

Circular Transition Indicators (CTI)

→ *Social impact*



World Business
Council
for Sustainable
Development

CTI

Contents

<i>Executive Summary</i>	03	06. CTI social maturity assessment for circularity	19
01. <i>Introduction</i>	05	07. CTI social risk mapping	27
02. Social impacts in a circular economy	08	08. CTI quality-jobs analysis	33
03. The Circular Transition Indicators (CTI)	11	09. Conclusion	43
04. CTI and a just transition for an inclusive circular economy	14	Glossary	45
05. The CTI social impact approach	16		

In collaboration with Utrecht University
and KPMG



**Utrecht
University**

We developed this guide in close consultation with a broad range of stakeholders, whose valuable contributions we gratefully acknowledge. A full list is available [HERE](#).

Executive summary



Executive summary

Transitioning to a circular economy has the potential to accelerate the shaping of a net-zero, nature-positive and more equitable future.¹ When intentionally inclusive and designed to mitigate social risks, the circular transition can improve livelihoods by enhancing working conditions, fostering inclusion in new business models and increasing transparency.²

The connection between circular economy strategies and social justice is still unclear, however. Companies often overlook or oversimplify the societal aspects in their circular economy efforts, with limited attention to social justice and distributional issues. To support a just transition,³ companies must prioritize inclusivity and social justice in their transition plans.

As companies adopt circular models, it is crucial to strengthen the connection between circular strategies and their impact on people. This guide addresses that gap by offering a holistic approach – assessing key human rights risks and emphasizing the creation of quality jobs for workers and affected communities.

The CTI social impact approach provides companies with a methodology that helps them design circular strategies and business models geared towards inclusivity and social justice. The objective of the approach is to highlight those circular strategies that deliver better outcomes for workers and affected communities, from both the formal and informal economy.

With this guide we offer a practical approach based on just transition principles⁴ to support the shift to a just and inclusive circular economy by addressing key questions:

1. How well does my company identify and manage circularity-related social and human rights risks?
2. What are the social and human rights risks associated with my company's circular activities versus linear activities?
3. What are the positive and negative social impacts of my company's circular activities on both formal and informal workers and their families?
4. What risks may arise when transitioning from a linear to a circular economy?

Developed in collaboration with WBCSD companies, Utrecht University and partners, the CTI social impact methodology builds on WBCSD's Circular Transition Indicators (CTI)⁵ to propose a three-part approach to assess the social outcomes of circular interventions.

The **CTI social maturity assessment for circularity** evaluates a company's readiness and practices in managing social and human rights risks related to the shift from linear to circular business models, aligning with CTI's framework for measuring circularity.

By comparing human rights risks in circular vs linear activities, companies can develop effective mitigation strategies. The **CTI social risk mapping** approach provides tools to assess risks based on severity and likelihood and includes guidance on key risk factors, like vulnerable groups, high-risk geographies, and business models.

Recognizing that job creation is a major social benefit of the circular economy, the **CTI quality jobs** analysis examines both the quantity and quality of jobs created. Grounded in just transition principles, it aims to identify strategies that enhance job conditions and deliver broader societal value, especially for vulnerable communities.

Building on both voluntary and mandatory reporting frameworks, the CTI social impact approach enables companies to leverage data from human rights assessments, supply chain audits and risk management processes. It also enables them to leverage insights from stakeholder consultations, grievance mechanisms and compliance reports. **This helps businesses identify vulnerable stakeholders, assess the risks associated with transition activities, and evaluate internal systems that may support or hinder inclusion, ensuring that circular investments deliver the highest societal value.**

The Circular Transition Indicators (CTI) provide the methodological foundation for performance measurement and management within the [Global Circularity Protocol](#) for Business led by WBCSD and One Planet Network (hosted by UNEP) —a unified global framework for setting targets, measuring outcomes, and reporting progress on resource efficiency and circularity.

Introduction



01.

01. Introduction

At a global scale, billions of people reside in countries that do not reach social thresholds like adequate standard of living, democratic quality, equality, income poverty, sanitation, social support and secondary education. At the same time, global resource use has reached the limit of planetary boundaries and has spread significantly beyond the ones of material footprint and carbon emissions.⁶ The circular economy is a sustainable economic model in which the design of products and materials aims for their reuse, repair, refurbishment, remanufacturing, repurposing or recycling. This allows them to remain in the economy for as long as possible, along with the resources they are made of.⁷ A circular economy is based on three principles: eliminate waste and pollution, circulate products and materials at their highest possible value and regenerate nature. It is a resilient system that benefits businesses, the environment and people.⁸

Transitioning to a circular economy has the potential to accelerate the shaping of a net-zero, nature-positive and more equitable future.⁹ Adopting a circular economy can reduce CO₂ emissions by over 40%, contributing to staying well below the 1.5°C Paris Agreement level and to the net-zero goals of 2050.¹⁰ The International Labour Organization (ILO) estimated in 2019 that the circular economy could generate 7 to 8 million new jobs around the world by 2030, compared to a business-as-usual scenario.¹¹

By being considerate of human needs and sustainable livelihoods, decent work and social justice, the just circular economy transition has the potential to make important contributions to human development, reducing poverty and improving people's well-being worldwide.¹² Applying a stronger focus on social data and on environmental data, businesses can better understand the holistic impacts of circular economy interventions.¹³

A just transition

A just transition means transforming the economy in a way that is as fair and inclusive as possible for everyone concerned, creating decent work opportunities and leaving no one behind.¹⁵ Businesses realize this by not leaving behind communities that those sectors transitioning away from linear business models will most likely impact. The transition is more than a simple technical or economic process; it requires the profound comprehension of the contextual factors in society. Companies should carefully consider these social factors when planning circular economy interventions.¹⁶

However, the link between the application of circular economy strategies and social justice remains elusive and there is no guarantee that the mitigation of potential negative impacts on workers and affected communities will be effective during the transition. **To ensure a just transition to a circular economy, inclusivity and social justice must play a key role in companies' transition plans.** The clear objective must be to mitigate the pressing economic issues caused by overdependence on raw material extraction and the overexploitation of resources and labor. Additionally, it must also tackle the social implications stemming from linear production systems that disproportionately affect vulnerable communities.¹⁴ **Inclusivity, equity and community engagement must be fundamental elements of a circular economy transition, realized – inter alia – by developing a profound understanding of social impacts, communication and awareness raising, capacity building and reskilling opportunities and collaborative efforts, and operationalized through social dialogue.**

A circular economy requires close collaboration across the whole value chain. A multitude of stakeholders must work together to maximize the value created for every unit of resource. For example, in the fashion and textile industry, recovery actions require close synergies between retailers, collection partners, sorters, recyclers and second-hand vendors. Current trends linking the circular economy with social justice and worker protection remain weak, with the concept of a just transition still largely aspirational in both circular economy and climate change contexts.¹⁷

It is only by fostering a sense of shared responsibility and participation that it is possible to realize a circular economy while creating a more socially just and resilient society and fostering the development of local economies, job creation and the empowerment of marginalized communities. **Integrating social justice considerations into a company's circular business strategy and practices enhances the overall effectiveness of sustainable practices.** It ensures that benefits are widespread, equitable and just by creating a more holistic and enduring positive impact on both people and the planet. Additionally, **it builds stronger business resilience and provides long-term economic benefits by ensuring workforce loyalty and adaptability, enhancing productivity and circular innovation potential and reducing turnover costs.**

To date, societal considerations have received little attention when engaging with circular economy strategies. Even when companies consider social impacts, they are often oversimplified and far removed from considerations of social justice and distributional conflicts. Job creation is the most mentioned social contribution of

the circular economy. However, studies show an asymmetrical increase in new positions and even job losses across industries, often without remediation, reskilling or compensation measures for the affected individuals.¹⁸ For example, waste pickers and reclaimers often work under duress, in dangerous conditions and without the necessary equipment and government acknowledgement to compete with large waste management enterprises that enter the market.^{19,20}

Unlike economic and environmental indicators, social indicators are not yet a common element of circular performance measurement. While there is a lot of divergence between efforts to capture the social aspects of the circular transition, the approaches used in research focus on macroeconomic modelling, rather than defining a baseline or providing measurement guidelines.²¹ This lack of a holistic and agreed upon framework to assess the social impact of circular transition interventions is a main barrier to a just transition in a circular economy.²² Measuring social impacts still faces many challenges due to the complex qualitative aspects companies must measure as well as the lack of conventional data sources that are appropriate for measuring circularity's social impacts.²³ Overall, comprehensive information systems to support decision-making and monitor progress on a just transition in the circular economy are also lacking.²⁴ **As companies explore circular business models and innovations, it is urgent for them to better link circular economy solutions and impacts on people. To overcome this barrier, this guide aims to offer a holistic approach, including an assessment of key human rights risks and a special focus on quality job creation for workers and affected communities.**

Realizing the potential of business to improve social performance by adopting circular approaches grounded in the principles of a just transition, a group of cross-sectoral companies, members of WBCSD's Circular Products and Materials Pathway and key partners, including leading organizations in the field of circular economy, KPMG and Utrecht University, have joined forces to develop a methodology that links companies' circularity efforts and social performance. The objective is to deliver a just transition for an inclusive circular economy.

A just transition for an inclusive circular economy

A just transition to a circular economy aims to support the shift to regenerative business in an inclusive way. It seeks to maximize the impact of climate action and on society and create improved conditions for workers (both formal and informal), marginalized and vulnerable groups (including women and youth) and their communities. To do so, it engages stakeholders in social dialogue to define and implement holistic policies to close material loops while ensuring decent work and equality for all.^{25,26}



Social impacts *in a circular economy*



02.

02. Social impacts in a circular economy

If intentionally designed for inclusiveness, a transition to a circular economy can reshape current production and consumption models to promote a more socially just and resilient society. To realize this potential, the circular economy requires careful management to move away from the social inequalities and human rights risks of linear supply chains, prevent burden shifting, and effectively mitigate potential negative social outcomes. For example, economic activities from extractive economies may face the (partial) reallocation or replacement in non-extractive economies because of a reduction in raw material extraction through increased material circularity. Such changes may positively or negatively impact stakeholders: a company's own workforce, workers in the value chain, affected communities, consumers and end-users.

As companies evaluate considerations for adopting different circular strategies, such as reuse, repair or recycle, it is imperative that they understand and

mitigate potential negative impacts across their value chains and invest in strategies that deliver the highest societal value.

Potential positive and negative social impacts of the circular transition

Companies involved in this work have reviewed some of the potential positive and negative social impacts of circular strategies. On the one hand, the social opportunities of a circular transition include the creation of "better" jobs that address poor working conditions and inequalities and the transformation of jobs through reskilling actions. On the other hand, circular economy social risks include possible job losses or a net increase in vulnerable workers. Table 1 provides a non-exhaustive selection of circular social risks and opportunities based on consultations with WBCSD members and wider stakeholder groups.

Social impacts in a linear vs a circular economy

Transitioning to a circular economy will not automatically fix the social inequalities generated by the linear economy. In fact, moving to a circular economy requires tight collaboration with upstream and downstream actors, a systemic approach and long-term thinking. Such a paradigm shift can act as a multiplier effect to bring positive change only if

companies adopt circular strategies based on a just transition approach and ensure that circular jobs are indeed better jobs. CTI helps companies evaluate the social impacts of different circular strategies, promoting the creation of quality jobs and fostering opportunities for inclusive dialogue and decision-making.

Table 1: Non-exhaustive list of potential positive and negative social impacts of circular strategies

<i>Social opportunities of the circular economy transition</i>	<i>Social risks of the circular economy transition</i>
→ Create more jobs, and more "better" jobs, that address working conditions and inequalities such as gender inequality → Transform jobs if applicable reskilling is in place and if that reskilling translates into better pay, better well-being or better opportunities → Establish new desired employment relations that are more beneficial when shifting from a linear to a circular economy in line with a just transition lens → Explore joint government-business arrangements to decarbonize industries, while activating worker engagement and their households and communities in the process → Increase consumers' environmental awareness and engagement → Benefit human health through reductions in pollution linked to reduced raw material extraction and processing combined with avoided waste → Engage communities and vulnerable groups to ensure inclusive stakeholder representation	→ Asymmetrical increases in, and job losses across, industries and geographies → Increase in number of jobs but mainly an increase in circular jobs that are labor intensive and have low pay and poor working conditions, such as repairing, remanufacturing and manual recycling → New jobs created are not automatically better just because they are circular and an increase in jobs will not necessarily lead to other considerations, such as well-being and gender equality → "Better" jobs might create increased demand for risky and labor-intensive work (e.g., rise in material recovery from textiles to e-waste) → Net increase in number of vulnerable workers → Lack of remediation and reskilling compensation for jobs lost → Company and worker safety risks due to secondary and hazardous content → Inaccessibility of circular goods and services → Unforeseen impacts on communities, for example, changes in land use → Imbalance between Global South and Global North

A critical effect of the circular transition on workers and communities is that it can exacerbate current (linear) working conditions for both formal and informal workers. Academic research has found that circular strategies such as repair, remanufacture, repurpose and prepare for recycling are labor intensive and mostly characterized by low pay and poor working conditions across several value chains and geographies. They also often involve vulnerable groups.^{34,35,36,37,38}

Yet the companies involved in this work highlighted that the transition to a circular economy will alter supply chains, creating new roles and functions with the potential to deliver improved conditions for those workers working in circular value chains. Provided that it is inclusive and intentionally designed to mitigate social risks, the transition to a circular economy can represent an opportunity to professionalize and support the livelihoods of informal workers by applying measures that improve working conditions, ensuring their inclusion in new solutions and business models and increasing transparency.³⁹

The CTI social impact approach provides companies with a methodology that helps them design circular strategies and business models geared towards inclusivity and social justice by understanding risks and measuring the quality of jobs created. The objective of the approach is to highlight those circular strategies that deliver better outcomes for workers and affected communities, from both the formal and informal economy.

Social vulnerability

Social vulnerability is a life situation characterized by a multi-dimensional combination of factors related to disadvantage and advantage, inclusion and exclusion. There are internal differences within a group (being a gender or race, for instance, adds layers of vulnerability). The concept of social vulnerability emphasizes weak and unstable integration in the main mechanisms of resource distribution in contemporary society and how this places people in a situation of uncertainty and high exposure to the risks of poverty and, eventually, of social exclusion.⁴⁰

Vulnerable groups

Vulnerable groups are those who “experience a higher risk of poverty and social exclusion than the general population. Ethnic minorities, migrants, disabled people, the homeless, those struggling with substance abuse, isolated elderly people and children all often face difficulties that can lead to further social exclusion.”⁴¹ “Examples of vulnerable groups include workers in the informal economy, women, Indigenous peoples, rural communities, people with disabilities, younger and older people, people from lower socioeconomic backgrounds, migrants and refugees, and ethnic minorities.”⁴²

Informal economy

The informal economy refers to all the workers, economic activities, enterprises and jobs that do not benefit from legal or social protections.⁴³ Informal workers comprise more than half of the global labor force and more than 90% of micro, small and medium-sized enterprises (MSMEs) worldwide.⁴⁴ While they are key stakeholders in circular practices in many countries – engaged daily in collection, sorting, reusing, refurbishing and recycling activities – they are rarely considered in circular economy discussions.⁴⁵ In evaluating circular economy strategies, companies must strive, whenever relevant, to integrate the informal workers’ perspectives and to make decisions that minimize new risks and dependencies and that positively affect their livelihoods and economic opportunities.⁴⁶

The approach recommended by this guide considers workers in the informal sector as a key stakeholder group and helps companies review, assess and mitigate the potential negative social impacts that transitioning to circular business models may have on informal workers and their families. The methodology allows companies to identify salient social and human rights risks that will most likely affect informal workers, including occupational health and safety, child labor, forced labor and freedom of association.⁴⁷ It requires representation from all individuals and vulnerabilities, including input from informal workers and representative organizations.

The Circular Transition *Indicators (CTI)*



03.

03. The Circular Transition Indicators (CTI)

As the circular economy grows in momentum, it is imperative for companies to prepare for their transition based on insights into their circular performance and associated risks and opportunities. To facilitate this, WBCSD has developed the **Circular Transition Indicators (CTI)**. CTI is a simple, unbiased and quantitative framework that measures the circularity of products and business processes. It helps companies evaluate risks, identify the most impactful actions to become more circular and understand the effects of their circularity strategies.⁴⁸

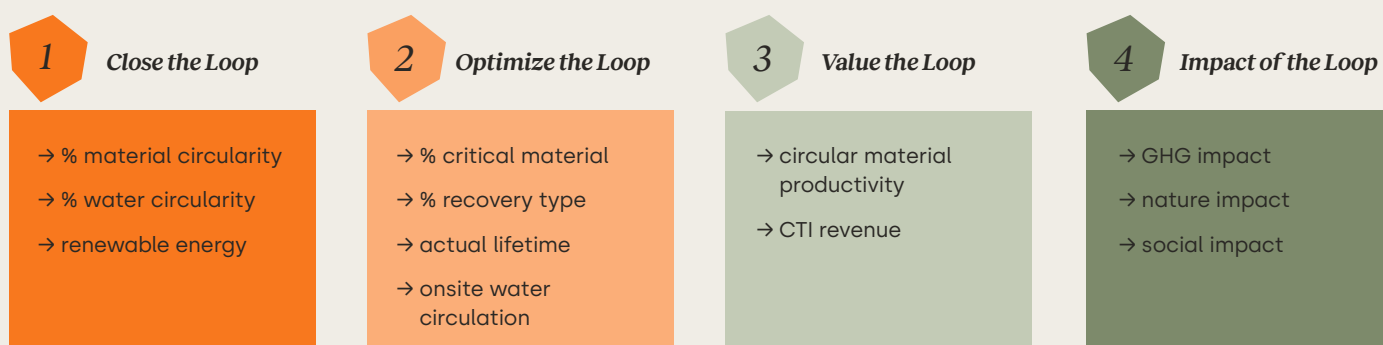
The CTI methodology offers a simple, flexible in scope and scalable methodology for companies to assess their circular performance. It allows them to measure circular performance at different business levels – the full company, a single business unit, a production facility or at the product level. CTI provides four modules for the indicators.

