



# Exploring a Just and Inclusive Circular Recovery

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## Disclaimer

This report was produced as part of the UBC Sustainability Scholars Program, a partnership between the University of British Columbia and various local governments and organizations in support of providing graduate students with opportunities to do applied research on projects that advance sustainability across the region.

This project was conducted under the mentorship of staff and contractors with The Share Reuse Repair Initiative, a program of MakeWay Charitable Society. The opinions and recommendations in this report and any errors are those of the author and do not necessarily reflect the views of The Share Reuse Repair Initiative or the University of British Columbia.

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# Preface

The Share Reuse Repair Initiative (SRRI) sought the assistance of a UBC Sustainability Scholar in order to support the preparation of a strategy that outlines the opportunity for the circular economy to be part of a post-pandemic economic reset in Greater Vancouver that is just, resilient, and sustainable. This includes a focus on the development of inclusive circular jobs as well as affordable and accessible circular goods and services, with an emphasis of the former for the scholar's work. The transition to the circular economy will be labour-intensive, especially in the coming 10 to 20 years, requiring more people to drive its principles of reuse and repair than in the linear economy, where resources are typically wasted and incinerated. By extending the life and use of products and materials, reuse and repair are meaningful climate and waste solutions that also hold strong, yet not well understood, potential to create stable inclusive local jobs for all skill and income levels. This includes jobs for both those with traditional barriers to entering the labour market (for instance, new immigrants and refugees, hard-to-employ) as well as those most impacted by COVID-19 such as racialized women and youth with limited work experience.

Specifically, this UBC Sustainability Scholar Project was designed to help SRRI understand: the potential for the transition to a circular economy to create net job growth; the nature of circular jobs and a base of understanding about a just circular transition; and to learn more about how sharing, reuse and repair currently show up in the lives, livelihoods and enterprises of some marginalized communities in Greater Vancouver. Affordability of circular goods, though critical, was a lower priority focus, cursorily touched on during community interviews.

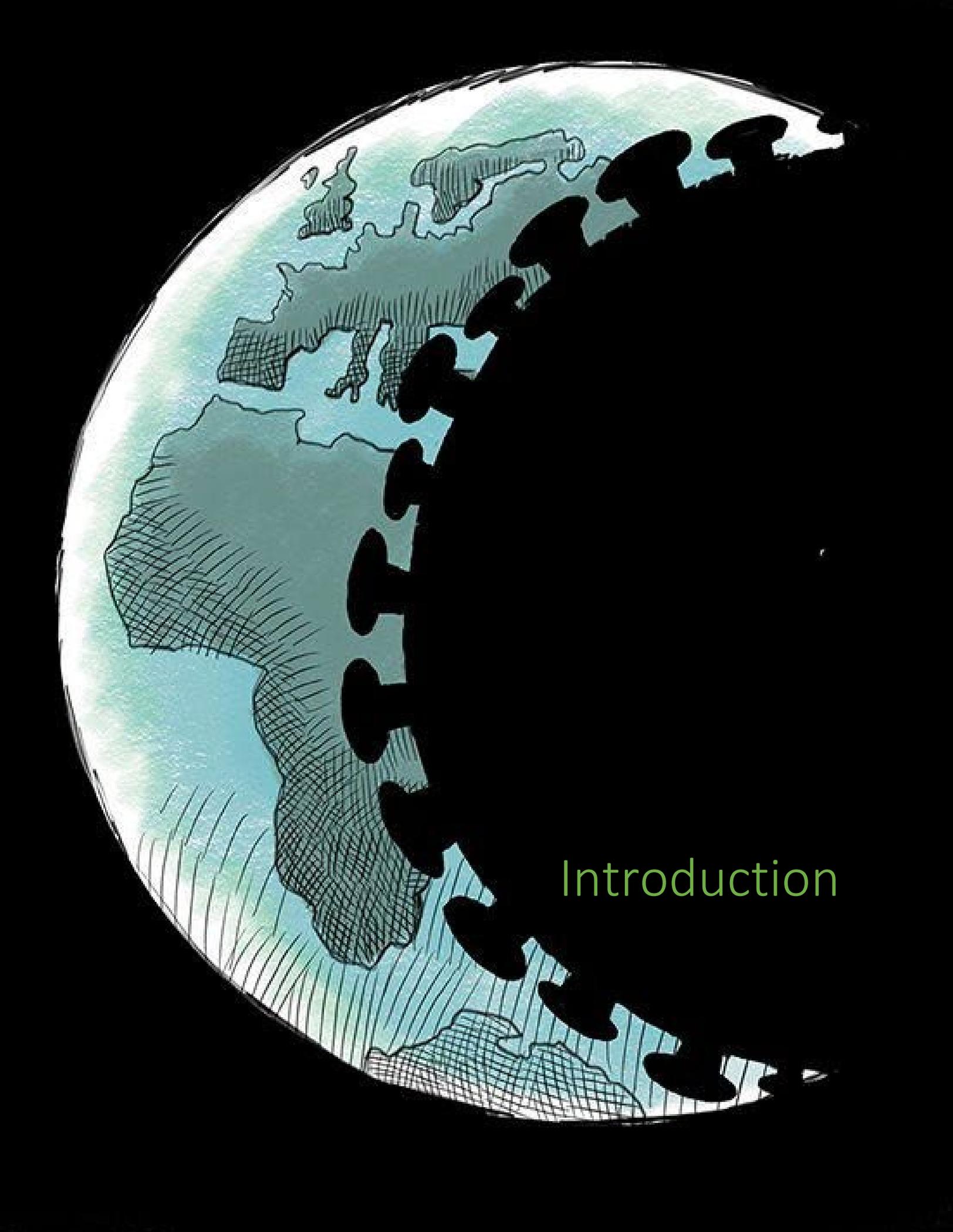
Neha Sharma-Mascarenhas, the UBC Sustainability Scholar for this project and the author of this report is a PhD student at the Institute for Resources, Environment and Sustainability (IRES) at the University of British Columbia (UBC). Her doctoral research aims to study the policy and economic barriers to repair, and the associated environmental costs of the current linear economic paradigm. Neha holds a Master's degree in Economics from Gokhale Institute of Politics and Economics, India, and has worked for over ten years in the fields of data analytics, economics and public policy research, with international research organisations and industry.

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# Introduction

# Introduction

## CONTEXT

The COVID-19 pandemic has been the largest peacetime economic shock at a global scale causing a 4%<sup>1</sup> economic contraction. It has triggered a severe impact on employment and investment across all sectors, in addition to the health and social consequences. The International Labour Organization (ILO) estimated a loss of 400 million jobs worldwide during the second quarter of 2020.<sup>2</sup> The pandemic has also magnified existing inequities and has hit the most vulnerable groups the hardest. Research suggests strong negative effects on low-income households, workers with lower educational attainment, minorities, immigrants, and women.<sup>3</sup>

Globally, governments have responded by announcing unprecedented financial stimuli (US\$13 trillion<sup>4</sup>) for socio-economic recovery from the COVID-19 crisis. Given the potential of these large scale stimulus packages to mould the global economy for decades to come, there are calls from experts<sup>5</sup> and industry leaders<sup>6</sup> to leverage the recovery programs to transition towards a more sustainable and green economy.

### *The Circular Economy as a COVID-19 Recovery Strategy*

In the last decade, momentum has built around the need for a systemic change towards circularity, with innovations from industry and calls to update national climate action plans to incorporate a circular economic perspective.<sup>7</sup> The circular economy is advocated as a model for sustainable resource use and consumption<sup>8</sup> with the strategies of reuse, repair and remanufacturing in particular offering resilience for stocks of natural capital and local economic activity.<sup>9</sup> The crisis unfolding from COVID-19 has highlighted the fragility of global supply chains, making circularity more relevant than ever, offering many important economic benefits.

While circular economy features in some of these green recovery calls<sup>10</sup>, concrete plans to move to circularity in policy are minimal. Instances where circular economy does feature, are limited primarily to resource recovery efforts and plastics and packaging.<sup>11</sup> However, research indicates that the inner loops

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<sup>1</sup> IMF estimation of 2020 global economic shrinkage of 4.4% and OECD and World Bank also peg it within the same range [International Monetary Fund. (2020). [World Economic Outlook, October 2020: A Long and Difficult Ascent](#)]

<sup>2</sup> 400 million full-time jobs, based on a 48-hour working week. [International Labour Organization. (2020). [ILO Monitor: COVID-19 and the world of work. 6th edition](#)]; [International Energy Agency (IEA). (2020). [Sustainable Recovery: World Energy Outlook Special Report](#)]

<sup>3</sup> International Monetary Fund. (2020). [World Economic Outlook, October 2020: A Long and Difficult Ascent](#)

<sup>4</sup> Amount of financial stimulus by G20 countries and other major economies [Vivid Economics; Finance for Biodiversity Initiative. (2021) [Greenness of Stimulus Index](#)]

<sup>5</sup> [Rosenbloom D; Markard, J. (2020). [A COVID-19 recovery for climate](#)]; [World Resources Institute (WRI). [Coronavirus Recovery](#)]

<sup>6</sup> [Post COVID19: 217 Clean50 Leaders call for a #CleanReset for Canada; Industry leaders call for bold green recovery in open letter](#)

<sup>7</sup> [World Resources Institute (WRI). [5 Ways to Unlock the Value of the Circular Economy](#)]; [European Circular Economy Stakeholder Platform. (2020). [The Covid-19 recovery requires a resilient circular economy](#)]

<sup>8</sup> One of the key findings cited in the ILO Greening with Jobs report [International Labour Organization. (2018). [Greening with Jobs: World Employment Social Outlook 2018](#)]

<sup>9</sup> Ellen MacArthur Foundation. 2020. [The Covid-19 recovery requires a resilient circular economy](#).

