of reproductive work?**

In addressing the above question, this report develops in three parts: first, we offer an overview of key concepts in FEE that will guide our discussion of gender justice and CE; second, we examine an emerging body of specialized literature that intersects CE with gender and care; finally, we discuss our findings and elaborate some research and policy recommendations for a gender-just CE. The Appendix offers further details on criteria adopted in our bibliographic search and a conceptual mapping of intersections between FEE and CE.

# [2] Feminist Ecological Economics

This section is meant to give readers a sense of key theoretical debates and empirical findings in FEE. This approach stems from scholarship developed at the intersection between feminist economics/feminist political economy and ecological economics, with fundamental contributions from political ecology.

Since the 1970s, feminist political economy has investigated the nexus between production, reproduction, and gender, allowing to expand and deepen our understanding of gender as related to work and to "the economy" more broadly. The most fundamental contribution of this approach is the claim that **the formal economy, or production for the market, is only one aspect of the overall economic picture, which would collapse without human, social and ecological reproduction, largely taking place outside the market**. The Diverse Economies iceberg (fig. 1) is probably the most well-known graphic representation of feminist political economy.

**Figure 1: The Diverse Economies Iceberg**

Source: Community Economies Research Collective (CERN)

https://www.communityeconomies.org/resources/diverse-economies-iceberg

While the tip of the iceberg represents transactions which are included in the formal economy (via money), constituting the essence of what political economy considers 'production', the base represents all those which are typically excluded, and yet are necessary to the very existence of the former. These are conceptualized under the category of

'reproduction'. The sea level, discriminating between the two parts of the iceberg, represents valuation in GDP accounting.

Feminist political economy defines social reproduction as the processes, mechanisms and institutions upon which societies and communities, as well as power and production are built. The three main aspects of social reproduction, as identified in the feminist literature are: 1) biological, or intergenerational reproduction 2) reproduction of labour power and 3) reproduction of social relations, via social practices connected to caring, socialization and the fulfilment of human needs (Bakker and Gill 2003: 4). In short, social reproduction is understood as the reproduction of the totality of social life, which includes not only material life and modes of production, but also the way of life, social values and cultural and political practices associated with them. **Care work is a core dimension of social reproduction**. It can be defined as the work of looking after the physical, psychological, emotional and developmental needs of one or more people. Or, as Pérez Orozco (2019) put it, care work refers to the set of activities that ultimately ensure life and that acquire meaning within the framework of interpersonal relationships (that is, the subjects involved interact and establish links with each other by managing a reality of interdependence). **Often invisible and unrecognized as work, care takes place in homes, communities and the public sphere, in the urban and rural environment, on the land, and in many earth-systems where people meet subsistence needs**. Though waged workers, urban dwellers, peasants and Indigenous people perform different forms of care and subsistence work, often combined with paid work, the burden of necessary care work tends to concentrate upon the shoulders of women and other disadvantaged groups within these communities.

Since unpaid **reproductive work tends to be performed by women**, and this places them predominantly at the base of the iceberg, most gender equality policies aim to transfer women to the tip of the iceberg by removing existing barriers to their inclusion in the formal economy, e.g. providing formal education and job opportunities. While this anti-discrimination approach is ethically and politically necessary, it is insufficient to bring gender justice. On the one hand, simply adding waged work to women's daily lives does not in itself eliminate the unpaid tasks that gender norms assign them in households and communities; it is amply demonstrated how this often generates a double burden of work for women. On the other hand, **gender parity approaches reinforce existing valuation mechanisms, which exclude most of social reproduction work from the sphere of what counts as relevant to "the economy".**

The iceberg economy figure is also relevant to ecological economics, and thus to CE. In fact, it shows how **GDP growth is (literally) based on the devaluation of all the work that is necessary to reproduce not only societies but also their environments.** The connection between the devaluation of both women's work and the environment was first made by Australian political economist and politician Marilyn Waring. In her *Counting for Nothing. What Men Value and What Women are Worth* (1988), she argued that GDP is not an adequate measure of wealth because it discounts both the unpaid work of care and subsistence production and ecosystem services; in fact, **GDP accounting severely underestimates human and nonhuman reproduction and care work** (or the "production of life"), and/or considers them as passive sectors (economic costs). At the same time, GDP accounting includes human and environmental depletion/degradation as value-producing. A striking contemporary example is given by carbon trading and other financial mechanisms that turn the climate and biodiversity crises into financial opportunities. In short, Waring argued, **the paradox of GDP is that it values work correlated with human and environmental costs while devaluing work correlated with human and environmental services**. This approach showed how the unlimited growth of the valued economy requires an increase of unvalued work to support it, leading to crisis in both social and environmental reproduction. The link between these two forms of reproduction forms the starting point for FEE, a body of scholarship that sees ecological crisis as resulting from the devaluation of reproductive work.