WBCSD collaborates with leading companies across many different industries and geographies to continuously evolve the framework. Beyond quantifying the circularity of a company's resource use through material-use and water-use circularity, CTI provides methodologies to quantify the impact of circular strategies on key drivers of nature loss (land use and land-use change) and greenhouse gas (GHG) emissions, which are fundamental aspects of measuring the impact of circular

strategies on the environment. This approach is part of the Impact of the Loop module, which helps companies measure the impact of circular strategies on sustainability objectives. The CTI social impact guidance aims to contribute to the CTI's Impact of the Loop module with a dedicated approach and metrics to drive companies' circular strategies to create positive social impact for a just transition to an inclusive circular economy.

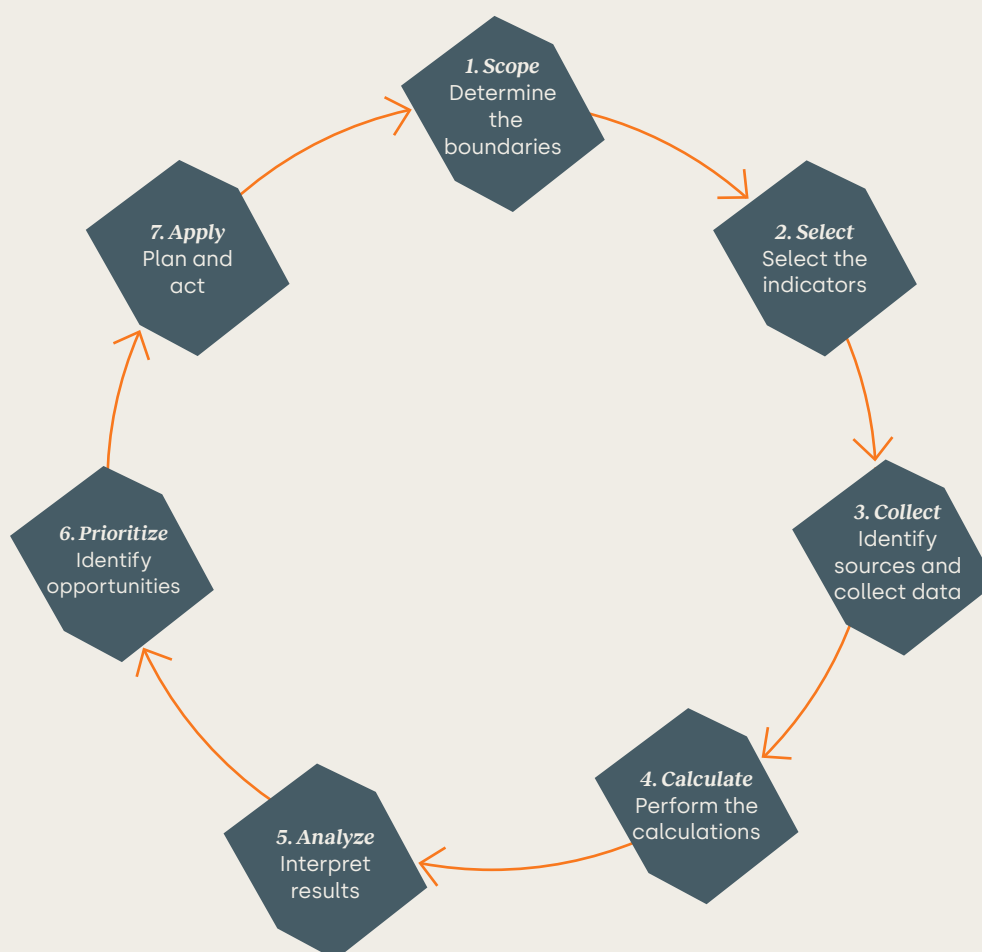
The CTI methodology includes a 7-step process cycle providing guidance on measuring and improving circular performance (Figure 2). The process begins with defining the objectives and the scope of the assessment, in terms of the business level, the period and which material flows to include in the assessment. The second step is the determination of indicators that are in scope for the assessment. The company should choose the indicators based on the scope of the assessment and the additional insights it wants to obtain. The next step is to collect the necessary data and perform the calculations. Based on an analysis of the results, the company will draft an action roadmap to advance circularity and prioritize key actions. It can perform the prioritization by identifying the risks and opportunities that arise from adopting circular practices through a scenario analysis exercise. The last step is to develop an action plan, including SMART (specific, measurable, achievable, relevant, time-bound) targets and initiatives, that will focus on the prioritized roadmaps.⁵⁰

Figure 1: CTI indicators retrieved from CTI v4.0⁴⁹



(Refer to [CTI v4.0](#) for more detailed information on how to calculate all indicators outlined above).

Figure 2: The CTI 7-step process cycle⁵¹



The CTI 7-step process covers one assessment cycle. While performing the assessment for the first time provides meaningful insights for a company's current performance, repeating the assessment on a regular basis allows for the efficient monitoring of progress over time.⁵²

CTI and a just transition *for an inclusive circular economy*



04.

04. CTI and a just transition for an inclusive circular economy

A just transition means transforming the economy in a way that is as fair and inclusive as possible for everyone concerned, creating decent work opportunities and leaving no one behind.⁵³

Shaping the right conditions to support a just transition is critical to minimizing the inequalities of linear supply chains. This requires remediation of the actions deployed for the transition for the actors and communities negatively affected.

A just transition in the context of a circular economy means leveraging the circular transition to advance circular resource use and decent work, promote social inclusion and improve the quality of jobs globally. Shaping interventions through a just transition lens is pivotal to identifying:

1. The challenges imposed on the most vulnerable workers and communities affected directly and indirectly;
2. The distributional aspects and how they affect workers and vulnerable communities;
3. The procedures in place that condition vulnerability and that can be enablers of positive change;
4. Remediation mechanisms to address harm when present⁵⁴ (Figure 3).

There is currently no well recognized quantitative framework to comprehensively assess the social impacts of a circular economy transition. This guidance offers a holistic approach, including

an assessment of key human rights risks and a special focus on quality job creation for workers and affected communities: the CTI social impact approach, based on the just transition principles,⁵⁵ supports the transition to a just and inclusive circular economy.

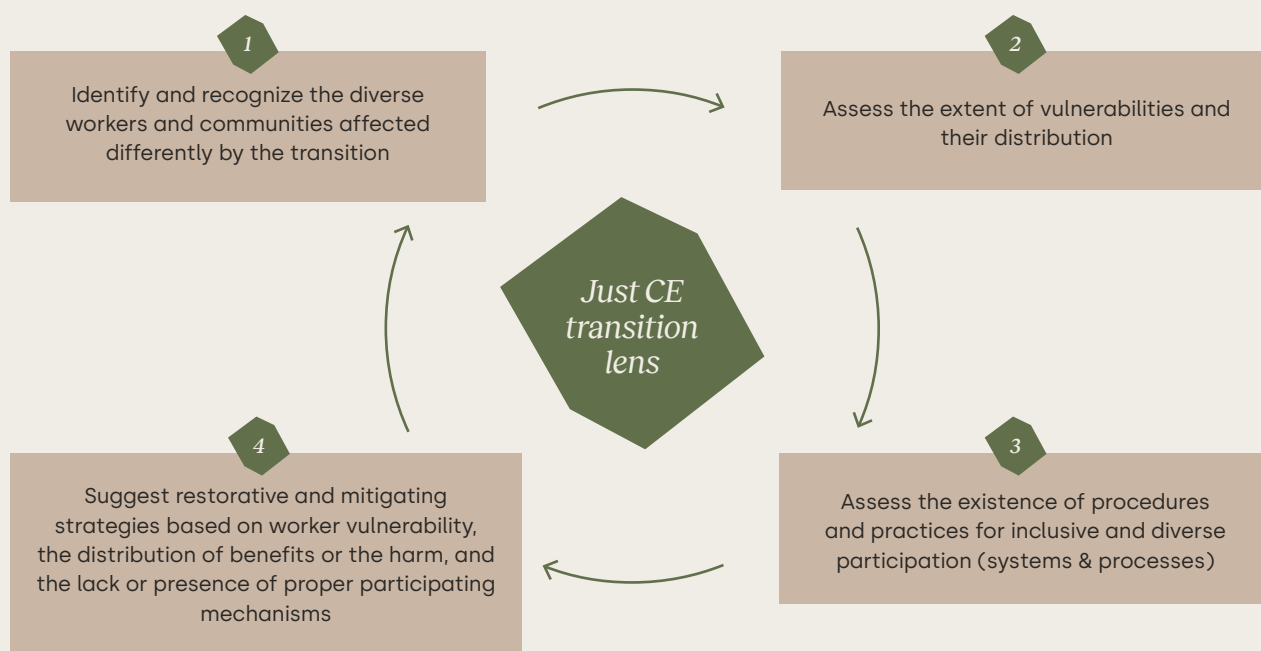
Decent work

The International Labour Organization (ILO) defines decent work as “productive work for women and men in conditions of freedom, equity, security and human dignity.”⁵⁸

In general, work is considered decent when: it pays a fair income,⁵⁹ guarantees a secure form of employment and safe working conditions, ensures equal opportunities and treatment for all, includes social protections for the workers and their families, offers prospects for personal development, encourages social integration and ensures workers are free to express their concerns and to organize.

→ *Example: One of the most important demands from waste pickers is fair remuneration for the collection, aggregation and transportation services they provide to both cities and industries. Waste picker organizations seek standards of fair remuneration. Remuneration in this case should be related to both the work performed and the market value. It must be proportional to each person's effort, considering the hours dedicated to the work and the different conditions (health risk, distance, collection conditions, etc.). It must consider the possibility of formal inclusion in the labor market and in the social security system, allowing the collector to enjoy the rights available to workers (retirement, social assistance, healthcare, disability and death pensions and family wages, for example). In summary, fair remuneration is a combination of payment received for services rendered, plus the sale of the collected materials and provisions for social protection. All considered, waste pickers provide three services: to cities (the cleaning of public spaces and selective collection), to companies (directing recyclables to the market) and an environmental service contributing to GHG mitigation.*

Figure 3: A just transition lens applied to the circular economy^{56,57}



The CTI social impact approach



05.

05. The CTI social impact approach

In measuring the social impact of circular strategies, CTI promotes a holistic approach, shedding light on both the positive and negative impacts of circular strategies and business models. The approach addresses internal company processes and activities, as well as workers in the value chain and affected communities. At its core, it measures the quality of jobs created by moving from a linear to a circular business. The methodology proposed aligns with the principles of a just transition⁶⁰ and is based on voluntary reporting frameworks and standards, such as the United Nations Guiding Principles (UNGPs),⁶¹ OECD Guidelines for Multinational Enterprises on Responsible Business Conduct,⁶² and the EU's Corporate Sustainability Reporting Directive (CSRD). It also takes human rights due diligence practices (such as the Corporate Sustainability Due Diligence Directive (CSDD) in Europe or the Corporate Human Rights Benchmark⁶³) and the OECD quality of jobs framework into account.⁶⁴

This approach complements existing approaches by providing a qualitative and quantitative performance assessment of social impacts for companies transitioning towards circular business models. It closes the gap on social assessments for the circular economy by providing an approach that builds on existing standards and frameworks, such as the UNGPs. Users of this guidance should note that this is not a comprehensive social impact assessment like a social life-cycle assessment (S-LCA) or life-cycle sustainability assessment (LSCA).

Rather, the CTI social impact approach helps companies answer the following questions:

1. How well does my company identify and manage circularity-related social and human rights risks?
2. What are the social and human rights risks associated with my company's circular activities versus linear activities?
3. What are the positive and negative social impacts of my company's circular activities on both formal and informal workers and their families?
4. What risks may arise when transitioning from a linear to a circular economy?

In collaboration with the companies and partners involved in this work, the development of the CTI social impact methodology takes a three-pronged approach to create a comprehensive assessment of circular interventions and their impact on social outcomes. Figure 4 depicts the three elements of the CTI Social Impact approach.

CTI social maturity assessment for circularity

As a leading framework for measuring circularity, CTI defines success and sets good practice criteria for a business in a circular economy. We have designed the social maturity assessment to assess the company's social and human rights risk management practices and readiness to address the social and human rights risks that may arise in connection with the transition from linear to circular strategies and business models.

CTI social risk mapping

Insights into the most salient human rights risks related to specific circular activities in comparison to business as usual (linear) allow companies to develop mitigation strategies and manage risks. The CTI social impact approach provides guidance on how to map social and human rights risks based on severity and likelihood and receive supporting information on the common risk factors (vulnerable populations, high-risk business models, high-risk geographies).

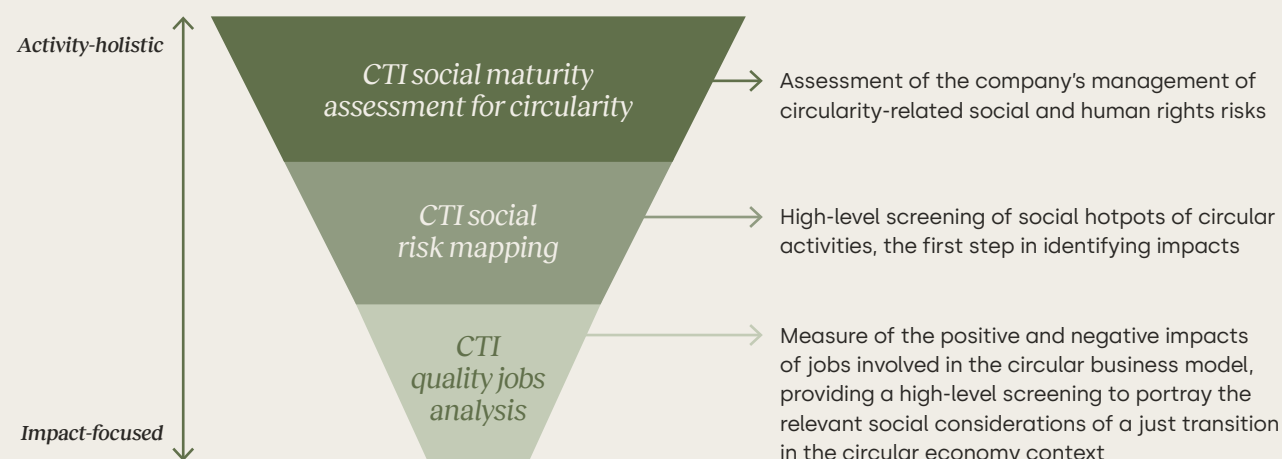
CTI quality jobs analysis

New jobs created is the most mentioned social benefit of the circular economy in literature.⁶⁵ The companies and partners involved in developing the CTI social impact approach concur that, if well managed and grounded in the principles of a just transition, the circular economy can deliver on the creation of new, quality jobs that guarantee improved conditions for workers and affected communities, including for vulnerable groups. This assessment focuses on: 1) existing or new jobs created and 2) the quality of the jobs created. This approach complements the other two approaches by highlighting areas of concern and helping companies select strategies and business models with the highest societal value.

Defining quality jobs in the circular economy

By adapting the ILO definition of decent work,⁶⁶ we define a "good quality job as one that provides a fair income, security and social protection for workers and their families. It offers better prospects for reskilling and encourages social integration. It gives people the freedom to express their concerns, to organize and to participate in decisions that affect their lives and guarantees equal opportunity and equal treatment for all."

Figure 4: The three elements of the CTI social impact approach



The approach helps companies identify the most vulnerable stakeholders in both their linear and circular value chains, assess any additional vulnerabilities that the company may generate through transitional activities, and reflect on the current mechanisms, structures, processes and policies that it has in place that may hinder or enable the inclusion of vulnerable groups in the circular transition. It has the objective to drive investment in circular activities along with delivering positive social outcomes for workers, especially vulnerable groups.

The first element of the approach – the **CTI social maturity assessment for circularity** – prompts an internal evaluation of a company's management approach to social and human rights risks. The second element – the **CTI social risk mapping** – helps companies identify potential social and human rights at risk. The last element – the **CTI quality jobs analysis** – evaluates the impact of circular business models on value chain workers and their families, with a focus on the most vulnerable workers.