<sup>10</sup> [Green and just recovery - David Suzuki Foundation], [World Resources Institute (WRI). [Not Enough Climate Action in Stimulus Plans](#)]; [Building Back Better by greening industry]

<sup>11</sup> For instance, Ontario's [Resource Recovery and Circular Economy Act](#), 2016 (S.O. 2016, c. 12, Sched. 1) describes 'circular economy' as an economy that strives to minimize the use of raw materials, to maximize the useful life of materials and other resources through resource recovery, and to minimize waste generated at the end of life of products and packaging; thus largely emphasizing the outer loop circularity of recycling and with little attention to repair, share and reuse inner loops.

of the circular economy - reusing, repairing, sharing, and remanufacturing - are not just critical as waste *prevention* strategies,<sup>12</sup> but also have untapped potential to create jobs<sup>13</sup> that are local, decent, and inclusive across skill levels.

Within these larger calls for a green and inclusive recovery, this study explores the notion of a green recovery that is not only circular, but also just and inclusive. A just recovery contains the potential to create inclusive jobs and livelihoods for all skill and income levels and facilitates affordable access to circular goods and services. This report focuses on the inner loops of the circular economy, specifically studying the employment potential, to support and inform the Share Reuse Repair Initiative's Just Circular Recovery and Transition Program. Affordability of circular goods, though critical, is not within the scope of this report; however, we have cursorily touched upon this aspect, during our community interviews.

## PROJECT OBJECTIVES, METHODOLOGY AND SCOPE

Figure 1 lists the project objectives, methodology and the scope. This project used two main methods of analysis: a literature review and semi-structured interviews with community members.

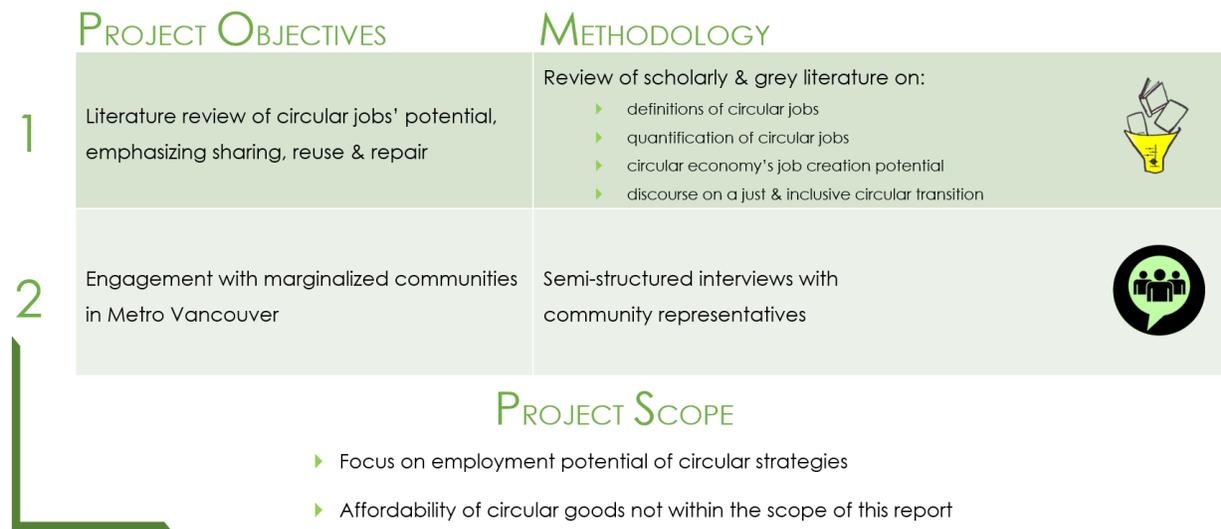


Figure 1: Project objectives, methodology and scope

<sup>12</sup> Reuse. (2015). [Briefing on job creation potential in the re-use sector](#)

<sup>13</sup> National Zero Waste Council (NZWC). (2021). [Waste Prevention: The Environmental and Economic Benefits for Canada](#)

In the report, we begin with a brief review of scholarly literature on circular jobs:

- » how a circular job is defined,
- » how a circular job is quantified,
- » does a transition to circularity create or deplete jobs in an economy, and
- » how can the circular economy be made more just and inclusive?

Afterwards, we engaged with the representatives of some marginalized communities in the Greater Vancouver region to understand their participation in reuse, repair and sharing activities in their daily lives as consumers, in their employment, and as entrepreneurs. We conclude with a discussion on further research and policy directions that could help fill the gaps in the literature and in practice to facilitate a more vibrant, just and inclusive reuse, repair, and sharing sector in the region.

A close-up photograph of a person's hands using a hand plane to smooth a piece of wood. The wood has a bright blue finish on top and a natural light-colored wood grain on the bottom. The person is wearing a white apron. The background is slightly blurred, showing a workshop environment. The text "Potential of circular economy to generate net employment" is overlaid in green on the left side of the image.

Potential of circular economy to generate net employment

# Potential of circular economy to generate net employment

In this section, we review the definition and quantification of circular jobs followed by an evaluation of research to discern whether the transition to a circular economy might increase net employment.

## DEFINING AND QUANTIFYING CIRCULAR JOBS

Defining and quantifying circular jobs is a complex task. There is as yet no uniformly accepted definition of a circular job, nor standard methodology, which inhibits comparability of results. Research to define and quantify circular jobs have either been drawn from a green jobs framework defined by the United Nations Environment Program (UNEP) and International Labour Organization (ILO), et al without a specific category for circular jobs, or has conceptually borrowed from the same framework. The next section first reviews green jobs frameworks before exploring two circular jobs frameworks – one by Circle Economy and a second by WRAP UK and the Green Alliance [the three frameworks are depicted in Figure 2 below].

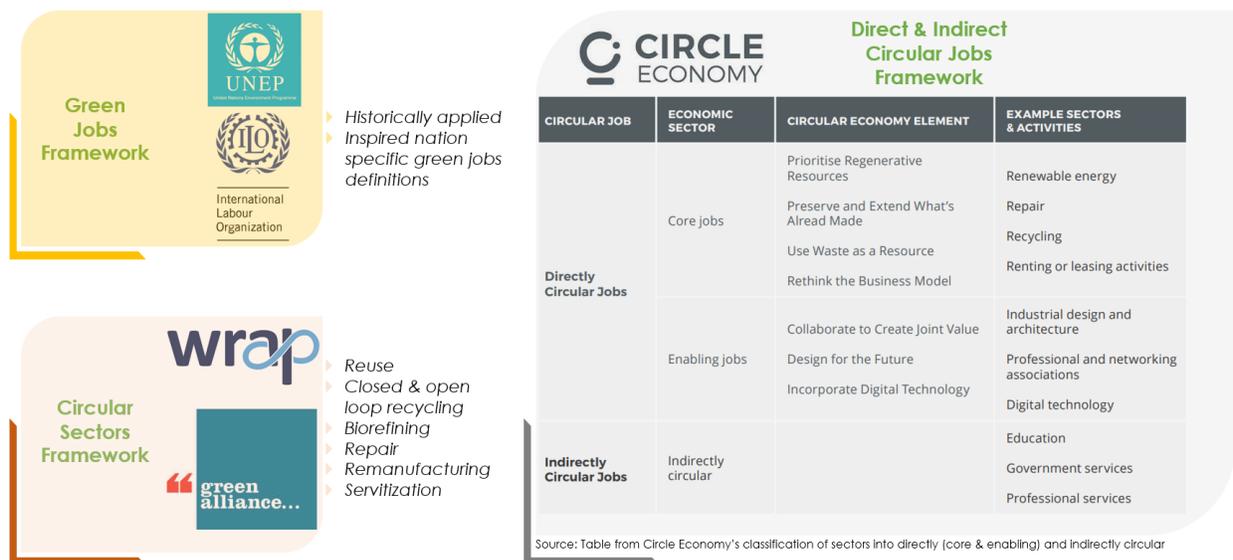


Figure 2: Broad categories of frameworks applied to define a circular job

The methodologies deployed to quantify circular jobs pose a range of challenges, such as handling diverse forms of data across regions and nations, that is quantified using a wide range of models. Different methodologies have been employed for quantifying the baseline for circular jobs, each with different layers of assumptions, base datasets and methodologies. Figure 3 provides a snapshot of the four broad quantitative models deployed to quantify circular jobs across the literature reviewed. Green jobs studies have deployed all four methodologies, while Circle Economy used an input-output model

and WRAP UK and Green Alliance used an accounting model. See Appendix for further details of these quantitative methodologies.