In their early exploration of this scholarship, Ellie Perkins and Edith Kuipfer (2005) offered a first systematization of literature that, since the early 1990s, had explored the link between the marginalization of unpaid care and of the environment in neoclassical theory. They found these connections in feminist political economists like Bina Agarwal (1992), Mary Mellor (1997), Ellie Perkins (1997), Julie A. Nelson (1997) and Sabine O'Hara (1995) among others. As Mary Mellor (2005) pointed out in her contribution to the same special issue, although Ecological Economics had then mushroomed as an area of inquiry, it had barely mentioned gender or women – just as Feminist Economics had largely ignored ecological concerns. Both, however, covered topics that did not lend themselves easily to monetary evaluation, including domestic work and reproduction in the case of feminist economics and biodiversity and ecological knowledge

in the case of ecological economics. Merging the two perspectives, **FEE focuses on the theoretical and material links between environmental and social reproduction, and the centrality of both these processes to the economy**, conceptualizing sustainability from a socio/eco-systemic approach that includes (rather than leaving out) reproductive and care work. This scholarship allows analysing the depletion, or wasting, of reproductive work as structurally linked to the degradation, or wasting, of the environment. **FEE strives to find alternative ways of measuring economic performance as centred on human and environmental well-being**, and the levelling of inequalities and power relations, not only in terms of gender but also class, race (or colonial relations), and other inequalities. Furthermore, since the global linear economy incorporates a large amount of unpaid work, some FEE scholars argue that this is premised on "embodied debt" (Salleh 2009), i.e. the debt owed by each national economy to unpaid or severely underpaid re/producers for their active contribution to social metabolism. Consequently, **the FEE literature puts on the table the question of valuing unpaid reproductive work (domestic, social, but also environmental**, e.g. the work of sorting waste, repairing and reusing objects, restoring or regenerating habitats), and its monetary or non-monetary compensation.

In what follows, we develop a review of FEE based on 33 articles that we selected through a search of the term Feminist Ecological Economics, by tittle, keywords and abstract. We conducted this search in the two reference journals of both fields (the Journal of Feminist Economics, and the Journal of Ecological Economics), but also in Web of Science and SCOPUS databases (see Appendix). Our literature review highlights three key concerns in the FEE literature: 1) sustainability, 2) care work, and 3) quality of life indicators.

## [2.1] FEE and Sustainability

The concept of sustainability in FEE is discussed with a critical approach that questions the neoliberal framework of sustainable development, which promotes GDP growth as the only means to reach prosperity, even though this neglects the bases of every economy: care work and nature. In fact, **adopting the lens of reproduction and care work, the relationship between human beings and the biosphere appears substantially different than when focusing on production or consumption**. When the production of / care for people is connected with the production of / care for healthy environments, the positive, i.e. nurturing, restoring, repairing and life-sustaining potential of housework become evident. This positive link raises the question of **bringing care work center-stage in sustainability**, and thus in CE practices and policies. It also raises the question of how to organize environmental care in gender-equal terms so that it does not fall exclusively upon women's shoulders (Yanez, 2021).

According to Gottschlich and Bellina (2017), the mainstream sustainability discourse has failed to address the structural significance of (unpaid) care work, not only for the economic system but also for the reproduction of society as a whole. They argue that sustainability needs to be based on a "critical-emancipatory" conceptualization, driven by environmental justice and feminist political economy. Since the late 1990s feminist ecological economists noted how Quality of Life indicators also continued to ignore social and environmental sustainability (O'Hara 1999; see below for a discussion of indicators). From a FEE perspective, the dominant discourse on sustainability neglects the crisis of social reproduction, as well as the "interconnectedness" between the spheres of production and reproduction. For this reason, some authors find it pertinent to bring up the concept of "sustainability of life". A good number of articles from our FEE literature review incorporate this concept, which – as we shall see below – allows us to overcome the boundary between the monetized economy and the economy of what Dengler and Lang (2022) denominate "socio-ecological provisioning": the underwater part of the "iceberg model of the global economy", its devalued (care work) and destroyed (ecosystem functions) 'other' (2022: 7).

This approach, it must be noted, reflects the early intellectual contribution given by feminist political economists and ecofeminists to ecological economics and degrowth thought – a contribution "animated by a quest for transformations leading up to the good life or well-being" (Gregoratti and Raphael, 2019:94). A feminist approach to degrowth can be traced back to the path-breaking work of German sociologist Maria Mies (1987 [2014], who situated her critique of growth at the intersection between capitalist, colonial and patriarchal structures. For her, the most promising structural break with capitalist growth lies with the "subsistence perspective", a theoretical framework and set of alternative praxis that resonates very clearly with degrowth. Subsistence production is not oriented towards the accumulation of capital,

in fact the main purpose is the satisfaction of direct human needs, or the production of life in its widest sense. Subsistence is defined as a new way of looking at the economy based on the collective creation and maintenance of life (a good life) with others, such as in small-scale farming, farmers markets or urban gardening. All these practices take place through neighbours and communities with principles of mutual aid and reciprocity. Like Waring, Mies critiqued mainstream economic discourse for failing to account for and value the non-monetary economy, which includes unpaid work and nature (Gregoratti and Raphael, 2019).

Spencer, Perkins and Erickson (2018) see both social and biological reproduction as key elements of sustainability. FEE scholars concur in demanding alternative languages of valuation that put the sustainability of life in a prominent position (Dengler and Lang 2022), or putting "life in the centre" ("la vida en el centro"), of valuation mechanisms. This idea is developed in depth by Biesecker and Hofmeister (2010), who propose a reimagination and reorganization of "the economy" based on the category of (re)productivity. This concept arises from the need to (re)integrate production in its social and ecological context, encompassing all reproductive functions. As they put it: "The aim of economic thinking and action in a sustainable society will be to ensure the reproduction of all productive processes in nature and society, conceiving them as unity" (2010: 1709). In other words, for FEE sustainability must focus on closing the loop between production and reproduction. The key question then becomes how to rethink and (re)organize the CE in a way that it incorporates care work.