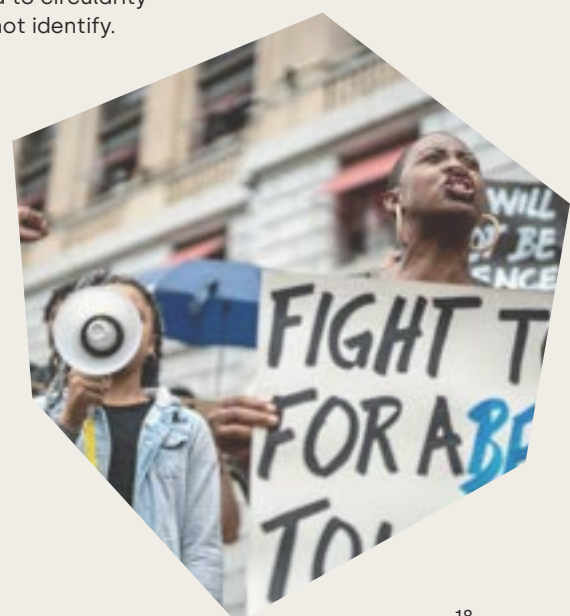
All three elements of the CTI social impact approach follow the CTI 7-step process cycle. We explain them across its key steps: 1) Scope, 2) Select, 3) Collect, 4) Calculate, 5) Analyze, 6) Prioritize and 7) Act.

We have designed the approach to build on existing assessments and risk insights, offering a valuable tool to focus specifically on the circular business elements and gauge their specific risks and opportunities. This approach complements ongoing and planned activities in the realm of social and human rights and supply chain due diligence management by integrating and enhancing several key aspects.

Human rights due diligence

Embedding human rights due diligence into business decision-making is a catalytic action that businesses can take to address inequalities. The social maturity assessment for circularity links human rights due diligence with circular strategic decision-making to better identify potential risks to workers and communities.

This means that the CTI social impact approach can use – where available – data from current human rights assessments, supply chain audits and risk management processes, and incorporate insights from stakeholder consultations, grievance mechanisms and compliance reports. However, its specific novelty lies in adapting existing methodologies to the circular economy. By doing so, the approach supports a just transition to a circular economy by helping businesses identify the unique challenges connected to circularity that broader assessments may not identify.



CTI social maturity *assessment for circularity*



06.

06. CTI social maturity assessment for circularity

Introduction

The objective of the CTI social maturity assessment is to provide an efficient analysis to assess a company's risk management practices at a high level, including current policies, processes and practices, to manage the social risks related to shifting from linear to circular business models.

We have designed it to prompt a company to do an internal evaluation, stimulate a reflection on its management approach to circular transition risks, and encourage internal dialogue among business functions on the social risks connected to the transition to a circular economy.

Its aim is to facilitate and enhance stakeholder engagement by prompting companies to understand how they interact with affected stakeholders and identify opportunities to build trust and improve the relationship with them. Undertaking the CTI social maturity assessment can be part of ensuring compliance with international standards, such as the UN Guiding Principles on Business and Human Rights, or local regulations. It can align with existing processes that aim to identify, assess and mitigate social and human rights risks (such as human rights due diligence) and promote effective decision-making and accountability.

The assessment checks maturity on the topics listed in Table 2.

Scope

The CTI social impact methodology offers a simple, flexible in scope and scalable methodology for companies to assess their circularity performance. It allows companies to measure circularity performance at different business levels: the full company, a single business unit, a production facility or at the product level. To offer a standardized approach, the methodology provides guidance on carrying out the assessment in a comparable manner, allowing for the effective screening of material flows from a social impact perspective and delivering insights on salient social and human rights risks and affected stakeholders.

While a company can perform an entire CTI social impact approach at the desired business level, we have designed the CTI social maturity assessment for the company to conduct at either the corporate or facility level. Aiming for the corporate or facility level will provide holistic insights into what management practices are in place to identify, assess, address and monitor social and human rights risks and impacts. It provides an overview of the current maturity level and identifies potential gaps in the management system that the company needs to tackle.

Table 2: Thematic areas included in the CTI social maturity assessment

Potentially affected stakeholders	Social risks of the circular economy transition
A. Value chain workers	A.1 Jobs created/lost A.2 Equality and inclusion A.3 Informal sector A.4 Responsible value chains
B. Affected communities	B.1 Local communities
C. Consumers and end-users	C.1 Consumer behavior C.2 Accessibility of circular and sustainable goods and services

Collect

The CTI social maturity assessment focuses on the company's internal policies, processes and practices. External sources, such as regulations, statistics and interviews, also inform it. The company is to run the approach by engaging with the relevant business functions at the corporate level and collecting internal documentation.

1. **Identify relevant business units.** Several business units need to provide input into the assessment. Relevant business functions may vary depending on the business structure and size. Human resources, supply chain, procurement, risk, design, and sustainability are departments that typically own the knowledge and data relevant to informing the assessment.
2. **Collect the data.** The company can conduct short interviews with the identified content owners. The questions below can guide the conversation:
 - Does a company-level social risk assessment procedure exist in your company? What are the salient risks and how does the company monitor and address them?
 - Have you identified how the transition to a circular economy may impact workers and affected communities? How have you done so and what risks did you identify?
 - What action plans or strategies are in place to address risks directly or indirectly involved in business and supply chain practices? How did you develop them and how do you measure their effectiveness?
 - How did you include the perspectives of the potentially affected groups in such activities?

Content owners may provide additional documentation to document the company's practices and social risks across the value chain.

Calculate

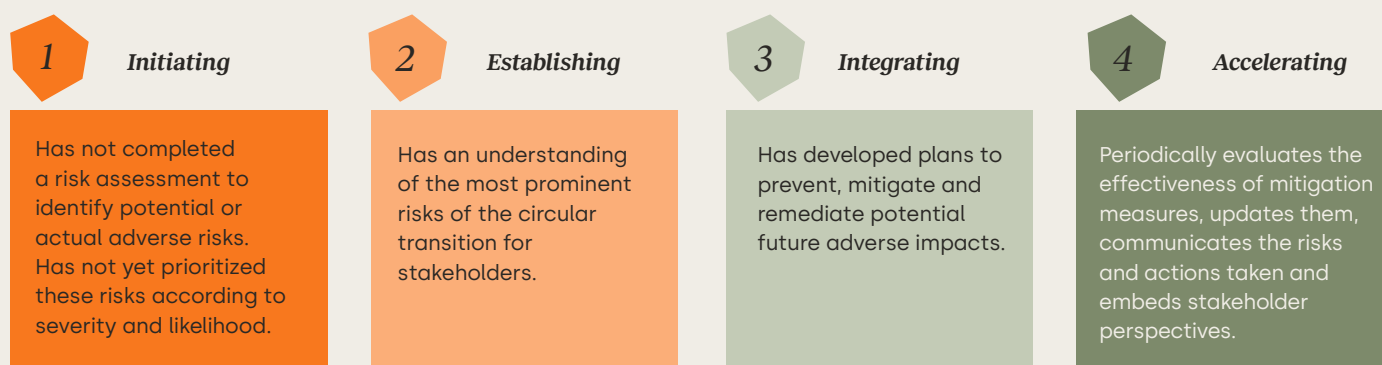
The CTI social maturity assessment identifies seven key thematic areas (Table 2) and provides a brief explanation of the relevance of such topics in the context of a just transition to a circular economy.

As illustrated in Table 2, the approach identifies three key stakeholder groups typically affected by transition risks – value chain workers, communities, consumers and end-users – and requires companies to gauge its maturity in understanding and addressing the needs of these key stakeholders across different maturity levels through a set of scorecards.

The core steps and key elements of human rights due diligence inspire each scorecard,⁶⁷ which consists of four levels of maturity. The statement identified as reflecting the company's status at the moment of the assessment links directly to a maturity level.

Each scorecard has four statements that describe corporate practices, with each statement indicating a distinct level of maturity of the risk management approach. These levels range from 1, "initiating" to 4, "accelerating". They provide a snapshot of how a company manages the transition risks in each thematic area (Figure 5).

Figure 5: Social maturity assessment levels



As shown in Table 2, the CTI social maturity assessment comprises three sets of stakeholder groups, with set A (value chain workers), set B (affected communities) and set C (consumers and end-users) including multiple thematic areas.

Although certain thematic areas may initially appear unrelated to a company's specific context, we recommend that it thoroughly evaluate each one before determining its relevance. Evaluating all categories ensures a more comprehensive assessment and helps uncover potential risks and impacts that companies might otherwise overlook. However, if after thoughtful review a category is genuinely inapplicable, the assessing company can exclude it.

Companies can average the results from filling out assessments for all stakeholder groups to obtain three unique values that reflect its maturity score in relation to value chain workers, affected communities and consumers and end-users.

The CTI social maturity assessment scorecards

This section provides scorecards that companies can use to self-assess their score across the CTI social maturity assessment.

A. Value chain workers & own workforce

A.1 Jobs created/lost

Expectations are for the circular economy to shift the demand in labor by introducing more green jobs.⁶⁸ The effect of this shift would be twofold: on the one hand, it would see the creation of new positions and a need for new skills and qualifications (such as the manufacturing of pollution control devices, etc.). On the other hand, it may see the substitution or loss of certain jobs (like non-circular packaging materials).⁶⁹ Business action includes the upskilling of workers at risk of losing jobs to be able to remain competitive in the job market.⁷⁰

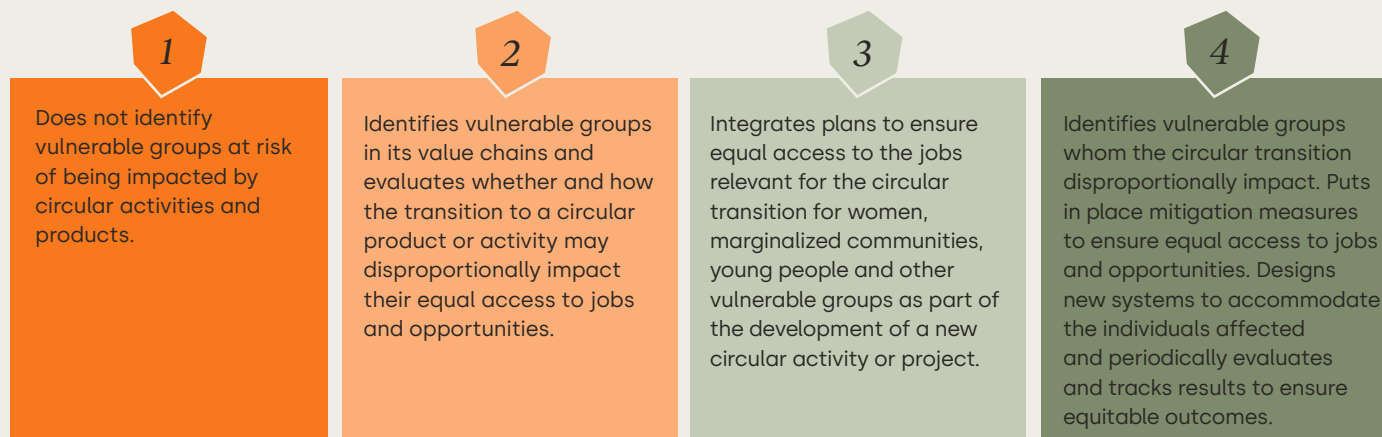
A.2 Equality and inclusion

A transition to a circular economy can disproportionately impact vulnerable groups, including workers who are women and youth.⁷¹ These groups can lack equal access to education and training, jobs, social safety nets and decision-making power. Business action can reduce inequality by incorporating gender and social inclusion considerations in their circular transition.⁷²

Figure 6: Scorecard for the jobs created/lost area



Figure 7: Scorecard for the equality and inclusion area



A.3 Informal sector

More than 60% of the world's workers are in the informal economy and play an essential role in enabling a circular economy. For instance, waste pickers are among the largest urban informal worker groups.⁷³ Informal workers risk exposure to numerous challenges, from low wages and job insecurity to limited access to skills development. Business action can support informal workers and contribute to improving their livelihoods and working conditions.⁷⁴

A.4 Responsible value chains

Responsible value chains are essential for a just transition to a circular economy because they ensure the consideration and management of social, environmental and economic impacts throughout the value chain of a circular product.⁷⁵ Businesses have a responsibility to use their leverage to address the labor and human rights risks in their value chains. Crucial to this are the understanding of risks, engagement with actors across the value chain and cooperation in mitigation and remediation.⁷⁶

Figure 8: Scorecard for the informal sector area

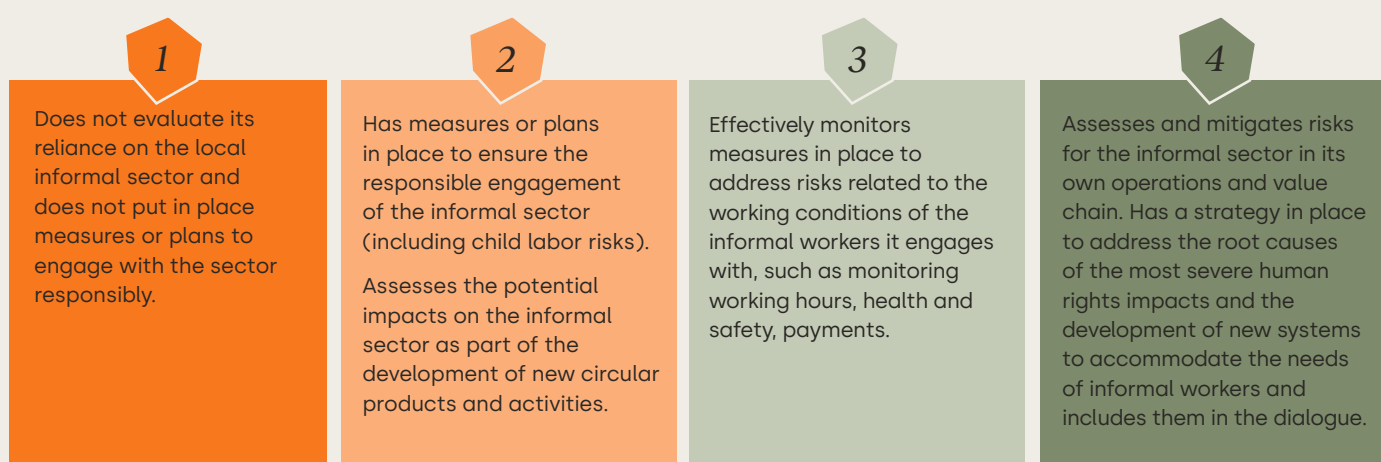


Figure 9: Scorecard for the responsible value chains area

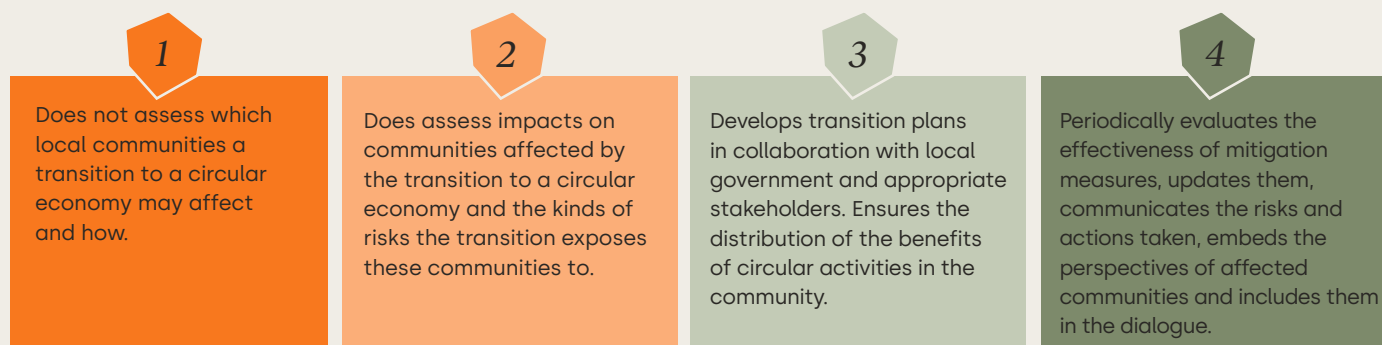


B. Affected communities

B.1 Local communities

The circular economy can transform communities and impact them positively or negatively.⁷⁷ Business action includes identifying the risks that communities might face and supporting the resilience of those communities.⁷⁸

Figure 10: Scorecard for the affected communities area



C. Consumers & end-users

C.1 Consumer behavior

Stimulating the right consumer behavior is crucial to ensuring the proper use and disposal of products.⁷⁹ Businesses can encourage a shift in mindsets from consumption to reuse, repair and sharing.⁸⁰

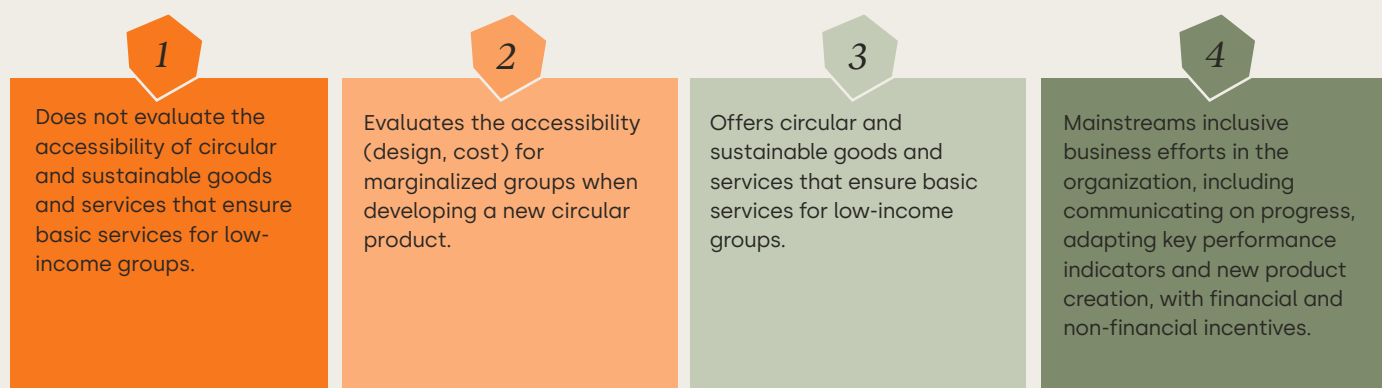
C.2 Accessibility to circular and sustainable goods and services

To secure a just transition to a circular economy, it is necessary to consider various stakeholders. Ensuring the accessibility of vulnerable groups to sustainable and circular goods and services should be a priority for businesses that want to accelerate their circular transition and mitigate potential negative social impacts along the way.⁸¹

Figure 11: Scorecard for the consumer behavior area



Figure 12: Scorecard for the accessibility to circular and sustainable goods and services area



Analyze

The CTI social maturity assessment offers a view of the company's maturity at different levels of granularity, as it considers the approach to risk management in relation to specific stakeholder groups and deep dives into selected thematic areas.