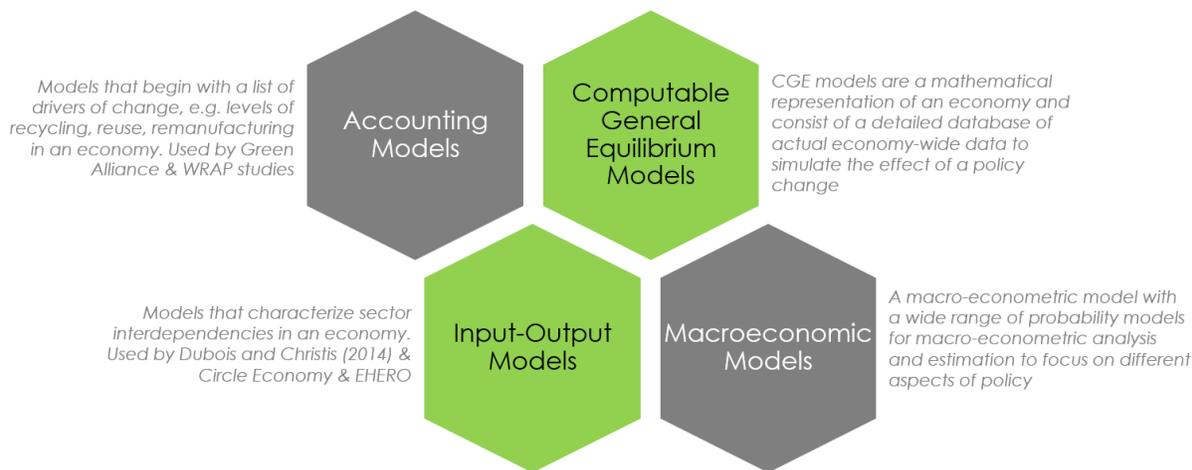


Figure 3: Quantitative models applied to quantify circular jobs

## Green Jobs Framework | The Foundation for Circular Jobs Definitions and Quantification

Over the last fifteen years, many studies have laid out pathways towards the quantification of green jobs – the broader framework that encompasses circular jobs — but few present specifics for circular jobs definitions. The definition of green jobs as defined by UNEP, ILO et al<sup>14</sup> is as follows:

“jobs that help to protect ecosystems and biodiversity; reduce energy, materials, and water consumption through high efficiency strategies; decarbonize the economy; and minimize or altogether avoid generation of all forms of waste and pollution.”

However, it has been widely acknowledged across these studies that defining and quantifying green jobs is complex and challenging. The data collection and classification mechanisms do not consistently indicate whether a job, product, or service has an environmental benefit. Thus, researchers deploy varying criteria and decision rules to decide whether a job is green or not. Most attempts at defining green jobs follow an industry approach that identifies green jobs with ‘employment in industries that are judged to produce green products and services’; leaving a wide margin of discretion about which industries should be categorized as green.

<sup>14</sup> United Nations Environment Programme. *Green Jobs: Towards decent work in a sustainable, low-carbon world*. as part of the joint Green Jobs Initiative of - United Nations Environment Programme (UNEP), International Labour Organization (ILO), International Organisation of Employers (IOE), International Trade Union Confederation (ITUC)

This has led to disparate, non-comparable estimates that are not amenable to *aggregation* or *extrapolation*.<sup>15</sup> Moreover, these estimates do not count jobs created in non-green industries that deploy environmentally-friendly processes and practices. A related complication arises in addressing the evolution of jobs over time, which occur because many new products are greener than their predecessors on account of more intelligent use of resources and more efficient production processes. The European Commission does recognise the evolving nature of green employment, where over time, some existing jobs will convert to green jobs.<sup>16</sup> Accordingly, they define green jobs as

“covering all jobs that depend on the environment or are created, substituted or redefined (in terms of skills sets, work methods, profiles greened, etc.) in the transition process towards a greener economy.”

Several federal governments have devised national definitions of green jobs as well. Canada’s definition of green jobs is based on research by Statistics Canada which is detailed in Appendix 1, together with a few other green job definitions.<sup>17</sup> There are also state / provincial attempts at green jobs definitions, such as British Columbia’s Green Economy report.<sup>18</sup>

There are two notable efforts to fill the gap in the definition and actual quantification of circular jobs that draw in varying ways from the green jobs framework of UNEP, ILO et al. These are described in the following two sections.

## Circle Economy | Direct and Indirect Circular Jobs Framework

[Circle Economy](#), a non-profit organization based in the Netherlands that works towards a transition to circular economy, has developed a circular jobs definition and quantified them for three different geographies across Europe. They define circular jobs as jobs across sectors that contribute to any of the seven strategies of their circularity framework (Figure 4 provides the detailed framework for classifying circular jobs by Circle Economy). As per this definition, circular jobs comprise of:

- » **Core Circular Jobs:** *ensure that raw material cycles are closed* and include jobs in renewable energy, repair, and waste and resource management. Examples include repair technicians, solar panel installers, process operators that sort waste to produce livestock feed from waste flows, agronomic advisors advocating renewable and non-toxic fertilizer, etcetera.
- » **Enabling Circular Jobs:** *enable the acceleration and upscaling of core circular activities* and include jobs in leasing, engineering and digital technology that contribute to circularity. Examples include circular equipment engineers (adopting circular design), building information managers (digitally

<sup>15</sup> Organisation for Economic Co-operation and Development (OECD). (2012). [The Jobs Potential of a Shift Towards a Low-Carbon Economy](#)

<sup>16</sup> European Commission’s report on [“Promoting green jobs throughout the crisis: handbook of best practices in Europe: A handbook of best practices in Europe”](#)

<sup>17</sup> Annex 1 of OECD’s [The Jobs Potential of a Shift Towards a Low-Carbon Economy](#) summarizes some of the national definitions of green employment. Canadian green jobs definition is outlined in a labour market research study by ECO Canada [‘The Green Jobs Map’](#)

<sup>18</sup> [British Columbia’s Green Economy](#), a provincial report by British Columbia Labour Market Partnership Program (LMPP) and GLOBE Foundation

tracking resource use), demand planners (planning demand and supply to make refurbishment profitable), procurement professional (stimulating secondary materials demand)

» **Indirect Circular Jobs:** *provide services to the primary circular activities above* and include, for example, jobs in education, logistics and the public sector. Examples include couriers in reverse logistics businesses, educators (knowledge transfer).

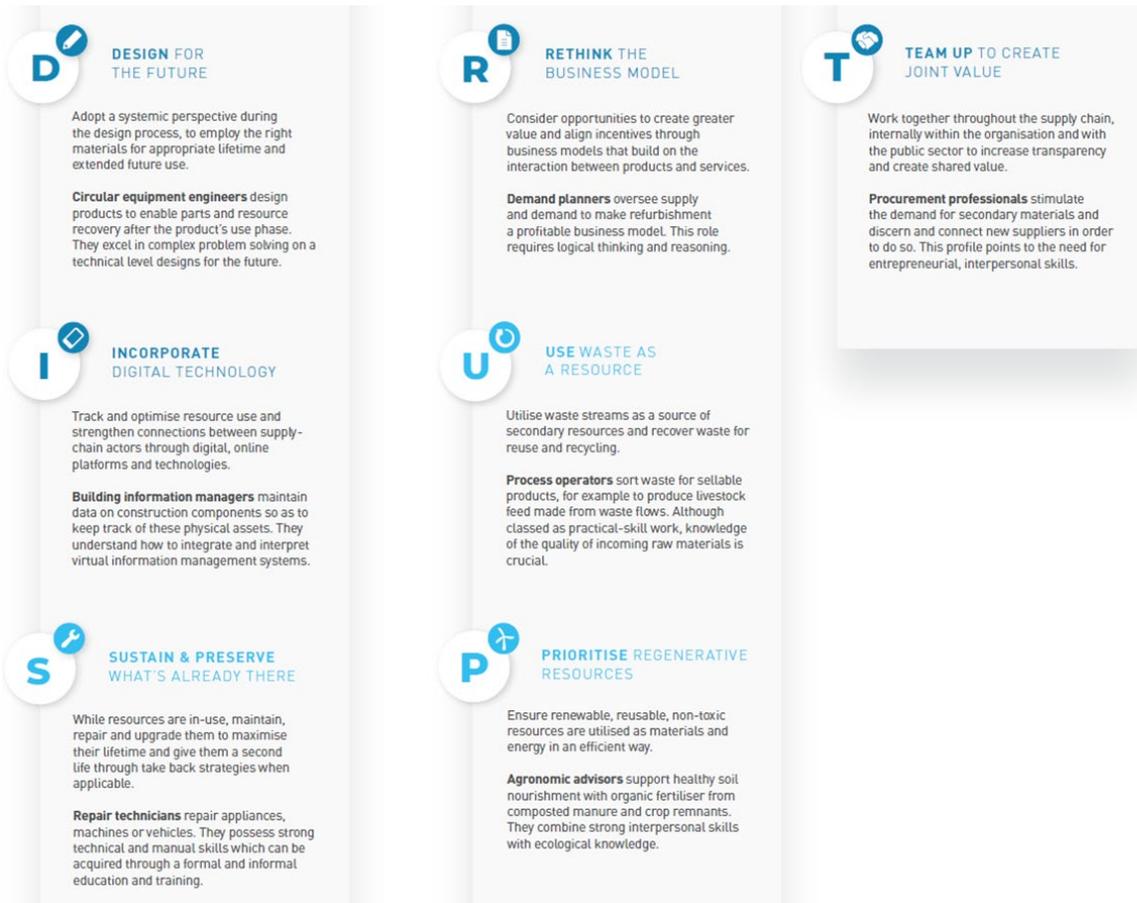


Figure 4: Circle Economy's 7 circular strategy framework for defining circular jobs.