## [2.2] FEE and Care

Care work, and how to organize it, is a prominent topic for feminist ecological economists. Care work in FEE refers to tasks that are essential for individual wellbeing and the functioning of society (providing childcare, support for the elderly and sick), as well as to care for nature, as something interconnected with human wellbeing and generational renewal. The term "care" is also used synonymously with the term reproduction or reproductive labour. The issue of ecological care also appears tangentially through concepts such as "care about" and "care for" the environment, as manifested in both productive and reproductive work. More recently, an emerging feminist literature is including the repair of technical infrastructures in an enlarged definition of care work, although this is a controversial approach, that risks obscuring, once again, the relevance of 'life work' to ecological sustainability and transition (Carr 2022; Barca 2023). In any case, **care is understood as both work and ethics, i.e. as a political principle to transform the economy and society into intrinsically caring ones** (Dengler and Lang, 2022; Hanacek, Roy, Avila and Kallis, 2020; Nelson and Power, 2018; Gottschilch and Bellina, 2017; Nelson 19976; Perkins 2007; Biesecker and Hofmeister, 2010; Perkins and Kuiper, 2008; Bauhardt, 2014). At the same time, as claimed by the feminist ethics of care (Stensöta 2015), care work is a competence that does not "naturally" flow from the disposition of a particular group of people (women), because it is learned through social processes that include experiences and rational operations. The FEE literature focuses on how to (re)organize care work from a perspective that takes into account social and ecological sustainability, as well as gender justice, at the intersection of class and race/coloniality (Dengler and Lang, 2022; Hanacek, Roy, Avila and Kallis, 2020; Gottschilch and Bellina, 2017; Power, 2004).

Dengler and Lang (2022) frame the reorganization of care as a key degrowth issue. **Feminist degrowth authors reject the strategy of displacing unpaid care work to the monetized economy, which is considered problematic because it reinforces the structural separation in the economy between a (valued) productive sphere and a (devalued and mostly invisible) reproductive sphere.** The strategy of shifting unpaid care work to the paid care sector, by outsourcing it to the market or by calling for public provisioning, is seen as problematic rather than transformative, because it widens "accumulation-driven social relations" while also reinforcing the centrality of the monetized economy. It is also pointed out that this strategy reinforces intersectional and neocolonial power asymmetries. A relevant example of these power asymmetries are so-called global care chains, i.e. the shifting of reproductive work, especially domestic chores, childcare and elderly care, both in households and in institutions, to migrant women, who end up doing most of the necessary, but still underpaid care work in rich countries. These 'care chains', which create a void of care in the countries of origin, have been described as transnational networks comprised of households that transfer their care-giving tasks from one to another on the basis of power axes such as social class, ethnicity, place of origin and gender (Pérez Orozco 2019).

Neither public provisioning, however, is considered a solution. This is for two main reasons: first, because public provisioning ends up replicating managerial mechanisms that prioritize productivity over quality of care; second, because the welfare State model is premised on GDP growth, which in turn is “ecologically highly problematic” (Dengler and Lang, 2022: 12; see also D1.2). The authors advocate for an "emancipating decommodification of care", leading towards a "commonization of care". By “commonization of care”, the authors mean collective care arrangements beyond the dichotomy of money-mediated care work (market, state) and the unpaid care work in the heteronormative nuclear families; and based in a process of commoning with a concrete context-oriented and life-serving needs orientation: communitarian and transformative caring commons. The authors refer to some examples from the Global South of communitarian caring commons that have survived the colonial intrusion at the margins of capitalism. These “communal modes of reproduction” are based on a relative material autonomy (neither top-down nor state-driven) and often built within a specific territory, collectively used or owned (2022: 17). They also use specific examples from both Global South and North like communized childcare and schooling (Marinaleda, Spain), solidarity clinics (Thessaloniki) or the community- based solidary healthcare system that has emerged from the Cecosesola cooperative network in Venezuela (2022:18). Reorganizing reproductive work in communal, unpaid and socially recognized forms, they conclude, would allow us to overcome the boundary and the deep separation between valued/productive and unvalued/reproductive spheres.

## [2.3] Social Provisioning and quality of life indicators

Feminist ecological economists adopt a Social Provisioning approach, which allows for a broader understanding of the economy, including unpaid and nonmarket activities, framed as interdependent social processes. Power (2004) defines economics as the study of social provisioning, emphasizing that at its root, economic activity involves the way people organize themselves collectively to make a living (2004: 6). She summarizes the main components of Social Provisioning as follows:

- Unpaid and caring labour as a central element in economic analysis
- Human and environmental well-being as a central criterion of economic evaluation
- Considering power inequalities as structural drivers of economic and environmental performance
- Preference for qualitative analysis and ethical judgments. Valuing what cannot be commodified or quantified
- Avoid overly general statements about women's relationship with nature.

Adopting a Social Provisioning approach has driven FEE scholars towards researching wealth indicators that are alternative to GDP. They have pointed out that most Quality of Life (QoL) indicators continue to ignore the social and environmental dimensions of long-term sustainability, as well as power structures (epistemological, economic, political), thus perpetuating “the powerless-ness of those who carry the burden of providing unrecognized, yet essential, sustaining functions of nourishment, care, waste assimilation, and restoration.” (O’Hara [1999] 2010:86). FEE thus considers that the elements that should appear as fundamental when measuring QoL are precisely those functions that are invisible in current value systems: the services that are provided in households, the community and nature, that sustain the social and environmental context in which we live.