Interpretations of the four maturity levels

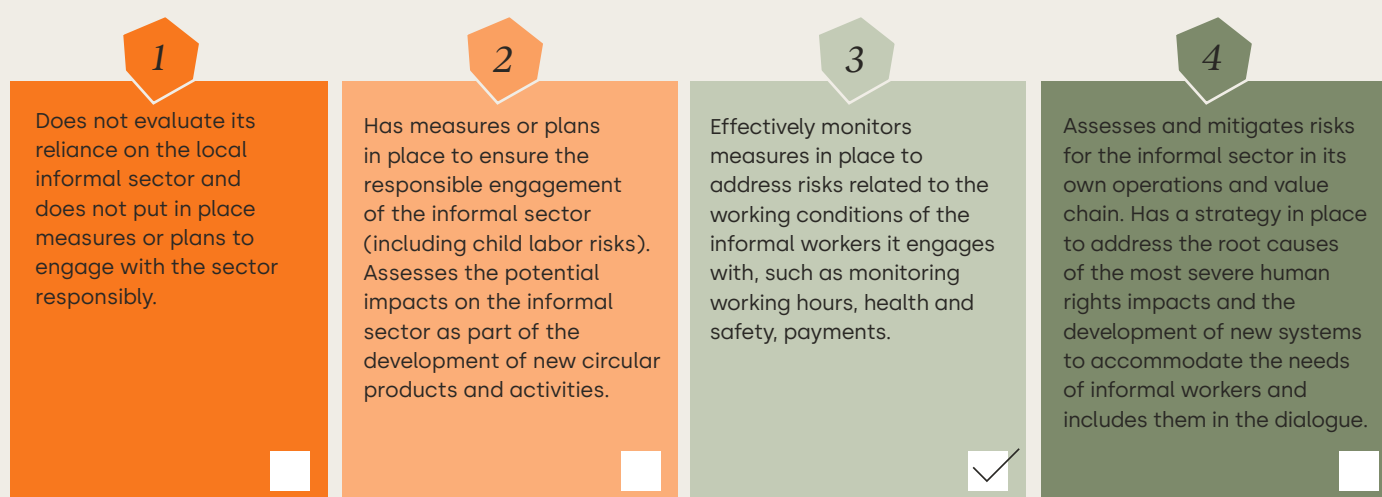
1. **Initiating:** Companies have very limited or no integration of just transition lenses into the transition-related activities. They have limited or no processes in place to identify and address transition risks.
2. **Establishing:** Companies have some processes in place to identify transition risks and the stakeholder groups the risks might affect. However, it is still necessary to develop a structural approach to measuring risk mitigation, stakeholder engagement and effectiveness.
3. **Integrating:** Companies have developed plans to prevent, mitigate and remedy potential adverse impacts connected to the transition to a circular economy. However, greater integration of best practices offers space for further improvement.

4. **Accelerating:** Companies integrate leading practices into their approach to transition risk management. They have a structured approach to monitoring progress and integrating stakeholder views in the development and evaluation of their action plan. They engage with relevant initiatives and communicate externally on their risks, plans and progress.

Figure 13 offers an example of scoring for one of the thematic areas (informal sector) using the four maturity levels. In this case, the company has systems in place that allow for the effective monitoring of the informal sector's working conditions, considering factors such as wages, working hours, occupational health and safety and age. However, to reach maturity level 4, the company should advance its efforts to ensure the minimization of the root causes of human rights risks in the informal sector and further support the people with development opportunities and social inclusion measures.

The following examples demonstrate how businesses can translate the results of the CTI social maturity assessment and derive guidance on the next steps of their circularity transition.

Figure 13: Example of scorecards for the informal economy (A.3)



Example: Sports retailer

A brand sells sports gear designed for repairability to ensure a longer functional lifetime. The brand takes various steps to facilitate the products' reparation, recycling and access to secondary markets. However, no process is in place to identify and address how the shift to the new materials may affect stakeholders along the value chain (Table 3).

In this example, the company is a leader in product accessibility and responsible consumer behavior. However, the company has limited processes in place to identify and address risks to workers and affected communities. This overview suggests that the company should expand its efforts in that direction. The CTI social risk mapping efforts can help prioritize the input.

Table 3: Assessment results for sports retailer

Affected stakeholder group	Prioritized circular economy topics	Scoring framework
Value chain workers & own workforce	Jobs created/lost	Initiating
	Informal sector	
	Equality	
Affected communities	Communities	Initiating
Consumers and end-users	Accessibility	Accelerating
	Responsible behavior	

Example: Electronics manufacturer

An electronics manufacturer is considering switching from virgin to recycled materials to increase its circular material inflow. The company has assessed the impact of the shift on its own workforce and has developed a reskilling strategy through dialogue with workers' representatives. However, the company doesn't have policies in place that ensure the recycled materials sourced align with the company's commitment to respect human rights. Additionally, the company

has not yet assessed whether and how the transition disproportionately affects any vulnerable groups.

In this example, the assessment highlights a need for a deep dive into the thematic areas relevant to value chain workers. The CTI social risk mapping, detailed in the next section, is an important tool in identifying how and where in the product, service or activity life cycle developing targeted action may impact these stakeholders.

Table 4: Assessment results for electronics manufacturer

Affected stakeholder group	Prioritized circular economy topics	Scoring framework
Value chain workers & own workforce	Jobs created/lost	Integrating
	Informal sector	Initiating
	Equality	Initiating

CTI social risk *mapping*



07.

07. The CTI social impact approach

Introduction

While the CTI social maturity assessment measures a company's preparedness to address and act on circular social and human rights risks, we have designed the CTI social risk mapping, as an important second step, to help companies identify the stakeholder groups affected by the transition and the risks to workers and communities connected to the shift from linear to circular models. The mapping offers a targeted approach that can support circularity practitioners in conducting a quick risk assessment focused on a product, business unit or company level.

Complementarity to UNGPs and OECD Guidelines

Internationally recognized frameworks such as the UN Guiding Principles on Business and Human Rights and the OECD Guidelines outline the framework of human rights due diligence and the risk management frameworks that companies must adopt and update in order to identify and address risks in their value chain.

We have based the CTI social risk mapping on these leading practices. It does not aim to substitute them. Rather, it provides a focused assessment with a circularity lens.

Table 5 shows the selection of several key social hotspots relevant to the transition to a circular economy. This shortlist aligns with international human rights standards, such as the UNGPs and the OECD Guidelines for Multinational Enterprises (see the box below) and its design prioritizes and highlights topics that are at higher risk of impact in the new circularity context.

Child Labor^{82,83}

According to UNICEF and the ILO, child labor includes any type of work performed by children under the minimum age of admission to employment that is likely to have negative repercussions on the child's health, safety or morals, interfere with their personal development and deprive them from the right to education and schooling. To set legal boundaries on the topic and steer action towards eradicating child labor, the ILO Minimum Age for Admission to Employment Convention (No. 138) pinpoints that the minimum age of children's admission to employment must not be less than the age of completion of compulsory schooling and, in any case, not below 15 years old.

Table 5: Social hotspots in CTI social risk mapping

<i>Social hotspots relevant in a circular economy</i>
Workers in the value chain
Occupational health and safety
Child labor
Forced labor
Discrimination
Freedom of association and collective bargaining
Decent working conditions
Consumers and end-users
Health and safety
Affordability
Accessibility
Local communities
Health and safety
Access to material and immaterial resources
Community engagement
Skills development
Contribution to economic development

Scope & select

During the scoping phase, the company should answer these questions:

1. What are the product(s), business unit, facility to analyze? What variants, models or types, what material flows are to be scoped in or out and why? This question helps determine the scope of the assessment and its breadth.
2. Which processes, materials and geographies are part of the product, service or activity life cycle?
3. What is the end-of-life scenario?

Collect

During this phase, the company should collect – at a minimum – quantitative information about potential risks linked to the new circular strategy or business models. Companies can rely on publicly available sources (see Table 6) or internally available databases (such as Amfori, Datamaran). It can expand and strengthen the information collected via desktop research, using internal interviews in this phase or at a later stage, should it require deep dives.

Example: Clothing brand

A clothing brand designed a sustainable line and is looking to assess the social impact of its t-shirts. Figure 14 illustrates the (hypothetical) product life cycle of a t-shirt. In alignment with the brand's strategy to focus on areas where it has the most significant influence, its CTI

social risk mapping exercise will target social hotspots in its supply chain and operations. Given this prioritization, and considering the market and price of the product, the social hotspots concerning consumers and end-users are out of scope.

Figure 14: Clothing brand example, relevant hotspots & life cycle

Social hotspots relevant in a circular economy	
Workers in the value chain	In scope?
Occupational health and safety	✓
Child labor	✓
Forced labor	✓
Discrimination	✓
Freedom of association and collective bargaining	✓
Decent working conditions	✓
Consumers and end-users	
Health and safety	✗
Affordability	✗
Accessibility	✗
Local communities	
Health and safety	✓
Access to material and immaterial resources	✓
Community engagement	✓
Skills development	✓
Contribution to economic development	✓

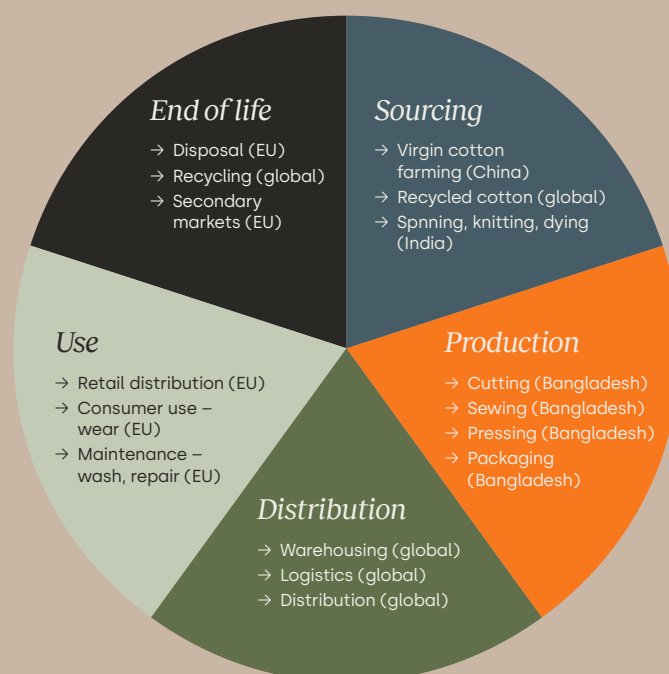


Table 6: Example of databases for CTI social risk mapping

Source	Name	Focus	Link
UNICEF	UNICEF Database – child labor	Child labor	https://data.unicef.org/topic/child-protection/child-labour/
Freedom House	Freedom House Global Freedom Status	Democracy, rule of law, freedom of expression, association	https://freedomhouse.org/explore-the-map?type=fiw&year=2024
Walk Free	Walk Free Global Slavery Index	Forced labor	https://www.walkfree.org/global-slavery-index/downloads/
UN Human Rights (OHCHR)	OHCHR Ratification of 18 International Human Rights Treaties	Human rights treaties ratification	https://indicators.ohchr.org/
ACLED (Armed Conflict Location & Event Data)	ACLED Conflict Monitor	Conflict, violence and disorders	https://acleddata.com/curated-data-files/
United Nations Development Programme (UNDP)	UNDP Human Development Index	Human development	https://hdr.undp.org/data-center/human-development-index#/indicies/HDI
World Justice Project (WJP)	WJP Rule of Law Index	Rule of law, corruption, security, justice	https://worldjusticeproject.org/rule-of-law-index/
Vision of Humanity	Global Peace Index	Social safety and security, conflict, militarization	https://www.visionofhumanity.org/maps/#/
Transparency International	Corruption Perception Index	Corruption	https://www.transparency.org/en/cpi/2023
International Trade Union Confederation (ITUC)	Global Rights Index	Freedom of association and collective bargaining	https://www.globalrightsindex.org/en/2023
International Labour Organization (ILO)	Working Poverty data	Fair remuneration	Statistics on working poverty - ILOSTAT
World Bank	World Bank Vulnerable employment data	Precarious employment	https://data.worldbank.org/indicator/SL.EMP.VULN.ZS
ILO	ILOSTAT wage and working time statistics	Working hours	https://ilostat.ilo.org/resources/concepts-and-definitions/description-wages-and-working-time-statistics/
ILO	ILOSTAT statistics on health and safety at work	Occupational health & safety	https://ilostat.ilo.org/topics/safety-and-health-at-work/
UNDP	Gender Inequality Index	Discrimination – gender	https://hdr.undp.org/data-center/thematic-composite-indices/gender-inequality-index#/indicies/GII
UNICEF	UNICEF Database – Children's rights and protection	Children rights and protection	https://data.unicef.org/country/
World Resource Institute	Aqueduct 3.0 Country Rankings	Right to water	https://www.wri.org/data/aqueduct-30-country-rankings
LandMark	Global Platform of Indigenous and Community Lands	Indigenous and land rights	https://www.landmarkmap.org/
International Work Group for Indigenous Affairs (IWGIA)	Indigenous World Report	Indigenous rights	https://www.iwgia.org/en/resources/indigenous-world.html
UNICEF	Water, sanitation and hygiene data	Access to water	https://data.unicef.org/topic/water-and-sanitation/drinking-water/
FairTrade	FairTrade Risk Map	Banana, carbon credits, cocoa, coffee, cotton, honey, sugar and wine grape	https://riskmap.fairtrade.net/
UN Environment Finance Initiative (UNEPFI)	Human Rights Guidance Tool for the Financial Sector	Agriculture, chemicals, forestry, manufacturing, infrastructure, mining and metals, oil and gas, power, services, waste and utilities	https://www.unepfi.org/humanrightstoolkit/

During information collection, one essential step is to map the stakeholders affected within each hotspot. The company should note when vulnerable groups are at a higher risk of suffering from impacts.

Calculate

After data collection, the next step is for the company to determine the severity and the likelihood of the potential impacts.

In full alignment with leading practices,⁸⁴ the severity of a potential impact comprises an evaluation of the scale, scope and irremediability of the potential impact.

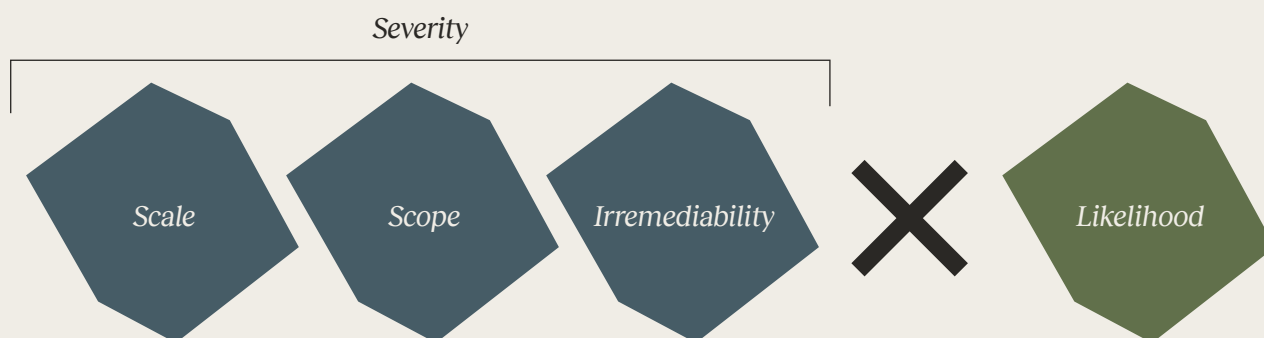
- The **scale** expresses how grave or serious the impact would be on people and their human rights.
- The **scope** expresses how many people the potential impact may affect.
- The **irremediability** expresses the level of ease those impacted could return to their prior enjoyment of the rights.
- The **likelihood** expresses the chances risks will materialize. Each component receives a low, medium or high rating. The severity score is the result of multiplying the sum of the scale, scope and irremediability scores with the likelihood.