Figure reproduced from: Circle Economy. *The Future of Work: Baseline Employment Analysis and Skills Pathways for the Circular Economy in Scotland*

## BOX 1 | How Circle Economy Quantified Circular Jobs

- » This definition of circular jobs was based on a qualitative preliminary research combining expert interviews with a literature review, that determined a sector-based approach as a starting point. The list of sectors that emerged from this analysis encompassed mostly end-of-life aspects of the circular economy as it relates to waste management; and was updated with additional aspects of the circular economy through terminology mapping of around 20 organizations - NGOs, government agencies, academia and consultancies working on the circular economy.
- » Based on this definition of circular jobs, the sectors of economic activity are classified as core circular, enabling circular, or indirectly circular, based on how well the sectors are connected to their definition framework (Grey table in Figure 2). This methodology was adopted using the UK's Standard Industrial Classification (SIC) for Scotland; and using an employment database from establishments by geography in the Netherlands. 100% of the jobs in the core sectors were assumed to be circular<sup>19</sup>, whereas for the enabling and indirectly circular jobs sectors, the proportion of jobs counted as circular was determined by an input-output analysis.<sup>20</sup> Further commentary on the rationale for this aspect of the methodology would benefit a better understanding on the estimation of the market share and input coefficient used in the model.

The studies estimate that approximately 8.1% of all jobs in the economy are circular jobs, for both countries with a breakdown provided for core, enabling and indirect circular jobs and a spatial distribution of jobs in the country (Figure 5<sup>21</sup> shows the study results for Scotland).

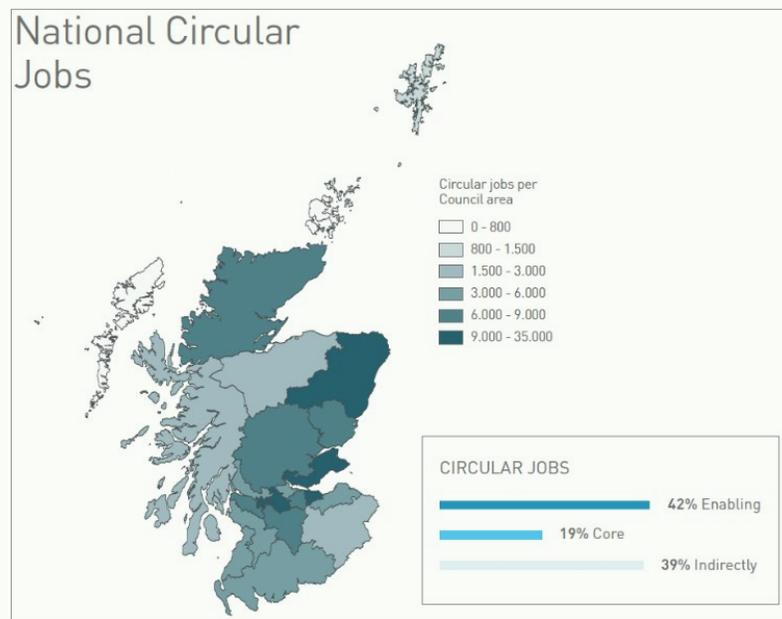


Figure 5: Spatial distribution of core, enabling and indirectly circular jobs in Scotland<sup>21</sup>

Source: Reproduced from- Circle Economy's *The Future of Work: Baseline Employment Analysis and Skills Pathways for the Circular Economy in Scotland*

<sup>19</sup> Deployed a different strategy for employment estimates for renewable energy sector - based on another dataset and assumptions thereof. The study also distinguishes between circular treatment of waste, which includes all activities that recycle materials, and non-circular treatment of waste, which includes the recovery of other value and disposal of waste (landfill and incineration with and without energy and heat capture) – a strategy adopted by Zero Waste Scotland

<sup>20</sup> The estimation of these circular employment shares is based on the inter-industry relationships between sectors in the input-output tables (IOTs) and on the assumption that monetary transactions in the form of supply and demand of products/services were a proxy for employment generation. Two slightly different logics were adopted for the estimation of circular employment shares for enabling and indirect circular jobs: enabling jobs' circularity share determined by the share of supply (output) of enabling products & services to core sectors over the total supply of enabling products & services. Indirectly jobs circularity share determined by the share of demand (input) of indirectly circular sectors for core product and services over the total demand of indirectly circular sectors.

<sup>21</sup> Source: [Circle Economy. *The Future of Work: Baseline Employment Analysis and Skills Pathways for the Circular Economy in Scotland*]

It is important to note that the definition of core jobs is somewhat similar in approach to that developed by UNEP, ILO et al for green jobs. The addition of *enabling* and *indirect* circular jobs has the benefit of incorporating the broader ripple effects of core circular job creation. At the time of writing, Circle Economy's methodology has been used to quantify circular jobs in the Netherlands, Scotland and Belgium – and found that around 8% of jobs in these countries can be considered circular.<sup>22</sup> Box 1 provides a note and discussion on Circle Economy's research and quantification methodology for these country-specific studies.

Circle Economy's circular jobs framework and quantification approach has both strengths and challenges.

### Strengths

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- » Uses existing government employment data by industry and geography, thus lending the analysis to potential replication and time series comparison across jurisdictions. It has been used to estimate circular jobs in three European countries.
- » Takes into account the broader ripple effects linked to core circular jobs, which provides a more comprehensive picture.
- » Utilizes a methodology that can be used across countries, even with different statistical / data frameworks (i.e. how sectors are defined and what jobs fall under a certain sector), which could support replication across time and geography.

### Challenges

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- » Calculates *enabling* and *indirect* circular jobs based on underlying assumptions that imply a directly proportional link of economic interaction between sectors (from input-output tables) and employment numbers. This may potentially cause an under or over-estimation of enabling and indirect circular jobs.
- » Is a static model that estimates only existing circular jobs and does not anticipate future 'employment effects' from the transition over time to a more circular economy.
- » Does not distinguish between 'net' & gross circular jobs, nor include an evaluation of 'replaced' and 'displaced' jobs.
- » Is a purely quantitative framework without a commentary on the nature or quality of circular jobs.

## WRAP UK & Green Alliance | Circular Sectors Framework

The [Waste and Resources Action Programme \(WRAP\)](#), a UK based sustainability charity, and [Green Alliance](#), an independent think-tank in the UK, have developed another framework for defining and quantifying circular jobs.<sup>23</sup> It is broadly based on the green jobs framework as well, and defines circular jobs as employment in the following 6 circular activities:

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<sup>22</sup> Circular jobs in the range of +/-0.5 of 8% from the [Circular Jobs Monitor](#)

<sup>23</sup> Conducted by The Waste and Resources Action Programme (WRAP) and Green Alliance, an independent think-tank in the UK [Morgan, Mitchell. (2015). [Opportunities to Tackle Britain's Labour Market Challenges through Growth in the Circular Economy](#)]. WRAP UK and Green Alliance

- » *reuse* - implying reuse of goods and materials that already exist
- » *closed loop recycling* - recycling activities that use waste to create new products without changing the integral properties of the recycled material (e.g. bottle to bottle or speciality alloy to speciality alloy) or recycling where the final product changes but the input (waste) material quality is maintained (e.g. plastic bottles recycled into a toy of same grade plastic)
- » *open-loop recycling (or downcycling)* - defined as recycling activities that use recovered materials to make products that have a lower value compared to those produced in closed loop recycling (e.g. turning glass containers into aggregate)
- » *biorefining* - extracting small quantities of valuable materials (such as proteins or speciality chemicals) or converting waste into energy, for industries creating biowaste
- » *repair and remanufacturing* - remanufacturing is the rebuilding of a product to specifications of the original manufactured product using a combination of reused, repaired and new parts
- » *servitization* - any system that increases the effective use of assets and moving from providing products to services instead, thereby deferring consumption of new assets. Business to business (B2B) models include Xerox’s leasing of photocopiers and printers and Interface’s carpet lease business. Consumer-facing models such as Tradle (baby clothing subscription), Airbnb, Quupe, UrbanShare, or Roowsi, The Thingery, Vancouver Tool Library, Vancouver Community Fridges

The WRAP UK/Green Alliance study quantifies circular jobs in the UK based on detailed sector level data from the Office for National Statistics (ONS) (see Figure 6 for the mapping between circular activities and sectors in the official data). It also quantifies the contribution of a growing circular economy to job growth by the year 2030, under three different scenarios - a limited circular economy expansion, staying on the current circular trajectory, or a substantial progress towards a circular economy. This study also differentiates between a *net* versus *gross* job creation through the circular transition and develops these estimates for the British economy.