Berik (2018) highlights how **measuring economic well-being from a FEE perspective means recognizing not only market contributions to “the economy” (i.e. the tip of the iceberg in figure 1), but also social and environmental ones.** This is why both feminist and ecological economists disagree with the use of Gross Domestic Product (GDP) per capita as an indicator for economic well-being. Building on Waring’s (1987) work, FEE scholars see GDP as structurally part of a political economy centred on the commodification of everything, since it measures wealth as based on the development of the market economy. This way of measuring economic welfare, it is noted, appeals to those social forces that favour the expansion of market relations, disregarding the negative externalities generated by this process. Departing from this fundamental premise, Berik notes, **both feminist and ecological economists are internally divided over the possibility of tracking or assessing non-market contributions in well-being indicators**. On the one hand, positions arise that advocate monitoring unpaid reproductive work and “ecosystem services”, as well as environmental degradation, by attributing them monetary value. For those who take this position, these monetary valuations could

help inform public policies. Other scholars resist the use of quantitative measures and/or decry the use of monetary valuation as indicators of well-being, raising concerns about the risks of attaching prices to incommensurable contributors to human well-being. In line with these different approaches, various alternatives are proposed, that range from adding new components to GDP, as is the case of the Human Development Index (HDI) of the United Nations Development Program (UNDP), to designing more comprehensive measures of well-being, which include variables such as "subjective well-being" or "self-reported happiness". The latter approach has received significant criticism from the methodological and conceptual point of view, especially for its inability to capture the variety of objectives that are necessary to achieve well-being (Berik, 2018:4)

**One of the most relevant alternatives to GDP is the GPI (Genuine Progress Indicator),** which is considered as responding to the concerns of feminist and ecological economics, because it includes unpaid work in the home as a key contribution to economic well-being (Berik 2018). This is important because GDP per capita does not take into account the distribution of income within households, which has significant effects on social and individual well-being. The GPI also includes ecosystem functions and volunteering work. Nevertheless, the quantification or monetization of care work are contested practices because they have not led to reducing the undervaluation of unpaid work carried out by women, nor to feminist policies that "transform the economy" (Berik 2018). One of the proposed alternatives, according to Ellie Perkins (2007), would be that of using non-monetary measures such as time units.

# [3] Circular Economy from a gender perspective

This section reviews studies that apply a feminist approach to the CE. The literature review on FEE led us to the preliminary conclusion that CE and FEE scholars largely ignore each other. Therefore we decided to search for articles in the Web of Science database including both "CE" and "gender" in tittle, keywords and abstracts: this resulted in 41 articles - of which we selected 21 for relevance - including gender as a socio-economic aspect or indicator for their analysis of CE. Of these, 7 explicitly adopt a feminist perspective. We then searched the Web of Science database for articles with both the terms "CE" and "care" in title, keywords or abstracts, obtaining 13 articles, only 5 of which specifically analyse care from a gender perspective. Two of these coincide with findings from the 'CE and gender' search.

The table below includes the 10 original articles resulting from the two selections.

Table 1. Original articles resulting from the two selections

| Authors | Title | Journal | Publication date |
|---|---|---|---|
| **Pla-Julian, I<br>Guevara, S** | Is circular economy the key to transitioning towards sustainable development? Challenges from the perspective of care ethics | FUTURES | 2019 |
| **Coghlan, C<br>Proulx, P<br>Salazar, K** | A Food-Circular Economy-Women Nexus: Lessons from Guelph-Wellington | SUSTAINABILITY | 2022 |
| **Vijeyarasa, R<br>Liu, M** | Fast Fashion for 2030: Using the Pattern of the Sustainable Development Goals (SDGs) to Cut a More Gender-Just Fashion Sector | BUSINESS AND HUMAN RIGHTS JOURNAL | 2022 |
| **El Wali, M<br>Golroudbary, SR** | Circular economy for phosphorus supply chain and its impact on social sustainable development goals | SCIENCE OF THE TOTAL ENVIRONMENT | 2021 |

| | | | |
|---|---|---|---|
| **Kraslawski, A** | | | |
| **Declich, A** | Society and materials: an interpretation of the subject in the light of sociology and gender | MATERIAUX & TECHNIQUES | 2018 |
| **McQueen, RH**<br>**McNeill, LS**<br>**Huang, QL**<br>**Potdar, B** | Unpicking the Gender Gap: Examining Socio-Demographic Factors and Repair Resources in Clothing Repair Practice | RECYCLING | 2022 |
| **Berry, B** | Glut: Affective Labor and the Burden of Abundance in Second-hand Economies | ANTHROPOLOGY OF WORK REVIEW | 2022 |
| **van der Velden, M** | 'Fixing the World One Thing at a Time': Community repair and a sustainable circular economy | JOURNAL OF CLEANER PRODUCTION | 2021 |
| **Morrow, O**<br>**Davies, A** | Creating careful circularities: Community composting in New York City | TRANSACTIONS OF THE INSTITUTE OF BRITISH GEOGRAPHERS | 2022 |
| **Yanez, PP** | Viability of circular economy in nonindustrialised countries and its adjustment to a proposal based on transformative economies: an approach to the latin-american scenario | CIRIEC-ESPANA REVISTA DE ECONOMIA PUBLICA SOCIAL Y COOPERATIVA | 2021 |

Generally speaking, two main findings emerge from this body of literature: 1) that **CE (in both theory and practice) holds important potential for promoting gender justice, but this goal has not been pursued so fa**r; and 2) that to do so **a broader transformation of valuation mechanisms would be required in CE**. By value transformation we understand an approach that redefines the value produced in CE as formed by both paid and unpaid work, including the unpaid reproductive work which is excluded by mainstream value theories and practices.