Each dimension of severity and likelihood receives a score from 1 to 3. By applying the calculation shown in Figure 15, the lowest threshold of the risk analysis would be 3, while the highest threshold would be 27. The formulation of intermediate risk categories are as follows:

- **Green**: risk score between 3 and 7
- **Yellow**: risk score between 8 and 14
- **Orange**: risk score between 15 and 20
- **Red**: risk score between 21 and 27

The company must conduct such an assessment for each product, service or activity life-cycle step when conducting the assessment at the product level. It should take high-risk geographies, materials, the nature of the labor involved (labor-intensive or not, manual or not) and risk models⁸⁵ into account in the scoring process. The company can identify high-risk geographies for human rights risk mapping using either free for use or commercial tools. Examples of tools free for use include Amnesty International's report⁸⁶ and human rights and civil liberties indices,⁸⁷ while Maplecroft's human rights and social risk index is an example of a commercial tool.⁸⁸

Figure 15: Calculation of risk level



Analyze

The company can analyze and aggregate the results of the CTI social risk mapping in multiple ways to support internal dialogue and the development of a tailored strategy. However, two key overviews are essential: 1) a value chain, life-cycle view and 2) hotspot analysis.

The value chain, life-cycle view displays the most pressing risks in each step of the life cycle. This overview can help identify which stakeholder groups are most at risk throughout the value chain and whether the product presents higher risks at the sourcing, manufacturing or use level.

The hotspot analysis allows the company to drill down to where a specific social topic is most at risk across the value chain. This view can help identify whether existing company strategies

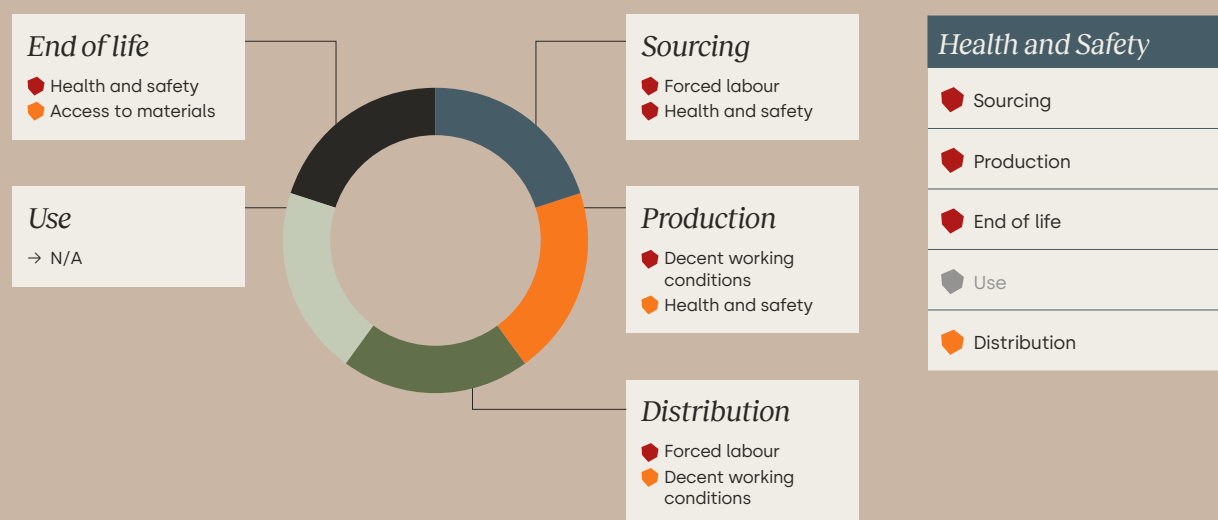
to tackle human rights topics need further integration or adjustment in the context of a given product.

One example is high risks in relation to occupational health and safety connected to end of life: how does the company's commitment to health and safety apply throughout the value chain, including those involved in waste and recycling activities downstream? As circular strategies often involve complex value chains, exploring the possibility of further integrating human rights strategies into circular transition considerations can ensure social equity across all stages of the life cycle, identify gaps and opportunities for improvement, and mitigate potential social negative impacts, allowing for a just transition for the whole value chain.

Example: Clothing brand

Figure 16 depicts the hypothetical result of the assessment conducted over the life cycle of a t-shirt.

Figure 16: Clothing brand – risk mapping throughout the life cycle



CTI quality jobs *analysis*



08.

08. CTI quality jobs analysis

Introduction

The CTI quality jobs analysis is a set of high-level screening indicators aimed at quantifying the social impacts of jobs involved in the circular business model.⁸⁹ The CTI quality jobs analysis assesses both direct and indirect positive and negative impacts on value chain workers and affected communities. It is based on job outcomes as experienced by workers, which is a critical element of a just transition. Its usefulness is to assess relevant social considerations to enhance the quality of jobs as a company transitions from linear to circular practices. This approach allows companies to provide concrete evidence and report on progress against potential social impacts from the circular transition, while building capacity to respond to regulatory requirements, such as those under the CSRD and the CSDD.

The CTI quality jobs analysis gives companies information on:

- The critical social (quality of job) hotspots of selected jobs;
- Which social impacts are critical and which concrete indicators require the most attention;

- Which workers involved in the circular value chain are most vulnerable and what is the extent of their vulnerability;
- Which specific aspects the company needs to prioritize when evaluating circular strategies.
- The CTI quality jobs analysis has 3 dimensions, 10 critical social impact categories and 14 composite, multi-attribute, qualitative indicators (Table 7).

The selection of the indicators included in the CTI quality jobs analysis applies six selection criteria to pre-existing tools that assess the quality of jobs and could be applicable to the CTI quality jobs analysis context. This set of indicators follows the guiding principles of the EU Commission well-being agenda by focusing on job quality outcomes as experienced by workers.⁹⁰ Additionally, we have tested all selected indicators in different sectors and geographical locations, which ensures the robustness and applicability of the indicators. Finally, they consider multiple vulnerabilities of workers and affected communities, which are critical elements from a just transition perspective.

Table 7: Dimensions, categories and indicators included in the CTI job quality analysis

<i>Dimension</i>	<i>Social impact categories</i>	<i>Head indicators</i>
<i>Quality of job impact on workers</i>	1. Earning quality	1. Earning quality
	2. Job security	2. Job security
	3. Work environment	3.1 Health & security
		3.2 Personal development
		3.3 Work environment (physical)
		3.4 Work environment (emotional)
<i>Equality and discrimination impacts</i>	4. Equal opportunity & equal treatment	4. Equal opportunity & equal treatment
	5. Forced labor	5. Forced labor
	6. Discrimination & vulnerable employment structures	6. Vulnerable employment structures
	7. Child labor	7. Child labor
	8. Voice & collective bargaining	8. Voice & collective bargaining
<i>Indirect job impact on worker and family well-being</i>	9. Social security for workers & family	9. Social security for workers & family
	10. Well-being of workers & their families	10.1 Work-life balance
		10.2 Well-being of workers' families

Building upon existing research,^{35, 98} we have adapted the indicators related to direct and indirect impacts on workers, such as earning quality, job security and work environment, from the OECD Framework for job quality assessment.⁹¹ We adapted the set of indicators for the well-being of the workers' families from the Sustainable Livelihood Framework,⁹² the OECD well-being-framework⁹³ and the Gender Equality in Social Auditing Guidance.⁹⁴ These include access and quality of natural resources, access and quality of physical environment (minimum household amenities and services for a dignified life) and social assets (quality time spent and level of support perceived from family or community members).

The CTI quality jobs analysis is based on a worker survey with 46 questions (43 direct and 3 related to demographics, requiring qualitative and semi-quantitative information).⁹⁵ The survey has three sections and analyzes:

1. The quality of the direct and indirect jobs for workers involved in the circular value chain;
2. The employment segregation and occupational structure to contextualize worker vulnerability;⁹⁶
3. Workers' families and community well-being.

Each dimension uses a 4-point Likert scale to score the indicators.

The scoping, selecting and data collection phases consist of 5 steps.

Scope

1. Determine the scope

- 1.1 Map the value chain with the characterization of different suppliers and their respective workers to identify the presence of the most vulnerable workers involved (Figure 17) Identify the company's circular strategies.

- 1.2 Identify internal stakeholders and suppliers involved in the production **of only** circular products or services to map the concerned system.
- 1.3 Consider only the group of workers involved in these circular processes if a company only has a line of circular products or services.

At each stage, it should identify the employed workforce. The CTI social risk mapping can help as input.

Select

2. Grouping

- 2.1 Group workers per identifier of multiple vulnerabilities.
- 2.2 Ensure this grouping validates the vulnerability criteria shown in Figure 17 (gender, age, formal or informal worker, migration status, etc.). It is important to mention that gender-disaggregated data should be the baseline if there is no knowledge of the other vulnerability criteria.
- 2.3 Send the survey to each identified group and analyze it separately.

Collect

The company collects data using primary sources from its direct employees and indirect workers and subcontractors involved in the assessed circular activities.

3. Ensure the survey form and methods are adapted to the population analyzed

The survey and guidance on adapting the survey are available in the [CTI quality jobs analysis supporting documents](#). (If you're unable to access the documents, please contact the team at cti@wbcsd.org for assistance.)

Considerations for social data collection

Social data collection requires refined and detailed methods to ensure robustness and reliability. Research has shown that it can be challenging due to a lack of access to relevant workers, the appropriate format of the survey to ensure sampling and data reliability and local contextualization.⁹⁷

This is particularly relevant as labor-intensive jobs tend to gravitate towards vulnerable populations characterized by a high risk of informality.⁹⁸

To tackle these challenges, we strongly suggest companies:

- Establish partnerships with local community organizations, local workers' organizations and NGOs to facilitate social data collection;
- Get a qualified team to collect data from vulnerable populations to ensure data integrity, confidentiality and anonymity;⁹⁹
- Use survey software that allows for visual and audio support for questioning and answering, as some workers might be illiterate.

While the 46-question survey is optimal, if this is the first time that a company performs the assessment, there is a chance that the use of all the required questions is not possible. In such cases, the company should use a minimum of two questions per head indicator.

4. *Complement the surveys with personal in-depth interviews with at least one worker from each vulnerable group identified.*

5. *Gather country context information regarding the critical social hotspots that are present.*

Companies can use the data from the risk assessment database section for this purpose (see [CTI Social Risk Mapping - Collect](#)). They also need to collect information related to wages, such as poverty line, minimum wage, local living wage and median wage in the sector in the official local currency.

Sampling

To the greatest extent possible, the approach should consider all employees and subcontractors. However, depending on the sector and size of the business, the company might need to use stratified sampling to decrease the scope. It is essential that this sampling include representation from all individuals and various vulnerabilities, such as women, migrants and those of different ethnicities, and indirect formal and informal workers (as identified in the CTI social risk mapping).

Figure 17 shows an example of the identification of vulnerable workers in the textile sector.¹⁰⁰ In each value chain segment, the company identifies the presence of worker vulnerability with a color-coded box. The size of the box indicates a stronger presence of that vulnerability in a specific production stage. This identification is critical for the analysis part as the company can then compare and prioritize different groups of workers.

CTI quality jobs analysis

This file provides guidance on the steps required to perform the CTI quality jobs analysis. More specifically, it includes:

- An overview of the social impact categories assessed and the selected indicators along with their definition and source;
- Detailed instructions on how to conduct the survey, including guidance on the participation of vulnerable groups, recommendations on technical support and important considerations;

- A salary scale convertor to accommodate different currencies and allow for the comparison and translation to the Likert scale;
- A heatmap table with explanations of each level for every indicator.

Figure 17: Example of vulnerable group mapping during the life-cycle of a product in the textile sector

		Extraction		Manufacturing		Distribution		End of life	
		Redesign	Reduce	Remanufacture		Rent	Repair	Resale	Recycle
Recognition	Workers								
	Men	■	■	■	■	■	■	■	■
	Women	■	■	■	■	■	■	■	■
	N-binary					■		■	■
	Child	■	■	■	■		■	■	■
	Senior								■
	Informal	■					■	■	■
	Indirect		■	■	■	■	■	■	■
	Migrant	■	■	■	■	■	■	■	■
	Refugee	■	■	■	■		■	■	■
	Cast-ethnic-race	■	■	■	■		■	■	■
	Most vulnerable stakeholders in the circular economy transition								

Calculate

Table 7 showcases the 3 dimensions, the 10 social impact categories and the 14 head indicators considered in this approach. The calculation of the head indicators is the simple average of the responses of the group of indicators associated with each head indicator using the formula:

$$\frac{(\text{Sum of indicator scores})}{(\text{Number of indicators})}$$

Combining different indicators ensures that the company covers all attributes of head indicators (see Table 8). For example, the job security score is equal to the sum of the responses (1-4 scale) for the 2 job security indicators, divided by 2. The equal opportunity score is equal to the sum of the 3 indicators for this head indicator, divided by 3. Indicators such as earning quality and child labor require additional input as these are country specific. The complete framework with detailed explanation of specific calculation can be

found in the [CTI quality jobs analysis supporting documents](#).

If you're unable to access the documents, please contact the team at cti@wbcsd.org for assistance.

Table 8 also shows the social impact category and the number of indicators that the company needs to calculate for each head indicator. There are two ways of aggregating indicators, which allows for some flexibility depending on the goal and scope of analysis sought: the **condensed option** or the **full option**.

In the condensed option the work environment indicator aggregates the indicators associated with the overall work environment. These indicators cover health and security, personal development and physical and emotional job demands. The company averages these to calculate the overall work environment category score.¹⁰¹

In the full option, the company can average these indicators on their own and analyze them separately. In this case, it will average health and security only with its three indicators, personal development with its four indicators, etc.

Table 8: CTI quality jobs analysis framework: overview of inclusion dimensions, categories and head indicators

Dimension	Social impact categories	Head indicators	Computation
Quality of job impact on workers	1. Earning quality	1. Earning quality	1. Wage in the pocket (1 indicator)
	2. Job security	2. Job security	2. Job security (average of 2 indicators)
	3. Work environment	3.1 Health & security	3.1 Health & security (average of 3 indicators)
		3.2 Personal development	3.2 Training & internal promotion (average of 4 indicators)
		3.3 Work environment (physical)	3.3 Work environment – physical demands (average of 3 indicators)
		3.4 Work environment (emotional)	3.4 Work environment – emotional demands (average of 3 indicators)
Equality and discrimination impacts	4. Equal opportunity & equal treatment	4. Equal opportunity & equal treatment	4. Equal opportunity (average of 3 indicators)
	5. Forced labor	5. Forced labor	5. Forced labor (average of 4 indicators)
	6. Discrimination & vulnerable employment structures	6. Vulnerable employment structures	6. Discrimination & vulnerable employment structures (average of 5 indicators)
	7. Child labor	7. Child labor	7. Child labor (average of 3 indicators)
	8. Voice & collective bargaining	8. Voice & collective bargaining	8. Voice & collective bargaining (average of 3 indicators)
Indirect job impact on worker and family well-being	9. Social security for workers & family	9. Social security for workers & family	9. Social security for workers & family (average of 5 indicators)
	10. Well-being of workers & their families	10.1 Work-life balance	10.1 Work-life balance (average of 4 indicators)
		10.2 Well-being of workers' families	10.2.1 Social integration (average of 3 indicators)
			10.2.2 Access to & quality of natural resources (average of 3 indicators)

A 4-point Likert heatmap that attributes a value (1-4) and an interpretation of that number for each indicator answers all questions, as shown in Table 9.

The company can compute the average responses from the survey (per head indicator) using a spreadsheet. It should only use clean and validated surveys to increase data accuracy. The company should delete surveys that are more than 50% unanswered.

Table 9: Likert scale and heatmap scale

4-Point Likert scale	1	2	3	4
Ranking scale for earning quality (based on a social impact assessment framework for circularity (SIAF-CE))	Poverty line	Minimum wage	Living wage	Average median salary sector
Social impact indicators	Most critical challenge	Significant challenge	Challenge but no priority	Good practice

Prioritizing vulnerable groups

The company makes its calculation per group of vulnerable workers identified in step 2 (select) and repeated the number of times needed per group of vulnerable workers. It disaggregates the results by men and women and the company should specify which vulnerable workers group it selected. Every time it finalizes the calculation for a vulnerable group, the company should save the results of each group separately to make sure it can visually compare the different groups at the end of the exercise.

Once the calculation of the 14 composite indicators is complete for each group, the heatmap reference score scale shown in Table 10 attributes a color according to the number displayed. The scale assigns red shades to the most critical challenges, indicating high priority. Orange shades indicate significant challenges, yellow shades indicate present but not priority challenges, while green shades indicate no significant risk, reflecting good practices.