### Mapping circular economy activities to official data

Circular economy activity	Best matches in current ONS data
Reuse	Retail of second hand goods in store
Closed and open loop recycling	Waste and recycling Wholesale of waste and scrap
Servitisation	Renting and leasing
Repair and remanufacturing	Repair of machinery equipment Repair electronics and household goods

Figure 6: Mapping of circular economy activities to sectors in the official UK statistical database<sup>23</sup>

Source: Reproduced from the report *Opportunities to Tackle Britain’s Labour Market Challenges through Growth in the Circular Economy* by WRAP UK and Green Alliance

This study also conducted a qualitative analysis of the circular jobs in terms of geographical spread, skill requirements and a *net* job impact. (These aspects are discussed in later sections)

Green Alliance and UK WRAP's approach presents the following key strengths and challenges:

### Strengths

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- » the six circular activities are easy to understand and replicate given data mapping to a national statistical database that is straightforward
- » uses a comprehensive approach that *quantifies* the existing baseline of circular jobs and projects future circular jobs through a *scenario* analysis of three different circular growth trajectories
- » includes a *qualitative* assessment of circular jobs by skill type, occupations and geography (discussed in detail in the next chapter - Nature of Jobs in the Circular Economy). This is beneficial for planning for a just and inclusive circular transition.

### Challenges

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- » does not include enabling or indirect jobs thus missing out on the multiplier effect on jobs, thus likely underestimating total circular jobs in an economy.
- » projecting the job impact from a circular transition is a multifaceted and complex task. Such tasks inevitably necessitate numerous levels of assumptions for the projections and scenario analysis; and thus, can offer illustrative estimates rather than concrete and definitive.

## SUMMARY AND IMPLICATIONS FOR GREATER VANCOUVER

The literature clearly shows that defining and quantifying circular jobs is a complex task. Past attempts have broadly considered green jobs, where what constitutes 'green' itself has been difficult to quantify. The few frameworks across literature for defining circular jobs have also applied different methodologies; and to date there is no uniformly acceptable definition of a circular job. As a result, quantification efforts provide a good approximation for one geography, but may not be easily comparable and replicable between regions.

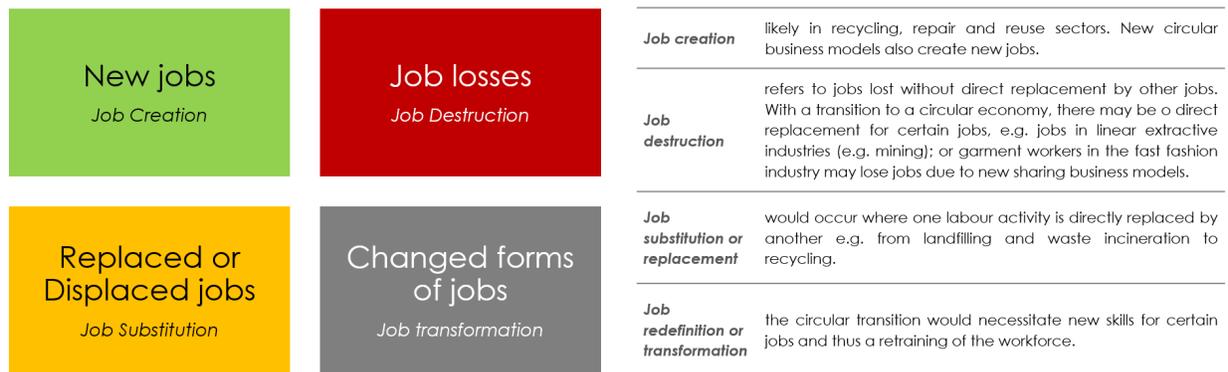
The strengths and challenges of existing frameworks can be used to inform future efforts at defining and quantifying circular jobs. SRRI may want to pull from the strengths of existing circular jobs frameworks to identify a feasible and reliable approach given nuances in context and available data.

- » **Context** - It is important to develop a definition and quantification methodology that is appropriate for the local context. So far, the studies done have been developed and applied in European economies that operate under different economic, resource, labour, community, public policy and legislative contexts in comparison to the British Columbia and Canadian context. When incorporating the learnings from these European studies, it will thus be beneficial to do so alongside engagement with regional stakeholders. This could inform the priority sectors that are considered to be circular in Greater Vancouver.
- » **Data** - an evaluation of the existing provincial industrial and employment databases could inform the most appropriate data points that would map to regional circular sectors. Also important to develop the alternative approach for sectors / activities where an ideal direct sector mapping to data is not possible either because the underlying data are unreliable or simply not available.

# HOW WILL A TRANSITION TO THE CIRCULAR ECONOMY IMPACT JOBS?

## Does a Circular Transition Add Net New Jobs?

As with any systemic change, the transition to a more circular economy will have a multitude of impacts on the labour market as a whole, and on specific sectors. We can expect to see both job creation and job losses. For instance, new reuse and repair jobs will be created, but the transition is also predicted to cause job losses in extractive industries such as mining and product manufacturing from raw materials.



*Figure 7: Interplaying forces that impact the jobs from a transition towards a more circular economy*

The real picture is, in fact, more complex. Labour market impacts can be grouped into the following four broad categories: job creation, job destruction, job substitution and job transformation.<sup>24</sup> The interplay of these four effects within each local economy would determine the aggregate impact on the labour market. Figure 7 defines and provides examples of each of these four labour market forces at play in the circular transition.

The transition to a more circular economy will cause expansion in employment in some sectors and job types and a contraction in others. Figure 8 provides a global macro level snapshot of the sectors where employment is likely to be impacted by a transition to a circular economy.

<sup>24</sup> Classification as per OECD's report on [Labour Market Consequences of a Transition to a Circular Economy](#). [Organisation for Economic Co-operation and Development (OECD). (2020). Labour Market Consequences of a Transition to a Circular Economy.]

## Sectors most affected by the transition to a circular economy

Industries set to experience the highest job demand growth (percentage)		Industries set to experience the strongest job demand decline (percentage)	
Sector	Jobs (percentage)	Sector	Jobs (percentage)
Reprocessing of secondary lead into new lead, zinc and tin	15.0	Production of electricity by coal	-0.9
Reprocessing of secondary precious metals into new precious metals	11.2	Extraction of crude petroleum and services related to crude oil extraction, excluding surveying	-0.9
Production of electricity by solar photovoltaics	4.9	Extraction, liquefaction, and regasification of other petroleum and gaseous materials	-0.9
Reprocessing of secondary copper into new copper	4.3	Petroleum refinery	-0.8
Reprocessing of secondary wood material into new wood material	4.2	Manufacture of gas; distribution of gaseous fuels through mains	-0.8
Reprocessing of secondary steel into new steel	3.1	Mining of coal and lignite; peat extraction	-0.8
Reprocessing of secondary aluminium into new aluminium	2.7	Extraction of natural gas and services related to natural gas extraction, excluding surveying	-0.8

Figure 8: Sectors most affected by the transition to a circular economy

Source: Reproduced from- International Labour Organization. (2018). *Greening with Jobs: World Employment Social Outlook 2018*.

Despite methodological inconsistencies, most research on the impacts of a transition towards a more circular economy projects overall positive net job growth. ILO estimates that ‘a net total of between 7 and 8 million new jobs will be created by 2030,’ as compared to a business-as-usual scenario globally from moving towards a circular economy.<sup>25</sup> Another study by the European Commission shows similar results, predicting a job creation potential of 1.2 to 3 million jobs in Europe by 2030 through an expansion of the circular economy.

Employment effects from a move towards a circular economy remain an open research field, as the current literature studies each cover only a part of the larger concept. For instance, the effects of energy savings, the introduction of more renewables or the savings of raw material are comprehensively analyzed, whereas the employment effects of increased refurbishment activities, recycling, reuse, repair, the sharing economy or the digitization of the economy still need to be further examined. While more research is needed, existing studies still overall suggest positive employment effects from the transition to a circular economy.

It is important to understand not just the gross job creation potential from a circular transition, but also the ‘net’ job creation potential of this transition. Given that research on this *net* employment impact is limited, this is an area recommended for further research, which might be effectively done at regional or provincial levels.

<sup>25</sup> Source: [International Labour Organization. (2019). *Skills for a Greener Future*]

## Labour Intensity of Inner Loop Circular Jobs

Within the larger positive job creation potential story, the circular transition is likely to increase jobs in inner loop activities such as reuse, repair, and remanufacturing. These jobs are generally more labour intensive<sup>26</sup> as automation and the impact of economies of scale remain limited. Moreover, these activities require more local and manual labour.<sup>27</sup> A study shows that for every 10,000 tonnes of waste products, 1 job can be created through waste incineration, 6 jobs from landfilling, 36 jobs from recycling, and up to 296 from refurbishment and re-use.<sup>28</sup> Within the Canadian context, a recent national study suggests that waste prevention interventions such as reuse, repair, remanufacturing and servitization hold a potential to generate 20,000 jobs, \$41 billion of additional revenue, and an avoidance of 5 million tonnes of CO<sub>2</sub>e emissions.<sup>29</sup> However, there is potential for the labour intensity of these jobs to decline over a longer timespan with some increased automation for example, thereby reducing somewhat the scope for long-term employment generation.<sup>30</sup>

Research suggests that the job losses from a move away from material-intensive industries are likely to be relatively modest and to be compensated by job additions in other labour intensive sectors. This stems from a global analysis that suggests that just four of the material-intensive sectors - construction, food products, primary metals and minerals, and electricity- account for 90% of global material use, but employ only 15% of total workforce.<sup>31</sup>

In summary, quantifying net circular employment is a multifaceted and complex task so far executed with a variety of research methodologies. Much of the quantification done to date is only a partial measure of these jobs: mostly including certain circular employment that is easily measurable (for instance, the number of employees in the waste and recycling sector, car and bike sharing industry). However, some new circular technologies and innovative business models, and the resulting employment shifts are too complex to arrive at a reliable macro employment estimate. There are still large gaps in our knowledge and available data. Nonetheless, such measures would be critical for developing a region's baseline of existing circular jobs to better plan and respond to this transition in a just and inclusive way.