## [3.1] Gender and care in the valued CE

Like the linear economy, CE is shaped by gender. In their study of repair communities in Norway and The Netherlands, for example, **Van der Velden (2021)** claims that 'repair has gender', meaning that repair work follows traditional gender roles, with men occupying the majority of paid jobs in the repair sector in the EU (together with construction and mining). As **Pla-Julián and Guevara (2019)** argue, since neither consumers' attitudes and preferences, nor organizations, innovation, institutions or budgets are gender neutral, the implementation of a gender-just CE implies profound changes with long-ranging impacts at multiple levels. These authors emphasize how a proper consideration of gender issues is still missing from research on CE and, more broadly, on sustainability. They also point to the importance of actions such as increasing women's participation, promoting gender equality and generating gendered innovation, in order to address the socio-economic implications of CE and the possibility of transition towards sustainable development. The authors note that an analysis of production processes from a gender perspective could lead to identifying potential

challenges and even opportunities for improving gender equality while creating business opportunities or contributing to the achievement of SDGs. Nevertheless, most of the systematic ways of approaching production processes from a life cycle perspective, do not contemplate gender differences in the organization or at the consumer end, and much less a value transformation based in gender justice principles.

Focusing on the garment industry – the second biggest polluting industry globally, with a highly gendered workforce (around 75% women and girls) – **Vijeyarasa and Liu (2022)** argue that, rather than treating women's rights as an add-on, sustainability requires to be centred on a gender justice perspective. They define gender justice as: 1) the pursuit of equitable relationships between women and men, 2) acknowledgment for different grades of exclusion and marginalization among women, and 3) consideration for the specific impact of any public policy upon women's lives. Noting how 'sustainable fashion' forms a significant dimension of CE discourse, the article suggests that the enormity of throughput in garments (roughly 80 billion pieces a year) exerts a heavy (although hardly quantifiable) toll upon women workers.

One of the key barriers to fulfilling the rights of women workers in the fashion industry, they write, is that sustainability is not necessarily understood as requiring a gender perspective; they also note that SDGs tend to treat women as a monolithic category. This is more evident considering the relevance of women's multiple identities as workers in the garment sector, where the initiatives implemented in response to the SDGs, such as policies that provide for equal pay or prohibit discrimination among employees, do not actually affect the majority of women workers in this sector, who are informal or contract workers and therefore unable to benefit from these policies. Second, as garment workers are often migrant women that have moved to industrial zones, leaving behind children to be cared for, this means that unpaid and gendered labour currently sustains the global economy, including CE, in ways that frequently undermine women's rights. The authors thus suggest that not considering domestic activities and care work inside households as productive, or value-making, work, leads to inadequate policies. In short, considering all the above limitations of corporate gender policies, the authors recommend 'consumer's responsibility' as a key incentive towards shifting the garment sector towards a circular economy model. Nevertheless, this link between women's rights and circularity remains at the level of hypothetical assumption, raising the empirical question whether the shift to a CE model in fashion would automatically imply, or even simply incentivize, better working conditions.

Moving from garments to the agri-food sector, **Wali et al (2021)** develop a global comparative assessment of circular Phosphorus supply chains from the perspective of sustainable development goals, including SDG5 (gender equality). They find that the rate of employment inequality (percentage of women vs men employees) in circular P supply is significantly higher than the one in linear P supply chains (36% lower in CE vs 28% lower in LE). Since this study is based on estimates which only include P as commodity, however, it inevitably underestimates the contributions given by unpaid, community-led P supply – where the gender ratio might be just the opposite (see Morrow and Davies 2021, below). A study of small/local business engagement with CE in Canada, moreover, highlights how women form the majority among entrepreneurs and managers working with circularity in agriculture (**Coghlan, Proulx and Salazar, 2022**). The authors link this fact to the prevalent position of women as key managers of food at the household level, as well as to women representing the majority of the world's food producers, which, they add, gives them a central role in food security. Since the agri-food sector offers socio-ecological entry points to engage with CE, this gives women also a central role within the food supply chain, and particularly in circular food economy initiatives. Investigating a project called SOFF (Seeding Our Food Future) in Guelph-Wellington (Canada), the authors show how this implemented social goals more often than economics goals.

Explicitly adopting a feminist approach, **Pla-Julian and Guevara (2019)** point to the reproductive work (the vital cycles of both nature and households) whose invisibility lay at the roots of the coupled crises of social and environmental care. Coinciding with those feminist economists who consider this work 'productive', denouncing its feminization as a reflex of patriarchal culture, the authors highlight the relevance of an 'ethical and monetary revaluation' (8) of the contribution of households to societal wellbeing. The ethical aspect is predominant in their approach, which mostly relies on the work of feminist political theorist Joan Tronto and of Gendered Innovation theorist Londa Schiebinger. They point to how the gendered nature of business organizations – where women are seen as non-adhering to business priorities, due to their assumed prioritization of care over efficiency – de facto prevents a full realization of sustainability, reproducing the same valuation system that has led the world to the present crisis. Sharing the critique

of CE as focussed on value creation via the efficient management of materials, the authors point towards the need of shifting the focus instead to 'interconnections and interdependences within the biophysical and social worlds' (8) by reorienting the CE around an ethics of care.