Table 10: Results per vulnerability group

Criteria			
Country		*all*	
Circular Strategy-Circular job		*resale*	
Circular Job Role		*ALL*	
Age vulnerability		minor	
Migration status vulnerability		migrant	
Informal work vulnerability		informal	
	Average	Women	Men
Earning quality	1.77	1.50	2.00
Job security	2.87	3.50	3.50
Full work environment	3.13	3.03	3.03
Equal opportunity & treatment	3.04	3.50	3.83
Forced labor	3.44	3.44	3.13
Discrimination	2.83	3.25	2.92
Child labor	2.64	2.69	2.50
Voice and collective bargaining	2.85	3.50	2.83
Social protection for worker and family	2.64	2.31	2.63
Work-life balance	3.48	3.56	3.75

Optional weighting

Depending on the sector, some social indicators will be more important than others. It is possible to weigh social impact categories but the justification for weighting should be consistent with best practices and the socio-cultural context. For instance, since wages are so critical for the livelihoods of all workers, it should weigh at least 50% more than the other components of the CTI quality jobs analysis.

Example: Large textile company

An Indian company implementing circular strategies of repair, remanufacturing and recycling used the CTI quality jobs analysis. The analysis included all employees in the direct manufacturing unit, including tailors, sorters and logistics technicians. Additionally, it included third-party contractual workers who did some of the repair jobs. The company sent the survey to direct employees and suppliers and translated it into local languages. To gather the required data, the company organized data collection over two days.

The heatmap showcases that the risk populations are migrants, women and informal workers. The company split the results of the analysis based on these three vulnerable groups.

Figure 18: Example calculation results of a large textile retailer

Dimensions	Disaggregation level Social impact indicators	Circular strategies employed					
		Repair Migrant		Remanufacture migrant		Recycle informal worker	
		Women	Men	Women	Men	Women	Men
Direct quality of job impacts	1. Income	1	2	1	2	1	2
	2. Job security	3	3	3	2	3	3
	3. Work environment (composite version)	3	3	3	3	3	4
Determinants of job precariousness and vulnerabilities	4. Equal opportunity & treatment	3	3	2	3	4	4
	5. Forced labor	2	2	2	2	2	1
	6. Job-precariousness-discrimination	4	3	3	4	4	4
	7. Child labor	3	3	3	3	2	2
	8. Voice and collective bargain	2	2	3	3	2	1
Well-being of workers and their families	9. Social protection for worker & family	3	3	3	3	3	3
	10. Worklife balance and well-being	2	2	3	3	3	3

Analyze

There are two possible levels of analysis depending on the level of aggregation. If the company used the condensed option, the score will show an aggregated value associated with a certain color on the heatmap scale in Table 11. If it used the full option, the company should aggregate these indicators on their own and analyze them separately for more granular information. It should interpret the results of composite indicators within their own dimension.

The company should use the heatmap score scale in Table 11 as a reference for the analysis.

Adopting this scale system allows a company to identify critical hotspots, defined as places where remediation strategies should focus, and highlight good practices. This will allow for subsequent monitoring to follow the progress of the indicators where hotspots are. Red and orange indicate the most critical and significant challenges, which the company must prioritize, whereas green shades show good practice.

The complete heatmap to perform the analysis can be found in WBCSD's [CTI quality jobs analysis supporting documents](#).

Table 11: Heatmap scale for selected indicators

Indicator/scale	1	2	3	4
	Critical challenge	Significant challenges	Not a significant challenge, not a priority	Towards good practice
1. Income	Below minimum wage	Minimum wage	Living wage	Above living wage
2. Job security	Critical risk of losing job	Significant risk of losing job	Not a big risk of losing job	Job is secure
	Critical risk of not being able to apply for unemployment insurance	Significant risk of not being able to apply for unemployment insurance	Not at significant risk of not being able to apply for unemployment insurance	Can apply for unemployment insurance
3.1 Health and security (support for protective equipment)	No access to it, although needed	Workers paid from own pocket	Workers get reimbursed for equipment needed	Company provide what's needed and pays for it
3.2 Health and security (occurrence of sickness associated with circular job)	Presence of illness related to job	Frequent occurrence of sickness during past year	Rare occurrence of sickness	No occurrence of sickness
3.3 Health and security (exposure to harmful chemicals on circular job)	Constant exposure to harmful chemicals	Frequent exposure to harmful chemicals	Seldomly exposed to harmful chemicals	No exposure to harmful chemicals

Example: Large textile company

Following the example of a large textile company, the company should focus on the heatmap in Figure 19. The figure shows the hotspot areas of the CTI quality jobs analysis per circular strategy. With these results, the repair, remanufacture and recycle department of this company should work on:

- Increasing wages and removing the gender income gap, as the score shows that in the same position, women earn less than men. This is particularly relevant for the migrant and informal workers in the company's remanufacture and recycle operations.
- Focusing on improving the working conditions as it appears that some forced labor practices are affecting migrant and informal workers in their circular operations.
- Investigating the recycle segment as it appears that child labor is currently affecting some informal workers too.
- Improving the voice, collective bargaining and worker participation of their repair and recycle businesses, as the score shows that migrant and informal workers are less involved.

Figure 19: Example analysis results of a large textile company

Dimensions	Disaggregation level Social impact indicators	Circular strategies employed					
		Repair/ Migrant		Remanufacture/ Migrant		Recycle/ Informal worker	
		Women	Men	Women	Men	Women	Men
Direct quality of job impacts	1. Income	1	2	1	2	1	2
	2. Job security	3	3	3	2	3	3
	3. Work environment (composite version)	3	3	3	3	3	4
Determinants of job precariousness and vulnerabilities	4. Equal opportunity & treatment	3	3	2	3	4	4
	5. Forced labor	2	2	2	2	2	1
	6. Job-precariousness-discrimination	4	3	3	4	4	4
	7. Child labor	3	3	3	3	2	2
	8. Voice and collective bargain	2	2	3	3	2	1
Well-being workers and their families	9. Social protection for worker & family	3	3	3	3	3	3
	10. Worklife balance and well-being	2	2	3	3	3	3

For possible remediation avenues, companies should look at the CTI quality jobs analysis simultaneously with the social risk mapping approach as these provide complementary, actionable information. Finally, a key element in delivering a just transition to an inclusive circular economy is ensuring that effective procedures and mechanisms are in place to enable the active participation of workers in the decisions that affect their lives. Companies should include worker committees in the planning of the surveys and the implementation, as well as in the analysis of the results and solution identification.

The final step of the CTI quality jobs analysis consists of selecting which hotspots to prioritize and what mechanisms to put in place to ensure a return to the situation before the damage took place and to improve positive benefits for workers and affected communities.

Establish worker participation

Where working committees are not in place, a good practice is to establish mechanisms for worker participation. This can be a direct or an indirect mechanism, with established participation rules developed along with a local, well-established community or NGOs that would offer regular engagement opportunities to workers.

Act

After completing the CTI quality jobs analysis, companies will consider the necessary steps in the implementation of improvement measures and develop a meaningful plan of action. Table 12 provides a non-exhaustive list of improvement measures.

Following the CTI core methodology, the CTI social impact approach uses a process cycle as its base. The action plan resulting from the CTI quality jobs analysis will feed directly into the performance for the CTI social maturity assessment in the next cycle. Monitoring progress and improvements resulting from the action plan will provide the company with better insights and help it identify new gaps and opportunities to increase circular performance grounded on a just transition approach.

Example: Large textile company

Continuing the textile company example, meaningful actions that the company could start working on are to:

- Apply the country's living wage standard as the minimum paygrade for all workers;
- Improve working conditions by establishing a vibrant worker committee with the equal participation of men and women;
- Draft and publicly disclose a collective agreement that addresses provisions for violence and harassment;
- Conduct thorough investigations into child labor practices in the value chain and establish legal age boundaries in the hiring process of both the company and its partners;
- Establish collective bargaining conditions that embrace gender diversity and intersectional elements (migration status, race, socioeconomic status, etc.).

Table 12: Non-exhaustive list of improvement measures¹⁰²

<i>Indicator/scale</i>	<i>Improvement measures</i>
1. Income	Establish a universal living wage as the minimum paygrade for all workers.
2. Job security	Ensure all permanent and fixed-term positions start with the full legal benefits package.
	Develop a retirement fund scheme with a special provision for women employees.
	Privilege fixed long-term contracts.
	Sustain long-term access to collection and commercialization of materials.
3.1 Health and security (support for protective equipment)	Evaluate possible working hazards to determine the need for protective equipment.
	Provide personalized kits for workers with task-specific requirements.
	Schedule inspections of the equipment regularly.
3.2 Health and security (occurrence of sickness associated with circular job)	Conduct regular risk assessments in the workplace to identify potential causes of sickness (physical strain, exposure to chemicals, etc.).
3.3 Health and security (exposure to harmful chemicals on circular job)	Implement strict cleaning schedules for shared equipment, tools and workspaces.
	Train workers on recognizing early signs of job-related illnesses.
4. Personal development	Provide continuous, up-to-date and good quality training on a number of topics, such as management, labor rights, digitalization, circular economy and system and design thinking to workers (during working hours) to guarantee career development and higher compensation.
	Offer soft skills development workshops and seminars for workers.
5.1 Work environment (physical demand)	Introduce ergonomic improvements (adjustable work stations, anti-fatigue mats, tool design measures).
	Enforce regular breaks and set up relaxation zones where workers can rest and recover.
	Introduce flexible working schedules with no salary penalties.
5.2 Work environment (emotional-demand)	Establish a regular touchpoint system at manager-worker level, where both sides feel comfortable to express and discuss challenges and barriers.
	Establish recognition programs that include monetary rewards.
6. Equal opportunity & treatment	Provide and incentivize diversity, equity and inclusion (DEI) training opportunities to all employees.
	Ensure that lifelong learning opportunities are in place for all employees and workers.
	Ensure that training programs with the necessary marketable skills are in place for workers and employees who return to work after a prolonged absence due to factors like childbirth, parental leave, long-term unemployment due to unpaid family care responsibilities, etc.
7. Forced labor	Draft and publicly disclose a collective agreement that addresses provisions for discrimination.
	Organize reskilling opportunities to ensure workers have sufficient education for the job market.
	Establish specialized monitoring systems that track the number of working hours to avoid excessive overtime.
8. Job precariousness & discrimination	Establish transparent hiring processes with transparent salaries paid monthly.
	Minimize informality by ensuring that workers in the value chain are direct employees of either the organization assessed or a partner.
	Ensure that new employees receive written contracts that include social benefits.
	Provide social protection and registration schemes for informal workers to move out of informality, without requiring employment but rather facilitating own accounts and independent contractor schemes.
9. Child labor	Perform regular investigations to determine the possibility of child labor in the value chain.
	Establish legal age boundaries in hiring processes of both the organization assessed and partners in the value chain.
10. Voice & collective bargain	Establish vibrant worker committees encouraging the equal participation of men and women.
	Establish collective bargaining actions that support gender diversity and other vulnerabilities (migration status, race, socioeconomic status).
	Include workers and their representatives in oversight bodies.
11. Social protections for workers & families	Provide access to social protection and benefits (health insurance, pension schemes, unemployment insurance, housing support, etc.).
12. Work-life balance	Implement flexible working schedules that allow workers and employees to better structure their lives and have a higher quality of life according to their needs.
13. Social assets	Encourage negotiations of inclusive maternity and paternity leave by collective agreements.
	Establish proactive measures to eradicate motherhood penalties with quotas, voluntary targets, mentoring opportunities and flexible working schedules.
14. Access to & quality of natural resources (average of 3 indicators)	Ensure workers' families and communities have access to a clean and healthy environment, with high-quality water and air, green spaces and optimal waste collection and recycling services close by.

Conclusion



09.

09. Conclusion

A just and inclusive circular economy transition requires reshaping the economy to ensure fairness and inclusivity for all, establishing decent work opportunities and ensuring that no one is left behind. Creating the right conditions for a just transition is crucial, with inclusivity, equity and community engagement at its core. For companies investing in circular strategies and business models, this means developing a deep understanding of transitional social impacts, providing capacity building and reskilling opportunities, fostering collaboration and operationalizing these efforts through social dialogue.

As companies evaluate different circular strategies, it is imperative that they understand and mitigate potential negative impacts across their value chains. However, unlike economic and environmental indicators, circular performance measurement and management systems do not yet widely incorporate social indicators. Measuring social impacts faces considerable challenges due to the complex qualitative aspects companies must measure as well as the lack of conventional data sources that are appropriate in measuring circularity's social impacts. The absence of a widely concerted and comprehensive framework to assess the social impacts of circular transition interventions remains a key barrier to achieving a just and inclusive circular economy.

The CTI social impact guide offers a holistic approach to overcoming this barrier, including an assessment of key human rights risks and a special focus on quality job creation for workers and affected communities. In this guide, we provide a methodology to design circular strategies and business models focused on inclusivity and social justice that helps assess risks and measure the quality of jobs created, aiming to identify circular strategies that yield better outcomes for both formal and informal workers and affected communities.

The first element of the approach, the CTI social maturity assessment for circularity, encourages companies to internally evaluate their management of social and human rights risks. The second element, CTI social risk mapping, helps identify potential social and human rights risks. The final element, CTI quality jobs analysis, assesses the impact of circular business models on value chain workers and their families, with a particular focus on the most vulnerable workers.

We have designed the approach to build on existing assessments and risk insights, providing a valuable tool that specifically focuses on circular business elements and evaluates their unique risks and opportunities. This approach complements and enhances ongoing and planned social and human rights management efforts, as well as supply chain due diligence, by integrating key aspects and adding further depth.

Integrating social justice into a company's circular strategy enhances business resilience by fostering workforce loyalty and adaptability. It boosts productivity and innovation and reduces turnover costs, all while contributing to delivering a more just and inclusive transition to a circular economy.

As companies explore circular business models and innovations, it is urgent for them to better link circular economy solutions and impacts on people. By integrating social justice in circular strategies, we can enhance sustainability, ensuring benefits are widespread, equitable and just. We call on all circular business leaders to adopt the CTI social impact approach to create lasting positive effects on people, planet and profit!



Glossary

A just transition

A just transition means transforming the economy in a way that is as fair and inclusive as possible for everyone concerned, creating decent work opportunities and leaving no one behind.¹⁰³ Businesses realize this by not leaving behind those communities that the sectors transitioning away from linear business models will most likely impact. The transition is more than a simple technical or economic process; it requires the profound comprehension of the contextual factors in society. Companies should carefully consider these social factors when planning circular economy interventions.¹⁰⁴

A just transition for an inclusive circular economy

A just transition to a circular economy aims to support the shift to regenerative business in an inclusive way. It seeks to maximize the impact of climate action on society and create improved conditions for workers (both formal and informal), marginalized and vulnerable groups (including women and youth) and their communities. To do so, it engages stakeholders in social dialogue to define and implement holistic policies to close material loops while ensuring decent work and equality for all.^{105,106}

Child labor^{107,108}

According to UNICEF and the International Labour Organization (ILO), child labor includes any type of work performed by children under the minimum age of admission to employment that is likely to have negative repercussions on the child's health, safety or morals, interfere with their personal development and deprive them from the right to education and schooling. To set legal boundaries on the topic and steer action towards eradicating child labor, the ILO Minimum Age for Admission to Employment Convention (No. 138) pinpoints that the minimum age of children's admission to employment must not be less than the age of completion of compulsory schooling and, in any case, not below 15 years old.

Circular strategies

Circular strategies refer to the different forms of material recovery, such as (in order of the recirculation loops in the Ellen MacArthur Foundation's Circular Economy System Diagram or butterfly diagram¹⁰⁹):

→ **Reuse:** To extend a product's lifetime beyond its intentional designed life span, without changes made to the product or its functionality.

- **Repair:** To extend a product's lifetime by restoring it after breakage or tearing, without changes made to the product or its functionality.
- **Refurbish:** To extend a product's lifetime by large repair, potentially with replacement of parts, without changes made to the product's functionality.
- **Remanufacture:** To disassemble a product to the component level and reassemble (replacing components where necessary) to as-new condition with possible changes made to the functionality of the product.
- **Recycle:** To reduce a product back to its material level, thereby allowing the use of those materials in new products.
- **Biodegrade:** Microbial (bacteria and fungi) breakdown of organic matter in the presence of oxygen to produce soil with high organic (humus) content.

Decent work

The ILO defines decent work as "productive work for women and men in conditions of freedom, equity, security and human dignity."¹¹⁰

In general, work is considered decent when: it pays a fair income,¹¹¹ guarantees a secure form of employment and safe working conditions, ensures equal opportunities and treatment for all, includes social protections for workers and their families, offers prospects for personal development, encourages social integration and ensures workers are free to express their concerns and to organize.

Informal economy

The informal economy refers to all the workers, economic activities, enterprises and jobs that do not benefit from legal or social protections.¹¹²

*Land use and land-use change*¹¹³

Land-use change is the conversion of natural areas into human-dominated landscapes caused by activities such as urbanization, deforestation, agriculture and infrastructure development. This process is a key driver of biodiversity loss. Addressing land-use change is vital to preserving biodiversity and ensuring sustainable development.