*Within the Canadian context, a recent national study suggests that waste prevention interventions such as reuse, repair, remanufacturing and servitization hold a potential to generate 20,000 jobs, \$41 billion of additional revenue, and an avoidance of 5 million tonnes of CO<sub>2</sub>e emissions.<sup>29</sup>*

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<sup>26</sup> Repairing, dismantling, and refurbishing, for instance, tend to have high labour intensities [Vellinga, Berkhout and Gupta. (1998). Managing a Material World]

<sup>27</sup> OECD's report on [Labour Market Consequences of a Transition to a Circular Economy](#)

<sup>28</sup> Rreuse. (2015). [Briefing on job creation potential in the re-use sector](#)

<sup>29</sup> National Zero Waste Council (NZWC). (2021). [Waste Prevention: The Environmental and Economic Benefits for Canada](#)

<sup>30</sup> OECD's report on [Labour Market Consequences of a Transition to a Circular Economy](#). A transition towards a more circular economy has a positive effect on employment figures because of the new jobs created in repair services, remanufacturing activities, which are all comparatively labour intensive. This stems from the nature of the jobs where reuse and recycling require more hands and more complex processes, for sorting, handling, cleaning of multi-material waste streams. Moreover, increasing demand for existing roles in resource management, repairing, circular processes and business models, is projected to create demand for a variety of new jobs. Though, over a longer time span, these processes also may witness some automation; thereby limiting the scope for long-term employment generation.

<sup>31</sup> OECD's report on [Labour Market Consequences of a Transition to a Circular Economy](#)



Nature of Jobs in the  
Circular Economy

# Nature of Jobs in the Circular Economy

The literature suggests that a transition to a more circular economy will create a range of jobs across skill sets that will vary with different circular activities and geographies. For instance, recycling and waste management activities will likely create a disproportionately higher number of manual labour jobs with little to no skill prerequisites<sup>32</sup> for collection, materials handling, and processing materials for recycling.<sup>33</sup> Remanufacturing has a potential to create more jobs necessitating significant training needs<sup>34</sup> (results summarized in Figure 9).

Activity	Potential geographical dispersion of jobs by circular economy activity			Potential skill needs by circular economy activity		
	Job concentration	Areas of concentration	Displacement risk	Low Skilled	Skilled	Professional
Closed loop recycling	Medium	Near manufacturing sites, logistics and supply chains	Some risk to existing raw materials	High	High	Very Low
Open loop recycling	Low	Near feedstock and markets, close to major ports	Some risk to existing raw materials	High	Low	Very Low
Servitisation	Medium	Head office jobs may be in south east and London; back office and servicing jobs may go abroad	Risk to overseas manufacturing	Medium	Medium	Medium
Remanufacturing	High	Near manufacturing sites, transport hubs, population centres, some overseas plants	Risk to overseas manufacturing	Low	Very High	Low
Reuse	Very Low	Dispersed throughout the country	Largely affecting overseas manufacturing, although some risk to domestic furniture	High	Low	Very Low
Biorefining	Medium	Major ports, consuming industries, manufacturing sites, population centres, sources of domestic feedstock	Little risk of significant displacement	Very Low	High	High

Figure 9: Potential job creation impact of circular activities in terms of geographical distribution and skill needs

Source: Merged from reproduced data tables in Morgan, Mitchell. (2015). *Opportunities to Tackle Britain's Labour Market Challenges through Growth in the Circular Economy*. WRAP UK and Green Alliance

<sup>32</sup> While the research study cited differentiates the skill levels as low-skilled, skilled or professional; we have described them as jobs requiring previous training/ experience or not. While part of the reason is that differentiating job skills as high versus low may be a stigmatizing terminology around 'skill levels' in jobs. Other reason to reframe the skills discussion is the wide spectrum of skill prerequisites that may be necessary or not for a job. For instance, for a textile sorter/ grader job, it takes a lot of on the job learning to build up skills to easily distinguish and sort the fabrics by touch. These skills may not be required for getting the job, and these may not necessarily be high-skilled jobs, but they require some experience and training nonetheless.

<sup>33</sup> Instances of job type association with circular activities quoted from: Morgan, Mitchell. (2015). *Opportunities to Tackle Britain's Labour Market Challenges through Growth in the Circular Economy*. WRAP UK and Green Alliance

<sup>34</sup> This study employed proxy indicators for employment characteristics of circular jobs to account for the wage levels, skill level or occupational structure and regional or geographical distribution of circular jobs

Research on geographical dispersion of a circular transition suggests that circular economy activities may offer dispersed employment across a nation.<sup>35</sup> Reuse and open-loop recycling<sup>36</sup>, for example, have a propensity to be geographically dispersed across the nation, whereas remanufacturing could be more concentrated, potentially near existing manufacturing sites. Most circular activities would generate some job displacement from other sectors, such as original manufacturing activities, raw material extraction, etc. Reuse and recycling may require larger proportions of labour with no skill prerequisites, whereas remanufacturing, closed loop recycling and biorefining could potentially require more employment with some prior training or experience; biorefining and servitization may require a higher proportion of professional and technical skills.

Structural unemployment or structural imbalances (a mismatch between available jobs and workers) of the labour market are thus important to discussions in the transition to circularity.<sup>37</sup> If a circular transition could help to address regional or skills mismatches, it could potentially reduce structural unemployment and create net jobs, over and above any short term gains.<sup>35</sup> Some circular economy activities could be intrinsically localised and may create geographically dispersed employment.

Further research to understand the nature of circular jobs in Greater Vancouver would be critical for a just circular transition. It could begin with exploring the different skill prerequisites and job intensities for the region's sectors of growing circular growth e.g. building deconstruction. Research would also need to resource the development of more nuanced data about net job growth and geography, skill prerequisites and training needs.

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<sup>35</sup> Morgan, Mitchell. (2015). [Opportunities to Tackle Britain's Labour Market Challenges through Growth in the Circular Economy](#). WRAP UK and Green Alliance

<sup>36</sup> Open-loop recycling (or downcycling) is defined as recycling activities that use recovered materials to make products that have a lower value compared to those produced in closed loop recycling (e.g. turning glass containers into aggregate)

<sup>37</sup> Structural imbalance in a labour market refers to a situation where the characteristics of unemployed workers (particularly in terms of skills, location or work experience), differ from characteristics of the available jobs.

It's important to note that structural unemployment differs from frictional unemployment. The distinguishing feature of structural unemployment is that the unemployed workers lack skills required by the expanding industries. Frictional unemployment occurs in the temporary period when individuals leave the labour force to transition from one job to another, whereas structural unemployment is often rooted in geographic immobility of some labour or major economic shifts e.g. large scale technological or policy changes reducing jobs in some industries, occupations and regions, whilst expanding other types of jobs.

Sources: [Jackman R, Roper S. (1987). [Structural Unemployment](#). Oxford Bulletin of Economics & Statistics]; [Herz, Rens. (2011). [Structural Unemployment](#). Economics Working Papers 1276, Department of Economics and Business, Universitat Pompeu Fabra]



Just Circular Transition

# Just Circular Transition

## JUST AND INCLUSIVE JOBS

While research reviewed thus far suggests positive net employment effects from a transition to circularity, the discussion on the quality, equity, diversity and inclusivity of these jobs is largely missing. Jobs are not just important as livelihoods for earning money to provide for people's needs and wants, they are also a means for an individual's social inclusion and participation in society. They help one feel valued and impart a sense of purpose, and improve one's quality of life. As such, circular jobs need to be evaluated not just from an economic and environmental<sup>38</sup> lens, but also from a social perspective. It was mentioned during [ILO's Green Week event](#) "A Human-Centred Circular Economy" that only 20% of circular economy research includes a human or social dimension.<sup>39</sup>

Calls for a 'just transition' – a transition that ensures environmental sustainability, decent work, social inclusion and poverty eradication – have been permeating sustainability debates and are now being applied to the circular economy transition as well.<sup>40</sup> See Box 2 for a discussion on frameworks for decent work and social inclusion.

Until recently, the circular economy discourse has centered around a technological, economic and business shift. However, it is being increasingly recognised that this transition will also have large social implications. Thus, incorporating decent work, social equity, and justice considerations in the transition to a circular economy are as important as the need for a low-carbon transition. These conversations have started to emerge in the literature and deserve more attention to demonstrate successful case studies and pathways to follow, particularly against the backdrop of the current pandemic.

Secure, fulfilling and decent livelihoods form a foundation of thriving societies and can enhance the quality of life, a sense of belonging and distribution of wealth. Jobs are a key medium for social inclusion, illustrated by its prominence in the ILO's Decent Work Agenda, United Nations Sustainable Development Goals (SDGs), and the European Pillar of Social Rights. Additionally, several international multilateral environmental agreements (MEAs) have over time integrated labour provisions of decent work<sup>41</sup>, just transition<sup>42</sup> and social inclusion in their agreements. ILO lays out a framework for a just transition founded on five key cornerstones of worker rights, decent work, social protections, social dialogue and sustainable businesses.<sup>43</sup>

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<sup>38</sup> Evaluation of the circular economy vis-à-vis its impact on the environment is out of scope for this study, however there is a vast body of literature that suggests its environmental benefits.