The article is based on an exploratory study of 20 SMEs, conducted in Spain by the Confederation of Navarre Entrepreneurs (CEN), aimed at 'identifying business opportunities that might derive from implementing CE principles.' (10). This study relied on a CE toolkit developed by the University of Cambridge, which was shared and discussed with SME participants; focused on technical dimensions of the CE, the Cambridge toolkit lacked any consideration of the human and social. Nevertheless, the authors find that the most challenging dimension of transition to CE remains the social one, as 'shortcomings on the prevailing working conditions, labour practices, gender gaps in opportunities to unleash capacities and gendered organizations might prevent CE to avail opportunities to generate shared value.' (16). In particular, they point to the need for 'Increasing women participation, promoting gender equality, generating gendered innovation' as key to a CE transformation (ibid). Even though such seemingly automatic connection between gender inclusion and a care ethics approach in firms is questionable, the most interesting contribution of this study resides in its call for adding a Public Ethics of Care (PEC) framework (and related assessment indicators) into CE toolkits, so to reorient business models towards 'stablishing loops of care, virtual circles encompassing resources as well as people; and overcoming the obsessive pursuit of growth' (18).

PEC expands the scope of the ethics of care towards policy areas hitherto not considered care-oriented, such as environmental policies, as well as design strategies, policies and programs aimed at turning industrial models into "loops of care". The content of PEC is defined through four notions: interdependence, significance of relations (relations are important to human existence), responsibility (for common problems), and context sensitivity (addressing moral and political problems in a situated way). Stensöta (2015) highlights PEC's transformative power as [...a general public ethics directed to assist in policy formation and implementation] (2015:184). Built on an "ontology of interdependence", PEC focuses on the importance of relations – not only between humans, but also with the environment and with our future through progeny. Another important aspect of PEC is that it intersects care and justice ethics (Tronto 1994). Key to our argument here is the author's claim that the ethical content in PEC should be relevant in areas hitherto not considered as care-oriented, such as CE, because the breaking of the public/private boundary of care involves regarding care issues to be connected not only to how the labour market is organized, but also to the conditions in which people work.

Other authors develop a critique of corporate CE as fundamentally unjust, implicitly reflecting a more sceptical approach to the possibilities of implementing a just CE in the capitalist system: **Dauvergne and LeBaron (2013)**, for example, claim that corporate recycling plans are shifting capital's contradictions with nature onto labour and gender; and that, rather than maintaining a focus on value creation opportunities through a better management of material resources, the CE literature should take seriously the debate on the need to overcome the pursuit of growth. The authors argue that the corporatization of recycling is devaluing marginalized populations within the global economy. They show how in the recycling of electronic waste in the global South, the majority of the workforce comprises women and children, while in the US it is formed by men of colour from poor backgrounds. More specifically, the article exposes that: "Using archaic technology to extract value from what others have thrown away, this work exposes a highly racialised and gendered labour force to extreme levels of toxicity, contributing, particularly in the global South, to high rates of injury, illness and death" (411).

## [3.2] Gender and care in the unvalued CE

Conversely, a number of authors focus on non-corporate, i.e. community-oriented CE practices – specifically, repair, reuse and composting – developing what we call a value-transformative approach to CE. **Community-oriented CEs are described as the most fertile terrain for value transformation; however, they are also shaped by the currently dominant gender/value constructs**.

Focusing on reuse and repair communities, **van der Velden (2021)** highlights how a specific kind of 'value' is created through care for the objects, but also for their owners. The term community repair refers to citizen-driven, locally

organized public networks in which volunteer repairers and people with an object in need of repair are matched. In these communities, repair is considered a value-based activity reflecting a variety of economic and non-economic (i.e. sentimental or community) values, such as the sense of achievement, professional pride, and care for people and the planet. Interestingly enough, the author finds that gender roles are confirmed in community repair, with men performing most of repair work and women performing support-service activities, such as hosting repair events. They highlight how Do It Yourself (DIY) home improvement is theorized as productive consumption, as related to domestic masculinity and social class. Based on interviews with informants varying in cultural capital endowments, they find that through productive consumption at home, low- cultural-capital informants enact an identity ideal of family-handyman, thus fashioning themselves as rightful, masculine stewards; while high-cultural-capital informants fashion themselves as suburban-craftsmen performing self-therapeutic labour. Nevertheless, their research also highlights how gender roles are being explicitly challenged in some community-repair projects in the selected case study sites, concluding that 'Community repair is also an important site to address gender divisions in repair and can positively influence gender roles in tech work in general' (9). Based on surveys within Canadian and US consumers **McQueen et al 2022** show how self-repair was the most common form of clothing repair, with women being more highly engaged in these practices than men.