Linear supply chain¹¹⁴

A linear supply chain is a forward product value chain in which the suppliers, producers, distribution service and customers are linked together for feed-forward material flow. Raw materials are extracted, processed, used and then disposed as waste, without a plan for recovery and repurpose.

Quality jobs in the circular economy

By adapting the ILO definition of decent work,¹¹⁵ we define a "good quality job as one that provides a fair income, security and social protection for workers and their families. It offers better prospects for reskilling and encourages social integration. It gives people the freedom to express their concerns, to organize and to participate in decisions that affect their lives and guarantees equal opportunity and equal treatment for all."

Social vulnerability

Social vulnerability is a life situation characterized by a multi-dimensional combination of factors related to disadvantage and advantage, inclusion and exclusion. There are internal differences within a group (being a woman or Black, for instance, adds layers of vulnerability). The concept of social vulnerability emphasizes weak and unstable integration in the main mechanisms of resource distribution in contemporary society and how this places people in a situation of uncertainty and high exposure to the risks of poverty and, eventually, of social exclusion.¹¹⁶

Vulnerable groups

Vulnerable groups are those who "experience a higher risk of poverty and social exclusion than the general population. Ethnic minorities, migrants, disabled people, the homeless, those struggling with substance abuse, isolated elderly people and children all often face difficulties that can lead to further social exclusion."¹¹⁷ "Examples of vulnerable groups include workers in the informal economy, women, Indigenous peoples, rural communities, people with disabilities, younger and older people, people from lower socioeconomic backgrounds, migrants and refugees, and ethnic minorities."¹¹⁸

Endnotes

- 1 WBCSD (2024). *Global Circularity Protocol for Business Impact Analysis on Climate, Nature, Equity and Business Performance*. Retrieved from: <https://www.wbcsd.org/resources/gcp-impact-analysis/>.
- 2 Suarez-Visbal, L.J. et al. (2023). The Social Impacts of Circular Strategies in the Apparel Value Chain; a Comparative Study Between Three Countries. *Circ.Econ.Sust.* 3, 757–790 (2023). Retrieved from: <https://doi.org/10.1007/s43615-022-00203-8>.
- 3 Trade and Industrial Policy Strategies (TIPS). Just Transition Portal. Retrieved from: <https://www.tips.org.za/just-transition/item/4221-policy-toolbox-for-a-just-transition>.
- 4 International Labour Organization & Circle Economy. (2021). *A just transition to a circular economy: Employment and social impacts*. Geneva: International Labour Organization. Retrieved from: https://www.ilo.org/global/publications/WCMS_765595/lang-en/index.htm.
- 5 WBCSD (2023). *Circular Transition Indicators v4.0*. Retrieved from: <https://www.wbcsd.org/resources/circular-transition-indicators-v4/>.
- 6 Fanning, A.L., O'Neill, D.W., Hickel, J. et al. (2022) The social shortfall and ecological overshoot of nations. *Nature Sustainability*, 5 (1). pp. 26–36. Retrieved from: https://eprints.whiterose.ac.uk/180834/3/Fanning%20et%20al_2021-Social%20shortfall%20and%20ecological%20overshoot%20of%20nations_authorAccepted.pdf.
- 7 WBCSD (2023). *Circular Transition Indicators v4.0*. Retrieved from: <https://www.wbcsd.org/resources/circular-transition-indicators-v4/>.
- 8 Ellen MacArthur Foundation. What is a circular economy? Retrieved from: <https://www.ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview>.
- 9 WBCSD (2024). *Global Circularity Protocol for Business Impact Analysis on Climate, Nature, Equity and Business Performance*. Retrieved from: <https://www.wbcsd.org/resources/gcp-impact-analysis/>.
- 10 Circle Economy (2023). *The Circularity Gap Report*. Retrieved from: <https://www.circularity-gap.world/2023>.
- 11 International Labour Organization (2019). *Skills for a Greener Future: Key Findings* (p. 9). https://www.ilo.org/sites/default/files/wcms-sp5/groups/public/@ed_emp/@ifp_skills/documents/publication/wcms_709121.pdf.
- 12 Schröder, P. & Barrie, J. (2022). A Global Roadmap for an Inclusive Circular Economy. Chatham House. Retrieved from: https://www.researchgate.net/publication/365762563_A_Global_Roadmap_for_an_Inclusive_Circular_Economy.
- 13 WBCSD (2024). *Global Circularity Protocol for Business Impact Analysis on Climate, Nature, Equity and Business Performance*. Retrieved from: <https://www.wbcsd.org/resources/gcp-impact-analysis/>.
- 14 JUST2CE (2024). *Circular Economy for Social Transformation: Multiple Paths to Achieve Circularity*. Retrieved from: [2024-JUST2CE-eBook-Final_Version_19.4.24.pdf](https://www.just2ce.org/2024-JUST2CE-eBook-Final_Version_19.4.24.pdf).
- 15 International Labour Organization (ILO) (2015). *Guidelines for a just transition towards environmentally sustainable economies and societies for all*. Retrieved from: <https://www.unclearn.org/wp-content/uploads/library/ilo1.pdf>.
- 16 Trade and Industrial Policy Strategies (TIPS). Just Transition Portal. Retrieved from: <https://www.tips.org.za/just-transition/item/4221-policy-toolbox-for-a-just-transition>.
- 17 Kirchherr, J., Reike, D. & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, Volume 127, 2017, Pages 221–232, ISSN 0921-3449.
- 18 Circle Economy, International Labour Organization (ILO), Solutions for Youth Employment (S4YE) (2023). *Decent Work in the Circular Economy: An overview of the existing evidence base*. Retrieved from: [6459fd-6277ede78534464251_20230424 - CJI - Decent work in the circular economy - 210x297mm.pdf](https://www.circulareconomy.org/publications/decent-work-in-the-circular-economy-210x297mm.pdf).
- 19 Cass Talbot, T. et al. (2022). *Extended Producer Responsibility (EPR) and Waste Pickers*. Technical Brief No 15. Women in Informal Employment: Globalizing and Organizing (WIEGO). Retrieved from: <https://www.wiego.org/research-library-publications/extended-producer-responsibility-epr-and-waste-pickers/>.
- 20 International Alliance of Waste Pickers (IAWP) (2023). *IAWP's Vision for a Just Transition for Waste Pickers under the UN Plastics Treaty*. Retrieved from: <https://globalrec.org/jtreport>.
- 21 Circle Economy, International Labour Organization (ILO), Solutions for Youth Employment (S4YE), United Nations Partnership for Action on Green Economy (PAGE) (2024). *Measuring and Modelling Circular Jobs: A review of definitions, databases, methods and models for understanding employment in the circular economy*. Retrieved from: 20241015 - CE-ILO-WB Method Review | DESIGN draft - A4.

Endnotes

- 22 Neves, S.A. & Marques, A.C. (2022). Drivers and barriers in the transition from a linear economy to a circular economy. *Journal of Cleaner Production*, 341, 130865.
Padilla-Rivera, A., Russo-Garrido, S. & Merveille, N. (2020). Addressing the social aspects of a circular economy: A systematic literature review. *Sustainability*, 12(19), 7912.
- 23 Pitkänen, K., Karppinen, T.K.M. Kautto, P., Pirttonen, H. et al. (2023). How to measure the social sustainability of the circular economy? Developing and piloting social circular economy indicators in Finland. *Journal of Cleaner Production* 392, 136238.
- 24 GRID Arendal (2022). A Seat at the Table – *The Role of the Informal Recycling Sector in Plastic Pollution Reduction, and Recommended Policy Changes*. Retrieved from: <https://www.grida.no/publications/863>.
- 25 Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) (2024). *Towards a Sustainable Future: Recommendations for a Just Transition in Waste Management and Circular Economy in the ASEAN Region*. Retrieved from: <https://yunusenvironmenthub.com/wp-content/uploads/2024/09/giz2024-en-just-transition-report-1.pdf>.
- 26 International Labour Organization (ILO) (2015). *Guidelines for a just transition towards environmentally sustainable economies and societies for all*. Retrieved from: https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_emp/%40emp_ent/documents/publication/wcms_432859.pdf.
- 27 Schröder, P., Lemille, A. & Desmond, P. (2020). Making the circular economy work for human development. *Resources, Conservation and Recycling*, 156, p.104686. DOI: <https://doi.org/10.1016/j.resconrec.2020.104686>.
- 28 This document adopts the key categories of affected stakeholders as included in the Corporate Sustainability Reporting Directive (CSRD) and European Sustainability Reporting Standard (ESRS) S1 – S4.
Source: European Commission (2024). ANNEX I to Commission Delegated Regulation (EU) 2023/2772 supplementing Directive 2013/34/EU of the European Parliament and of the Council as regards sustainability reporting standards. Retrieved from: <https://xbrl.efrag.org/e-esrs/esrs-set1-2023.html>.
- 29 Circle Economy, International Labour Organization (ILO), Solutions for Youth Employment (S4YE), United Nations Partnership for Action on Green Economy (PAGE) (2024). *Measuring and Modelling Circular Jobs: A review of definitions, databases, methods and models for understanding employment in the circular economy*. Retrieved from: 20241015 - CE-ILO-WB Method Review | DESIGN draft - A4.
- 30 International Labour Organization (ILO) (2019). *Skills for a greener future: A global view*. Retrieved from: <https://www.ilo.org/publications/skills-greener-future-global-view>.
- 31 Fairbrother, P. & Banks, M. (2023). A Just Transition for Labour: The Challenges of Moves to a Circular Economy. *Relations industrielles / Industrial Relations*, 78(2). <https://doi.org/10.7202/1109482ar>.
- 32 Genovese, A., & Pansera, M. (2020). The Circular Economy at a Crossroads: Technocratic Eco-Modernism or Convivial Technology for Social Revolution? *Capitalism Nature Socialism*, 32(2), 95–113. Retrieved from: <https://doi.org/10.1080/10455752.2020.1763414>
- 33 WRAP (2023). *Women and the Circular Economy: Is the Circular Economy Prejudiced?* Retrieved from: <https://www.wrap.ngo/resources/report/women-and-circular-economy-circular-economy-prejudiced>.
- 34 ten Kate, G. & Theuw, M. (2016). *Fact Sheet: Migrant labour in the textile and garment industry*. Centre for Research on Multinational Corporations (SOMO). Retrieved from: <https://www.somo.nl/nl/wpcontent/uploads/sites/2/2016/02/migrant-labour-in-the-textile-and-garment-industry.pdf>.
- 35 Ascoly, N. (2009). *The global garment industry and the informal economy: critical issues for labour rights advocates*. Clean Clothes Campaign. Retrieved from: <http://www.clean-clothes.org/resources/publications/04-09-informallabour-seminar-discussion-paper-ccc.pdf>.
- 36 Llorente-González, L.J. & Vence, X. (2020). How labour-intensive is the circular economy? A policy-orientated structural analysis of the repair, reuse and recycling activities in the European Union. *Resour Conserv Recycl* 162:105033. <https://doi.org/10.1016/J.RESCON-REC.2020.105033>.
- 37 Suarez-Visbal, L., Stuckrath, C. & Rosales Carreón, J. (2022). Assessing through a gender-inclusion lens the social impact of circular strategies in the apparel value chain: the Dutch case. In: *Toward solidarity inclusivity*. V. Pál. (ed). Vol 9, Routledge, p 11. Retrieved from: <https://doi.org/10.4324/9781003255246-9>.
- 38 World Health Organization (WHO) (2024). Electronic waste (e-waste). Retrieved from: <https://www.who.int/news-room/fact-sheets/detail/electronic-waste-%28e-waste%29>.
- 39 Suarez-Visbal, L.J. et al. (2023). The Social Impacts of Circular Strategies in the Apparel Value Chain; a Comparative Study Between Three Countries. *Circ.Econ.Sust.* 3, 757–790 (2023). Retrieved from: <https://doi.org/10.1007/s43615-022-00203-8>.

Endnotes

- 40 Balan, M. (2013). A Multidimensional Analysis of Social Vulnerability. *Hyperion Economic Journal*. Faculty of Economic Sciences, Hyperion University of Bucharest, Romania, vol. 1(3), pages 30-39, September. Retrieved from: <https://ideas.repec.org/a/hyp/journal/v1y2013i3p30-39.html>.
- 41 Nardo, L., Cortese, V., & McAnaney, D. (2010). The European Social Fund and social inclusion. Retrieved from https://ec.europa.eu/employment_social/esf/docs/sf_social_inclusion_en.pdf.
- 42 International Labour Organization (2021). Inequalities and the world of work. Retrieved from: <https://www.ilo.org/media/231921/download>.
- 43 Breman, J. et al. (2020). *The Informal Economy Revisited / Examining the Past, Envisioning the Future*. Martha Chen & Françoise Carré (eds.). Retrieved from: <https://www.taylorfrancis.com/books/oa-edit/10.4324/9780429200724/informal-economy-revisited-martha-chen-fran%C3%A7oise-carr%C3%A9>.
- 44 International Labour Organization (ILO). Informal economy. Retrieved from: <https://www.ilo.org/ilo-employment-policy-job-creation-livelihoods-department/branches/employment-investments-branch/informal-economy#:~:text=Informality%20is%20an%20important%20characteristic,diversity%20of%20situations%20and%20phenomena>.
- 45 Circle Economy (2024). *Circularity and informality, redefining narratives*. Retrieved from: <https://www.circle-economy.com/resources/circularity-informality-redefining-narratives>.
- 46 Circle Economy (2024). *Circularity and informality, redefining narratives*. Retrieved from: <https://www.circle-economy.com/resources/circularity-informality-redefining-narratives>.
- 47 Organisation for Economic Co-operation and Development (OECD) & International Labour Organization (ILO) (2019). *Tackling Vulnerability in the Informal Economy*. OECD Publishing, Paris. Retrieved from: <https://doi.org/10.1787/939b7bcd-en>.
- 48 We recommend that readers of this guidance review in detail the CTI methodology for resource use and circular performance.
- 49 Refer to the CTI v4.0 guidance for more detailed information on how to calculate all indicators.
- 50 WBCSD (2023). *Circular Transition Indicators v4.0*. Retrieved from: <https://www.wbcsd.org/resources/circular-transition-indicators-v4/>.
- 51 WBCSD (2023). *Circular Transition Indicators v4.0*. Retrieved from: <https://www.wbcsd.org/resources/circular-transition-indicators-v4/>.
- 52 WBCSD (2023). *Circular Transition Indicators v4.0*. Retrieved from: <https://www.wbcsd.org/resources/circular-transition-indicators-v4/>.
- 53 International Labour Organization (ILO). (2015). *Guidelines for a just transition towards environmentally sustainable economies and societies for all*. Retrieved from: <https://www.unclearn.org/wp-content/uploads/library/ilo1.pdf>.
- 54 Suarez-Visbal, L.J. et al. (2024). Weaving a Transformative Circular Textile Policy Through a Socio-Environmental Justice Lens. In: Galende Sánchez, E., Sorman, A.H., Cabello, V., Heidenreich, S., Klöckner, C.A. (eds) *Strengthening European Climate Policy*. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-031-72055-0_3.
- 55 International Labour Organization & Circle Economy. (2021). *A just transition to a circular economy: Employment and social impacts*. Geneva: International Labour Organization. Retrieved from: https://www.ilo.org/global/publications/WCMS_765595/lang--en/index.htm.
- 56 Circle Economy, International Labour Organization (ILO), Solutions for Youth Employment (S4YE), United Nations Partnership for Action on Green Economy (PAGE) (2024). *Measuring and Modelling Circular Jobs: A review of definitions, databases, methods and models for understanding employment in the circular economy*. Retrieved from: 20241015 - CE-ILO-WB Method Review | DESIGN draft - A4.
- 57 Fairbrother, P. & Banks, M. (2023). A Just Transition for Labour: The Challenges of Moves to a Circular Economy. *Relations industrielles / Industrial Relations*, 78(2). <https://doi.org/10.7202/1109482ar>.
- 58 International Labour Organization (ILO). Decent work and the 2030 Agenda for sustainable development. Retrieved from: <https://www.ilo.org/topics/decent-work-and-2030-agenda-sustainable-development>.
- 59 International Alliance of Waste Pickers (IAWP) (2023). *IAWP's Vision for a Just Transition for Waste Pickers under the UN Plastics Treaty*. Retrieved from: <https://globalrec.org/jtreport>.
- 60 International Labour Organization (ILO) (2015). *Guidelines for a just transition towards environmentally sustainable economies and societies for all*. Retrieved from: <https://www.unclearn.org/wp-content/uploads/library/ilo1.pdf>.
- 61 United Nations (2011). *United Nations Guiding Principles on Business and Human Rights*. Retrieved from: [GuidingPrinciplesBusinessHR_EN.pdf](https://www.unhcr.org/refugees/pdf/GuidingPrinciplesBusinessHR_EN.pdf).
- 62 Organisation for Economic Co-operation and Development (OECD) (2023). *OECD Guidelines for Multinational Enterprises on Responsible Business Conduct*. OECD Publishing, Paris. Retrieved from: <https://doi.org/10.1787/81f92357-en>.