<sup>39</sup> Goyal, Sherya. International Labour Organization (ILO). (2021, April 22). [A Human-Centred Circular Economy](#) (Minutes 31:00-1:00:00).

<sup>40</sup> Just transition discourse evolved in the 1970s as union workers in the fossil fuel industries across North America advocated for these industry workers' livelihoods, health and safety and community needs to be addressed in the transition to more environmentally sustainable economies. These debates have evolved over time to be more inclusive of a larger set of industries and community concerns. And there are parallels to the circular transition as well. Thus, the transition from a linear to a circular economy has some similarities with that of low-carbon transition. Sources: [Smith. (2017). [Just Transition: A Report for the OECD.](#)] [Pai, Harrison, Zerriffi. (2020). [A Systematic Review of the Key Elements Of a Just Transition For Fossil Fuel Workers](#)]

<sup>41</sup> Decent work dimension endorsed in United Nations Convention on the Law of the Sea (1982), Convention on the Protection of the Marine Environment of the Baltic Sea area (1992), International Tropical Timber Agreement (2006), Paris Agreement under the United Nations Framework Convention on Climate Change (2015)

<sup>42</sup> Included in the Paris Agreement under the United Nations Framework Convention on Climate Change (2015) stating "the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities"

» Learning from the ILO, aspects of decent work and social inclusion with respect to the circular transition are discussed below:

*Decent work*

The International Labour Organization (ILO)<sup>43</sup> has advocated for widening the definition of green jobs (and thereby circular jobs) by emphasizing the need for these jobs to also be included under decent work: incorporating labour concerns such as fair wages, career prospects, job security, occupational health and safety, fair working conditions, and labour rights. This definition conceptualises that future green employment will consist of jobs that are respectful and protective, not only of the natural environment, but also of workers’ health, human needs and rights (ibid). Figure 16 from the UNEP, ILO et al study depicts this matrix of decent and green work with examples.

*Social Inclusion*

“ Social inclusion is the process of improving the terms on which individuals and groups take part in society—improving the ability, opportunity, and dignity of those disadvantaged on the basis of their identity.<sup>44</sup>

Gender, race, ethnicity, religion, sexual orientation, disability status and nationality are among the most common axes of exclusion. At the same time, marginalized sections of the population face an intersectionality of these exclusions; as people’s identities are complex, overlapping and can change over time and vary by context (illustrated in Figure 10).

“ the precise nature and quality of jobs across the planet varies enormously. While desirable, there will be no single global standard for the foreseeable future. But even accepting the inevitability of differentials in pay and other characteristics, certain standards need to be upheld. People’s livelihoods, rights, and sense of dignity are bound up tightly with their jobs; jobs need to provide equal hope for the environment and the jobholder. A job that is exploitative, harmful, or fails to pay a living wage (or worse, condemns workers to a life of poverty) can hardly be called green.”<sup>43</sup>



Figure 10: Illustrative example of overlapping disadvantages

Source: Reproduced from World Bank. (2013). *Inclusion Matters: The Foundation for Shared Prosperity*

<sup>43</sup> United Nations Environment Programme. *Green Jobs: Towards decent work in a sustainable, low-carbon world*. as part of the joint Green Jobs Initiative of - United Nations Environment Programme (UNEP), International Labour Organization (ILO), International Organisation of Employers (IOE), International Trade Union Confederation (ITUC)

<sup>44</sup> World Bank. (2013). *Inclusion Matters: The Foundation for Shared Prosperity*

Developing a better understanding of decent work considerations at the outset of the transition to a more circular economy is critical.

Circular business models are prone to the same labour and social problems as those anticipated in the transition to a green economy. These include: lack of support for atypical workers (e.g. workers in the gig economy); precarious work conditions for informal jobs, further exacerbated by rapid growth; concurrently, a social stigma or lack of recognition around practical, manual labour jobs (leading to a struggle for recruiting talent in construction, repair and recycling sectors).<sup>45</sup> If overlooked, these labour concerns could be exacerbated as the circular transition progresses. Many circular jobs, especially those in resource recovery and sorting for reuse, have the potential to employ those that face barriers to labour market entry (newcomers, youth, hard-to-employ, and other marginalized communities). However, these have also largely been low-quality and physically demanding jobs, often characterized as dirty jobs.<sup>46</sup> At the same time, jobs in repair and servitization require some previous specific training or experience and have the potential to be high quality jobs.<sup>47</sup> There is a vast scope for additional research on employment conditions in the circular economy as investigations thus far have largely focused on the waste management sector.<sup>47</sup>

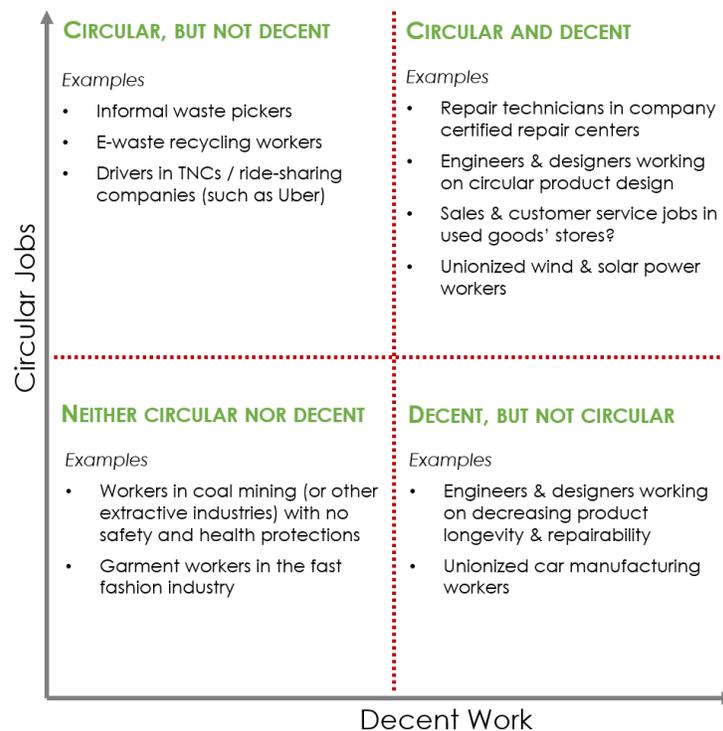


Figure 11: A preliminary schema of circular and decent jobs

Source: adapted by the author from the UNEP, ILO, et al's Green Jobs Initiative schematic overview of green and decent jobs (See Appendix 3 for the original schema)

<sup>45</sup> Circle Economy. (2020). [Jobs and Skills in the Circular Economy: State of Play & Future Pathways](#)

<sup>46</sup> Gregson et al. (2016). [Doing the 'dirty work' of the green economy: Resource recovery and migrant labour in the EU](#). European Urban and Regional Studies.

<sup>47</sup> Wegmann. (2017). [Waste Management in Europe. Good Jobs in the Circular Economy?](#). EPSU

## *Circular business models are prone to the same labour and social problems as those anticipated in the transition to a green economy*

In Figure 11, the author adapts the decent work and green jobs framework, originally developed for the Green Jobs Initiative by UNEP, ILO, et al,<sup>43</sup> to circular employment. Appendix contains the original schematic from the Green Jobs Initiative. The preliminary schema in Figure 11 categorizes circular jobs into four quadrants, along the axes of decent work and circularity of jobs. The optimal path for a just circular transition is, of course, jobs that are both *circular and decent*, as represented in the upper right quadrant of this schema.

## SOCIAL ENTERPRISES INTERSECTING WITH THE CIRCULAR ECONOMY

There are emerging calls for integrating the social economy<sup>48</sup> and social enterprises<sup>49</sup> with the circular economy in order to support a just circular transition.<sup>50</sup> Work integration social enterprises (WISE) are social enterprises that help unemployed people who are at risk of permanent exclusion from the labour market.<sup>51</sup> They receive subsidies from the government to integrate individuals into work and society, and these enterprises often connect them to jobs that are local and low on training needs. As such, WISEs have a high likelihood of matching with labour some jobs in the circular economy.

WISEs develop ways of handling issues related to job market integration for marginalized populations. As a result, they establish certain locally applicable frameworks, processes and values that make them well positioned to integrate these workers. These enterprises provide a variety of key worker supports, such as access to training programs and services to bridge the workers' access to government finance and benefits.

Across the globe, as well as in greater Vancouver, there are several locally rooted social enterprises that engage in circular economy activities [See Figure 12 for some examples<sup>50</sup>]. The available literature underscores the need to integrate social enterprises with circular businesses. However, fostering this integration would require addressing the following key challenges which limit scalability:

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<sup>48</sup> The social economy is driven by achieving ethical, social and often environmental objectives, fostering solidarity, autonomy and individual and collective empowerment; and comprises of social enterprises, cooperatives, trusts and foundations.<sup>50</sup>

<sup>49</sup> Concept of social enterprises has been increasing in interest since the early 2000s in various regions of the world. [Jacques Defourny & Marthe Nyssens (2010). *Social enterprise in Europe: At the crossroads of market, public policies and third sector*, Policy and Society]

<sup>50</sup> Circle Economy. *The Social Economy: A Means for Inclusive & Decent Work in the Circular Economy?*

<sup>51</sup> *Work Integration Social Enterprises*

- » the need to respond to context-specific realities such as the nature of local labour supply and barriers that workers face; labour demand challenged of finding the right fit with the skills needed by local circular businesses
- » the reliance of many social enterprises on volunteers versus paid staff the impacts organizational development and ability to easily collaborate with businesses
- » measuring the positive outcomes and impacts of circular social enterprises due to limited resources and lack of uniform indicators.