Drawing on theories of gendered social reproduction work, **Berry (2022)** investigates reuse communities, predominantly formed by volunteer women. The author proposes framing CE as an effort at closing the loop between production and reproduction by expanding our understanding of CE towards including care work, specifically that which takes place outside the household, in community-based reuse organizations. Investigating community thrift shops in rural Maine, the article highlights the labour of managing the daily overwhelming flow of used stuff, which the author defines as 'donation dumping', i.e. a practice that frees consumers of guilt, implicitly encouraging more consumption (thus keeping production going), and, in the process, depleting the labour of reuse volunteers. From a feminist political economy perspective, donation dumping represents the valued production that grows unsustainably over the unvalued labour of reproduction, understood here as caring for the environment by taking care of discarded objects. Berry argues that, just as it happens with reproductive work carried out within the household, community-based reuse tends to be underacknowledged and devalued compared to other kinds of labour, because of its gendered dimension. Reuse is characterized as an invisible care work because it is unpaid work mostly done by women volunteer and does not generate market value. 'If the unpaid care work volunteers perform is not seen as labour – the author argues – and the negative effects of this work on laborers are not counted among the potential harms of a linear system of production-consumption-disposal, then policies designed to address such systems will fail' (27). They call for 'a need to shift burdens onto producers' through 'extended producer responsibility programs', i.e. shifting our understanding of producers' responsibility from one centred on the environment, to one centred on both the environment and labour, including unpaid labour. Nevertheless, they conclude, 'Questions about the monetary value of this gendered, voluntary labour here elide the overarching problem: there is simply too much stuff' (33)

Investigating community composting in New York City, **Morrow and Davies (2021)** highlight how the main values in reuse and repair communities are related to enhancing social cohesion as well as individual and environmental wellbeing, but most of all it is the importance of the social, material and affective relations related to care work that is done in these contexts. The authors trace the lack of consideration for social values in CE discourse 'back to the emergence of political economy as a scientific approach' (533). Building on previous literature (Frian et al 2020) they claim that 'the social, ethical, and ecological concerns that were once at the core of the emerging CE discourse in permaculture and ecological design during the 1970s were slowly written out by the technocentric and capitalocentric approach that thrived in the field of industrial ecology and the neoliberal climate of the 1980s and 1990s' (ibid) Studies of the CE in the food waste sector, they argue, tend to concentrate on technical and managerial efficiency, while overlooking aspects such as the 'labour, health, equity, care, education, and participation' involved in composting programmes (ibid) – or else, the social reproduction basis of the CE iceberg. Adopting the non-capitalocentric perspective of Gibson-Graham's 'diverse economies' approach (see fig. 1), they develop an alternative framework of sustainability, based on 'a radical rethinking of economy and waste' to look beyond efficiency, privileging 'the affective, material, and ethical doing of care' (534). The authors define community composting as an activity based in "the notion that organic food waste is processed as closed to the sources where it was generated to capture the benefits of both the process and the finished product for the community" (530) In the case they analyse, transforming waste into commons facilitates collective forms of care, which contrasts market-oriented CE approaches based on revalorizing

waste as commodity – i.e. as individual profit-maximization. The authors criticize mainstream CE approaches for privileging economic productivity and efficiency or commodity production and exchange, and limitless growth. As they write: "Closing loops, without attending to social impacts, equity, justice, ethics, practices, or values, will not spur the just transitions that are so urgently needed" (539). This framing marginalizes and devalues care work (the paid and unpaid labours of caring for people and the planet).

This study considers four community composting sites in NYC. All of them imply a significant involvement of municipal agencies: located on public property of the city of New York, these initiatives rely on not only unwaged but also waged labour, paid for by the municipality. Nevertheless, they are all run by non-profit organizations, and work with donated waste, which they give back to the community as gifted compost, co-produced and shared with the communities who are usually at the receiving end of toxic waste from the linear economy, but also of large municipal composting infrastructures (e.g. youth from communities of colour). By processing food waste in the places where it is produced and collected, community composting allows to bypass the spatial injustice of centralized municipal composting facilities, which inevitably end up moving large quantities of waste into poorer communities of colour. Community composting is not only about closing material loops in urban metabolism, but also about countering environmental injustice, and 'circulating resources where they are most needed, according to the logics of care, social justice, and solidarity' (539). The authors argue that 'In direct contrast to the commercial and municipal kerb-side collection of organic waste and the mega-facility composting infrastructures which are exacerbating socio-environmental injustices, community composting ensures the value of end-of-life food remains within the territorial communities that create it' (541). However, following mainstream CE discourse, municipal assessments of composting tend to focus on economic efficiency rather than care and justice. As a consequence, turning waste into a common, rather than a commodity, makes community composting's contribution to sustainability largely invisible in GDP accounting, as well as in global Phosphorus accounting models as developed by El Wali et al (2021). In short, this study describes NYC community composting as an example of the unvalued and invisible caring labour that sustains the CE iceberg, but also of already existing alternative, justice-oriented ways of practicing CE.

# [4] Conclusions

The available empirical evidence demonstrates how the CE often reflects the same devaluation mechanisms that characterize the linear economy: first, women tend to occupy the lower value-added positions; second, reproductive and care work continue to be excluded from definitions of what is valued by the CE, with important consequences upon people's lives and wellbeing, as well as on the environment. Adopting the theoretical perspective of FEE, and reviewing the available studies on gender in the CE, we have shown how achieving gender justice in the CE requires more than a mere 'gender equality' approach. This is because, while gender equality would lead towards including (more) women in the formal economy, this would not, per se, alter the (de)valuation mechanisms that produce gender inequality in the first place. Further, and equally relevant to a CE perspective, the same devaluation mechanisms that exclude women from the formal economy are also a root cause of environmental degradation. What is devalued, in GDP-growth oriented economies, is reproductive work, i.e. the work of producing and caring for people and the environment. In short, the gender equality approach per se is not conducive to a just CE.