Endnotes

- 63 European Commission. (2024). *Directive (EU) 2024/1760 of the European Parliament and of the Council of 13 June 2024 on corporate sustainability due diligence and amending Directive (EU) 2019/1937 and Regulation (EU) 2023/2859*. Official Journal of the European Union, L 2024/1760, 5 July 2024. Retrieved from: <https://eur-lex.europa.eu/eli/dir/2024/1760/oj>.
- 64 Cazes, S., Hijzen, A. & Saint-Martin, A. (2015). Measuring and Assessing Job Quality: The OECD Job Quality Framework. *OECD Social, Employment and Migration Working Papers*, No. 174. OECD Publishing, Paris. Retrieved from: <https://doi.org/10.1787/5jrp02kjlw1mr-en>.
- 65 Valencia, M., Bocken, N., Loaiza, C. & De Jaeger, S. (2023). The social contribution of the circular economy. *Journal of Cleaner Production*, [online] 408, p.137082. Retrieved from: <https://doi.org/10.1016/j.jclepro.2023.137082>.
- 66 International Labour Organization (2024). *Decent Work*. Retrieved from: <https://www.ilo.org/topics/decent-work>.
- 67 World Benchmarking Alliance (2021). *Corporate Human Rights Benchmark Methodology Apparel sector*. Retrieved from: [CHRB-Methodology-291121-Apparel-FINAL.pdf](https://www.wbaia.org/2021/12/29/CHRB-Methodology-291121-Apparel-FINAL.pdf).
- 68 Sulich, A. & Sołoduch-Pelc, L. (2021). The circular economy and the Green Jobs creation. *Environmental Science and Pollution Research*. Retrieve from: <https://doi.org/10.1007/s11356-021-16562-y>.
- 69 International Labour Organization (ILO) (2019). *Skills for a greener future: A global view*. Retrieved from: <https://www.ilo.org/publications/skills-greener-future-global-view>.
- 70 Business Commission to Tackle Inequality (n.d). *Tackling inequality: An agenda for business action*. Available at: <https://tacklinginequality.org/files/flagship.pdf>.
- 71 United Nations Industrial Development Organization (UNIDO) (2023). Why adopting a gender-inclusive approach towards Circular Economy matters. Retrieved from: <https://iap.unido.org/articles/why-adopting-gender-inclusive-approach-towards-circular-economy-matters>.
- 72 United Nations Industrial Development Organization (UNIDO) (2023). Why adopting a gender-inclusive approach towards Circular Economy matters. Retrieved from: <https://iap.unido.org/articles/why-adopting-gender-inclusive-approach-towards-circular-economy-matters>.
- 73 Dewick, P., de Mello, A. M., Sarkis, J. & Donkor, F. K. (2022). The puzzle of the informal economy and the circular economy. *Resources, Conservation and Recycling*, 187, 106602.
- 74 United Nations Industrial Development Organization (UNIDO) (2023). Why adopting a gender-inclusive approach towards Circular Economy matters. Retrieved from: <https://iap.unido.org/articles/why-adopting-gender-inclusive-approach-towards-circular-economy-matters>.
- 75 Dewick, P., de Mello, A. M., Sarkis, J. & Donkor, F. K. (2022). The puzzle of the informal economy and the circular economy. *Resources, Conservation and Recycling*, 187, 106602.
- 76 United Nations Industrial Development Organization (UNIDO) (2023). Why adopting a gender-inclusive approach towards Circular Economy matters. Retrieved from: <https://iap.unido.org/articles/why-adopting-gender-inclusive-approach-towards-circular-economy-matters>.
- 77 Circle Economy, International Labour Organization (ILO), Solutions for Youth Employment (S4YE) (2023). *Decent Work in the Circular Economy: An overview of the existing evidence base*. Retrieved from: [6459fd-6277ede78534464251_20230424 - CJI - Decent work in the circular economy - 210x297mm.pdf](https://www.circleeconomy.europa.eu/publications/2023/04/20230424-CJI-Decent-work-in-the-circular-economy-210x297mm.pdf).
- 78 United Nations Industrial Development Organization (UNIDO) (2023). Why adopting a gender-inclusive approach towards Circular Economy matters. Retrieved from: <https://iap.unido.org/articles/why-adopting-gender-inclusive-approach-towards-circular-economy-matters>.
- 79 Cruz-Cárdenas, J. et al. (2022). Consumer Behavior in Product Disposal: Mapping the Field. *Human Factors, Business Management and Society*, 56, 170–176. <https://doi.org/10.54941/ahfe1002265>.
- 80 United Nations Industrial Development Organization (UNIDO) (2023). Why adopting a gender-inclusive approach towards Circular Economy matters. Retrieved from: <https://iap.unido.org/articles/why-adopting-gender-inclusive-approach-towards-circular-economy-matters>.
- 81 Schröder, P. (2020). *Promoting a Just Transition to an Inclusive Circular Economy*. Retrieved from: <https://circulareconomy.europa.eu/platform/sites/default/files/2020-04-01-inclusive-circular-economy-schroder.pdf>.
- 82 International Labour Organization (ILO) and United Nations Children's Fund (UNICEF) (2021). *Child Labour: Global estimates 2020, trends and the road forward*. Retrieved from: https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_norm/@ipecc/documents/publication/wcms_797515.pdf.
- 83 International Labour Organization (ILO) (1973). C138 - Minimum Age Convention, 1973 (No. 138). Retrieved from: https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C138.

Endnotes

- 84 Global Compact Network Netherlands, Oxfam and Shift. *Doing business with respect for human rights: Chapter 3.3 – Assessing impacts 'From reactive to proactive'*. Retrieved from: <https://www.businessrespecthumanrights.org/en/page/344/assessing-impacts>.
- 85 Shift (2021). *Business Model Red Flags*. Retrieved from: <https://shiftproject.org/resource/business-model-red-flags/menu-of-red-flags/>.
- 86 Amnesty International (2023). *Amnesty International Report 2022/23: The state of the world's human rights*. Retrieved from: <https://www.amnesty.org/en/documents/pol10/5670/2023/en/>.
- 87 V-Dem (2024). Processed by Our World in Data. "Civil liberties index – (best estimate, aggregate: average)" [dataset]. V-Dem, "V-Dem Country-Year (Full + Others) v14" [original data]. Retrieved 25 November 2024 from <https://ourworldindata.org/grapher/distribution-human-rights-index-vdem>.
- 88 Maplecroft. Human Rights Data: Risk data for human rights due diligence, compliance, and impact assessment. Retrieved from: <https://www.maplecroft.com/global-risk-data/human-rights-data/>.
- 89 Circle Economy Foundation (2021). *Circular Jobs Definition Framework | Knowledge Hub*. Retrieved from: <https://knowledge-hub.circle-economy.com/article/8482?n=Circular-Jobs-Definition-Framework>.
- 90 Stiglitz, J., Sen, A. & Fitoussi, J.-P. (2009). *Report by the Commission on the Measurement of Economic Performance and Social Progress*. Retrieved from: <https://ec.europa.eu/eurostat/documents/8131721/8131772/Stiglitz-Sen-Fitoussi-Commission-report.pdf>.
- 91 Cazes, S., Hijzen, A., & Saint-Martin, A. (2015). *Measuring and Assessing Job Quality: The OECD Job Quality Framework*. OECD Social, Employment and Migration Working Papers, No. 174, OECD Publishing, Paris.
- 92 Department for International Development of the United Kingdom (1999). *Sustainable livelihoods guidance sheets*. Livelihoods Centre. Retrieved from: https://www.eeas.europa.eu/sites/default/files/1999_sustainable_livelihoods_guidance_sheet_dfid.pdf
- 93 Organisation for Economic Co-operation and Development (OECD). *Measuring well-being and progress*. Retrieved from: <https://www.oecd.org/en/topics/measuring-well-being-and-progress.html>.
- 94 Business for Social Responsibility (BSR) (2018). *Gender Equality in Social Auditing Guidance*. Retrieved from: https://www.bsr.org/reports/BSR_Gender_Equality_in_Social_Auditing_Guidance.pdf.
- 95 While the 46-question survey is optimal, if this is the first time that a company performs the assessment, there is a chance that the use of all the required questions is not possible. In such cases, the company should use a minimum of two questions per head indicator.
- 96 Reskin, B. & Cassirer, N. (1996). Occupational Segregation by Gender, Race and Ethnicity. *Sociological Focus*, 29(3), pp. 231–243. Retrieved from: <https://doi.org/10.1080/00380237199610570642>.
- 97 Willems, J., & Van den Bossche, P. (2019). Contextualizing survey data: Problems and solutions in field research. *Field Methods*, 31(2), 139–156. Retrieved from: <https://doi.org/10.1177/1525822X18821126>.
- 98 Suarez-Visbal, L.J., Carreón, J.R., Corona, B. & Worrell, E. (2022). The Social Impacts of Circular Strategies in the Apparel Value Chain; a Comparative Study Between Three Countries. *Circular Economy and Sustainability*. Retrieved from: <https://doi.org/10.1007/s43615-022-00203-8>.
- 99 Willems, J., & Van den Bossche, P. (2019). Contextualizing survey data: Problems and solutions in field research. *Field Methods*, 31(2), 139–156. Retrieved from: <https://doi.org/10.1177/1525822X18821126>.
- 100 International Labour Organization (ILO). (2021). A "Just Transition Toolkit" for textile and garment supply chain in Asia. International Labour Organization. Retrieved from: <https://sdghelpdesk.unescap.org/node/1984>
- 101 GRID Arendal (2022). *A Seat at the Table – The Role of the Informal Recycling Sector in Plastic Pollution Reduction, and Recommended Policy Changes*. Retrieved from: <https://www.grida.no/publications/863>.
- 102 Suarez-Visbal, L.J et al. (2024). Transformative circular futures in the textile and apparel value chain: Guiding policy and business recommendations in the Netherlands, Spain, and India. *Journal of Cleaner Production*, Volume 447, 1 April 2024, 141512. Retrieved from: <https://www.sciencedirect.com/science/article/pii/S0959652624009600?via%3Dihub>.
- 103 International Labour Organization (ILO) (2015). *Guidelines for a just transition towards environmentally sustainable economies and societies for all*. Retrieved from: <https://www.unclearn.org/wp-content/uploads/library/ilo1.pdf>.
- 104 Trade and Industrial Policy Strategies (TIPS). Just Transition Portal. Retrieved from: <https://www.tips.org.za/just-transition/item/4221-policy-toolbox-for-a-just-transition>.

Endnotes

- 105** Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) (2024). *Towards a Sustainable Future: Recommendations for a Just Transition in Waste Management and Circular Economy in the ASEAN Region*. Retrieved from: <https://yunusenvironmenthub.com/wp-content/uploads/2024/09/giz2024-en-just-transition-report-1.pdf>.
- 106** International Labour Organization (ILO) (2015). *Guidelines for a just transition towards environmentally sustainable economies and societies for all*. Retrieved from: https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_emp/%40emp_ent/documents/publication/wcms_432859.pdf.
- 107** International Labour Organization (ILO) and United Nations Children's Fund (UNICEF) (2021). *Child Labour: Global estimates 2020, trends and the road forward*. Retrieved from: https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_norm/@ipec/documents/publication/wcms_797515.pdf.
- 108** International Labour Organization (ILO) (1973). C138 - Minimum Age Convention, 1973 (No. 138). Retrieved from: https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C138.
- 109** See the Ellen MacArthur Foundation's circular economy infographic at: The Butterfly Diagram: Visualising the Circular Economy
- 110** International Labour Organization (ILO). Decent work and the 2030 Agenda for sustainable development. Retrieved from: <https://www.ilo.org/topics/decent-work-and-2030-agenda-sustainable-development>.
- 111** International Alliance of Waste Pickers (IAWP) (2023). *IAWP's Vision for a Just Transition for Waste Pickers under the UN Plastics Treaty*. Retrieved from: <https://globalrec.org/jtreport>.
- 112** Breman, J. et al. (2020). *The Informal Economy Revisited | Examining the Past, Envisioning the Future*. Martha Chen & Françoise Carré (eds.). Retrieved from: <https://www.taylorfrancis.com/books/oa-edit/10.4324/9780429200724/informal-economy-revisited-martha-chen-fran%C3%A7oise-carr%C3%A9>.
- 113** WBCSD (2023). *Circular Transition Indicators v4.0*. Retrieved from: <https://www.wbcsd.org/resources/circular-transition-indicators-v4/>.
- 114** Manavalan, E., Arasu, M. T. & Kandasamy, J. (2021). Sustainable supply chain management in manufacturing industries. In *Handbooks in Advanced Manufacturing, Sustainable Manufacturing*. Kapil Gupta and Konstantinos Salonitis (Eds.). Elsevier, 2021, pp. 343-365. Retrieved from: <https://doi.org/10.1016/b978-0-12-818115-7.00010-9>.
- 115** International Labour Organization (2024). *Decent Work*. Retrieved from: <https://www.ilo.org/topics/decent-work>.
- 116** Balan, M. (2013). A Multidimensional Analysis of Social Vulnerability. *Hyperion Economic Journal*. Faculty of Economic Sciences, Hyperion University of Bucharest, Romania, vol. 1(3), pages 30-39, September. Retrieved from: <https://ideas.repec.org/a/hyp/journal/v1y2013i3p30-39.html>.
- 117** Nardo, L., Cortese, V., & McAnaney, D. (2010). The European Social Fund and social inclusion. Retrieved from https://ec.europa.eu/employment_social/esf/docs/sf_social_inclusion_en.pdf.
- 118** International Labour Organization (2021). Inequalities and the world of work. Retrieved from: <https://www.ilo.org/media/231921/download>.

Acknowledgements

Disclaimer

This publication is released in the name of WBCSD. Like other WBCSD publications, it is the result of collaborative efforts by representatives from member companies and external experts. This does not mean, however, that every member company or stakeholder agrees with every word. The report has been prepared for general informational purposes only and is not intended to be relied upon as accounting, tax, legal or other professional advice.

Attribution

The Circular Transition Indicators (CTI) Social Impact and supporting documents are licensed under CC BY-ND 4.0 (Creative Commons Attribution-NoDerivatives 4.0 International).

Authors:

WBCSD – Irene Martinetti, Manager, Circular Economy, Zoi Efthymiadou, Associate, Circular Products and Materials, Larissa van der Feen, Senior Associate, Partnership for Carbon Transparency

KPMG – Greta Fracasso, Sr. Consultant, Business & Human Rights - ESG Advisory

Utrecht University, Copernicus Institute of Sustainable Development - Lis Suarez-Visbal, Ashoka Fellow and Doctoral Researcher; Laura Piscicelli, Assistant Professor

Project leads:

WBCSD - Irene Martinetti, Manager, Circular Economy; Quentin Drewell, Senior Director, Circular Products and Materials

KPMG - Julius Groenendaal, Manager Sustainability

We thank the companies and organizations participating in the consultations that led to the development of this guidance.

CTI Social Impact Working group:

BASF, Bayer, Clariant, Dow, EY, Fujitsu, INGKA Group (IKEA), Petronas, PwC, Sabic, SAP, VF Corporation

CTI Social Impact contributors:

Jonah Belitz, Systemiq Earth; Linda Godfrey, CISR; Manon Sennechael, UNEP; Sonia Dias, WIEGO; Tasaki Tomohiro, NIES Japan; Taylor Cass Talbott, IAWP; Esther Goodwin Brown, Circle Economy

Esther Goodwin Brown, Circle Economy

Circular Transition Indicators Advisory group:

African Circular Economy Network, CIRAIG, Circle Economy, Cradle to Cradle Products Innovation Institute, Ellen MacArthur Foundation, European Remanufacturing Council, MVO Nederland, Platform for Accelerating the Circular Economy, Sitra, Yunus Environment Hub.

About the Circular Transition Indicators

In recent years, the circular economy has increasingly appeared as the new model to pursue sustainable economic growth. Companies require consistent measurement processes and metrics to assess their circular performance. To address this need, we have worked with our members and stakeholders to jointly develop a universal framework to measure circularity. The Circular Transition Indicators (CTI) is a transparent, objective and evolving framework that is applicable to businesses of all industries, sizes, value chain positions and geographies. The Circular Transition Indicators v1.0, v2.0, v3.0, v4.0 by the World Business Council for Sustainable Development are licensed under CC BY-ND 4.0 (Creative Commons Attribution-NoDerivatives 4.0 International).

About WBCSD

The World Business Council for Sustainable Development (WBCSD) is a global community of over 225 of the world's leading businesses driving systems transformation for a better world in which 9+ billion people can live well, within planetary boundaries, by mid-century. Together, we transform the systems we work in to limit the impact of the climate crisis, restore nature and tackle inequality. We accelerate value chain transformation across key sectors and reshape the financial system to reward sustainable leadership and action through a lower cost of capital. Through the exchange of best practices, improving performance, accessing education, forming partnerships, and shaping the policy agenda, we drive progress in businesses and sharpen the accountability of their performance.

Follow us on [LinkedIn](#) and [BlueSky](#)

[wbcds.org](https://www.wbcds.org)

Copyright © WBCSD, May 2025



World Business
Council
*for Sustainable
Development*