As feminist political economists have shown including women in the labour market has left sexual and racial divisions of labour unaddressed – leading towards either a double burden of work for women (waged work plus unwaged domestic/care/provisioning and subsistence work), or to the shifting of devalued caring responsibilities upon others (typically, racialized and/or migrant women). In short, making the CE equally accessible to women is a basic anti-discriminatory approach, but it would not tackle gender injustice per se. Further, since reproduction is mostly negentropic work, necessary to human and nonhuman wellbeing and (re)generation, if it is not adequately valued within the CE, this means that it will be shifted upon someone else/where – in short, circularity will not be achieved. Seen from a FEE perspective, the current formulation of CE is simply extending the mainstream theory of value towards waste – not changing the theory, i.e. the way we understand value. Similarly, a gender mainstreaming approach aims at including 'women' in the dominant system of valuation. The problem with both approaches, from a Just Transition perspective, is that they do not allow us to adequately address justice concerns. An effective gender justice approach, we argue,

would imply closing the loop between production and reproduction, i.e. overcoming the (gendered) value gap that generates environmental injustice.

In short, this report shows how both gender and value are deeply co-constitutive social constructs. In fact, as gender theory (including Gendered Innovation theory) makes clear, women perform reproductive and care labour due to gender norms, not nature. In turn, economic value is performed in accordance with social norms that exclude both social and environmental reproduction from the definition of what is valuable. Consequently, we argue that gender justice cannot be achieved without also transforming value. This also applies to the CE: in fact, most circular activities in the world are not considered CE because of social conventions about value (and money), not because they are not circular. As argued in JUST2CE D1.2, if value is understood in terms of surplus value in the globalized economy (i.e. presupposing credit and capital investment, trade relations, the exploitation of labour, and the free appropriation of reproductive work), then a large amount of circular activities are bound to remain outside of it. Consequently, an environmentally-just CE needs to be based on a redefinition of value that includes circular work in all its forms. This also applies to reproductive work – which is largely circular. Consequently, a gender-just CE needs to be based on a redefinition of value that includes reproductive work in all its forms.

Further research is needed to address how to reframe the CE so that it incorporates reproductive (and care) work, and particularly what new indicators might be developed that can adequately account for the value of social and environmental reproduction in CE.

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# [6] Appendix. Bibliometric analysis and literature review

We first searched in the Journal of Feminist Economics and in Ecological Economics for documents that had "Feminist Ecological Economics" in their title, abstract, or keywords. This filter returned only three documents specifically about FEE in the case of the Ecological Economics Journal, and 11 were about related concepts such as feminist economics, ecological economics, ecofeminism, socio-ecological reproduction, degrowth or women's work. In the case of the Journal of Feminist Economics only one of the documents was specifically about FEE, and 8 were about related concepts such as social provisioning, degrowth, care, feminist economics, ecological economics, sustainability, quality of life, feminist methodology or gender inequalities.

We then searched the SCOPUS and Web of Science databases also for documents that had "Feminist Ecological Economics" in their title, abstract, or keywords. The SCOPUS database returned six documents that already appeared in the Journal of Feminist Economics and in Ecological Economics. We did the same search without quotation marks, and we got 46 documents, but only 23 were about concepts related to FEE such as gender equality, climate change, feminist economics, feminist political economy, or feminist political ecology. In the WOS database, the same filter returned four documents that already appeared in the Journal of Feminist Economics and in Ecological Economics as well, but again, we did the same search (FEE) without quotation marks and we got 53 documents (excluding also 17 documents that already appeared in the JFE, EEJ and SCOPUS search). We selected the most related with FEE and obtained a total of 26 documents.

All the documents selected about FEE or related with FEE (a total amount of 72), became 25 after an accurate reading of the selected papers and also after excluding 4 documents given, they were two books and two book chapters.

After this process, we finally searched in WOS database for documents that had "Circular Economy" and "gender" and "Circular Economy" and "care" in their tittle, abstract or keywords. The filter returned 41 documents for "CE" and "gender" search, of which we selected 21 for relevance; and 13 documents for "CE" and "care" search but only 5 of which specifically analyse care from a gender perspective. Two of these coincide with findings from the 'CE and gender' search.

Using open-source software VosViewer, we built a bibliometric network to analyse the co-occurrence between items, i.e. the connection between items is determined based on the number of documents in which they occur together. We used the full counting method (which means that each co-occurrence has the same weight). The results show the existence of clusters that can be interpreted as the junction of broader topics they are addressing.

Bibliometric networks are usually weighted networks based on the strength of the links. Links indicate not only whether there is or not a relation between two nodes but also the strength of the relation. We developed a keywords co-occurrence analysis from the search of FEE in WOS database, to explore the topic distribution of FEE research and also to verify if literature in CE and FEE ignore each other as it seems initially. In the bibliometric network below, we can see the keywords (with a minimum of two occurrences of a keyword) in FEE and related literature, some of them main topics analysed in depth in the FEE section (sustainability, care work or social provisioning and other quality of life indicators), but also other topics that resound in all the documents after an accurate reading such as degrowth, ecological economics (placed in this bibliometric network between the keywords economics and feminist economics), care, environment, social reproduction (close to social provisioning in the bibliometric network) or ecology. The fact that we can't find Circular Economy among these keywords, indicates what we will be able to verify later after an accurate reading of the documents of this literature review, the practically total absence of CE in the FEE literature.

**Figure 1: Bibliometric network based on keywords**

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