Narratives for a just circular transition highlight the importance of inclusive participation, decent work, social dialogue and democratic values. Both research and practice in this area are at a nascent stage, even for the pioneering circular nations in Europe, and could benefit from further study. Effective integration of social enterprises with the circular economy, and the social economy more broadly, holds tremendous potential to support a just circular economy and warrants further exploration and support.



Figure 12: Examples of social enterprises that operate in the circular economy inner loops space and intentionally work towards employing those facing barriers to the job market entry

An aerial photograph of the Vancouver skyline at sunset. The sun is low on the horizon, creating a warm, golden glow over the city and the water. The sky is filled with soft, orange and yellow light, with some rays of light breaking through. The city's buildings are silhouetted against the bright sky, and their windows are beginning to glow with interior lights. The water in the foreground is dark, with several boats and a large marina filled with yachts. In the background, a bridge spans across the water, and the city extends up a hillside. The overall scene is a beautiful representation of a modern city at the end of the day.

# Circular Economy in Greater Vancouver

In response to the unsustainable and inequitable nature of the regional economy made more apparent by COVID-19, the Share Reuse Repair Initiative initiated a Just Circular Recovery and Transition (JCRT) Program in 2020. The program is rooted in Greater Vancouver and is designed to explore how to grow inclusive circular jobs and enhance the affordability and accessibility of the circular economy, as well as to include communities in circular economy dialogues that have previously been overlooked or underrepresented. The following section briefly discusses the landscape of the circular economy as it exists in the Greater Vancouver region, and the impact of COVID-19 on the region's employment. This is followed by results from preliminary engagement with some marginalized communities in the region. The findings below will inform SRRI's JCRT program.

## Circular Economy and Employment in Greater Vancouver

### *Policy Landscape*

Vancouver has a “long-term strategic vision to achieve the goal of zero waste by 2040”,<sup>52</sup> which supports the transition to a more circular economy and recognises the potential of this transition to create green and inclusive jobs<sup>53</sup>. Strengthening the circular economy features extensively in Vancouver's Zero Waste 2040 policy report, especially for the product, food and buildings waste categories (Figure 13 lists the circular action objectives and priorities for the City of Vancouver for the year 2040).<sup>54</sup> The City Council also passed a motion to improve the circularity of Vancouver's economy in October 2020.<sup>54</sup>

At a larger scale, the National Zero Waste Council (NZWC),<sup>55</sup> which works at a national scale to advance the zero waste agenda and leads the Canadian transition to a circular economy, is a Metro Vancouver initiative. In one of the first large scale Canadian policy reports that validates the crucial role of waste *prevention* interventions, NZWC proposed several circular interventions that rely heavily on reuse and repair strategies.<sup>56</sup> Thus, there is an existing policy impetus on transitioning the region towards a circular economy.

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<sup>52</sup> City of Vancouver. [Zero Waste 2040](#)

<sup>53</sup> City of Vancouver. (2018). [Zero Waste 2040: Policy Report](#)

<sup>54</sup> City of Vancouver. (2020). [Improving the Circularity of Vancouver's Economy](#)

<sup>55</sup> NZWC was formed in 2013 by Metro Vancouver as a leadership initiative to advance a waste prevention agenda across Canada. The Council is a collaboration of leaders from governments, business, business associations, nongovernment organizations, and community groups active in promoting waste prevention at its source and accelerating a transition to a circular economy in Canada

<sup>56</sup> Secondary research based case studies on 6 sectors – construction, manufacturing, healthcare, agriculture, plastics, retail. Source: National Zero Waste Council (NZWC). (2021). [Waste Prevention: The Environmental and Economic Benefits for Canada](#)

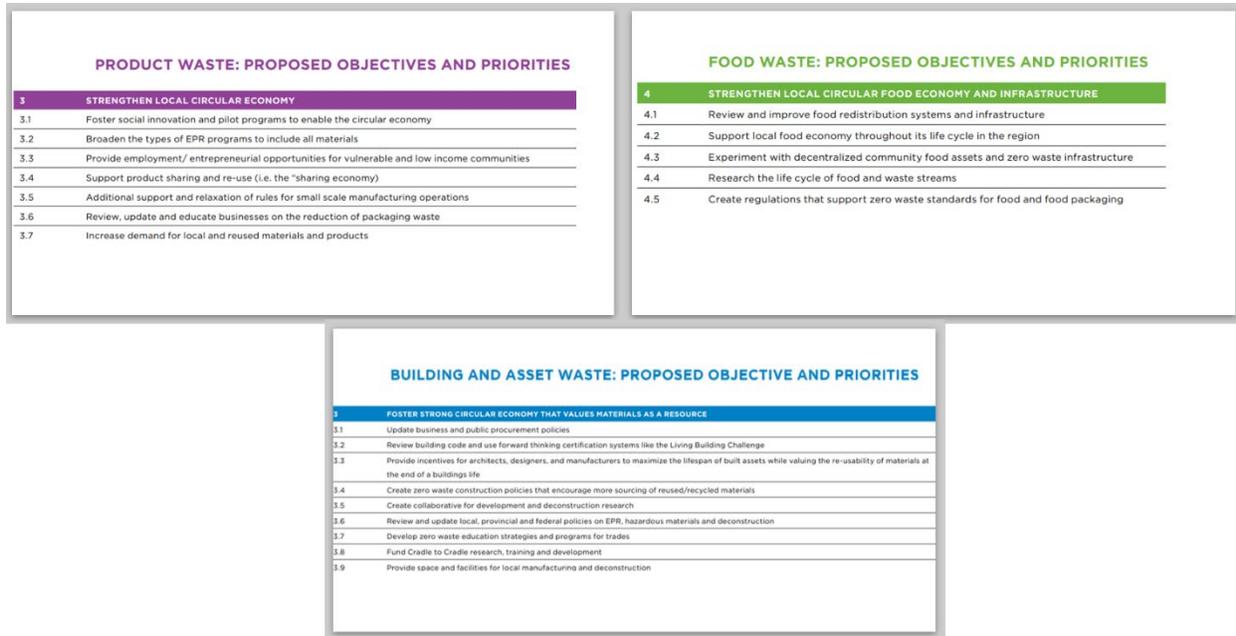


Figure 13: Objectives and priorities for a transition to circularity for the City of Vancouver

Source: City of Vancouver. (2018). *Zero Waste 2040: Policy Report*

### Enterprise Landscape

Vancouver is an emerging hub for circular businesses, which includes players such as Unbuilders, Chop Value, Susgrainable, Fabcycle, Luv The Grub and Goodly Foods – to name a few. There are also many innovators in the reuse space (Refill Road and The Refillery, Cuppy, Mugshare, Drinkfill, Sharewares, Reusables, NADA and the Soap Dispensary), sharing (Quupe, UrbanShare, Roowski, Ruckify, Tradle, Thingery) and repair initiatives (repair events involving the City of Vancouver along with Free Geek, Repair Matters, Frameworq, and MetroVan Repair Cafes). Some of these initiatives work at the intersection of circularity and the social economy.

### Employment Landscape

While there are no estimates on the quantum of circular jobs in Vancouver, 7% of the total jobs in Vancouver were estimated to be in the green economy in 2016.<sup>57</sup> This is a broad estimate of all green jobs, and is a wider category than circular jobs. We learned from our interviews with members of marginalized communities regarding their participation in inner loop circular jobs, such as in repair, reuse and share enterprises, that there are few, if any, jobs for their community members in this space (details in the later parts of the report).

<sup>57</sup> The number of green jobs was estimated to be around 25,000 in the year 2016. Source: Vancouver Economic Commission (VEC). (2018). *State of Vancouver's Green Economy 2018*

### Impact of COVID-19 on Employment

Unemployment caused by the pandemic has been unparalleled in recent Canadian and global history. Figure 14 depicts the tremendous adverse impact that this pandemic has had on employment, compared to the last major employment and financial crisis of 2008. These trends are mirrored in the Metro Vancouver region as well. Figure 15 illustrates the five-year unemployment trends in the Vancouver metropolitan area.

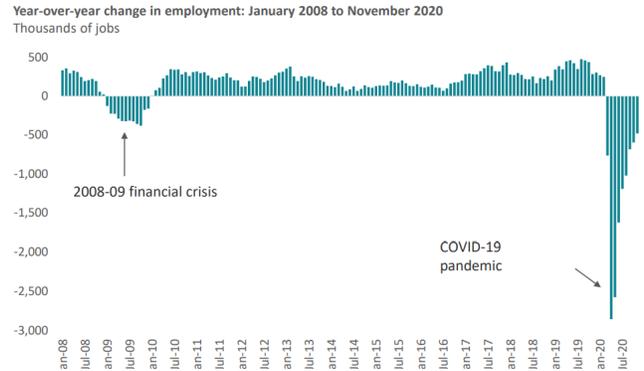


Figure 14: Change in employment over the years in Canada

Source: Reproduced from Deloitte. (2021).  
*Economic Outlook January 2021.*

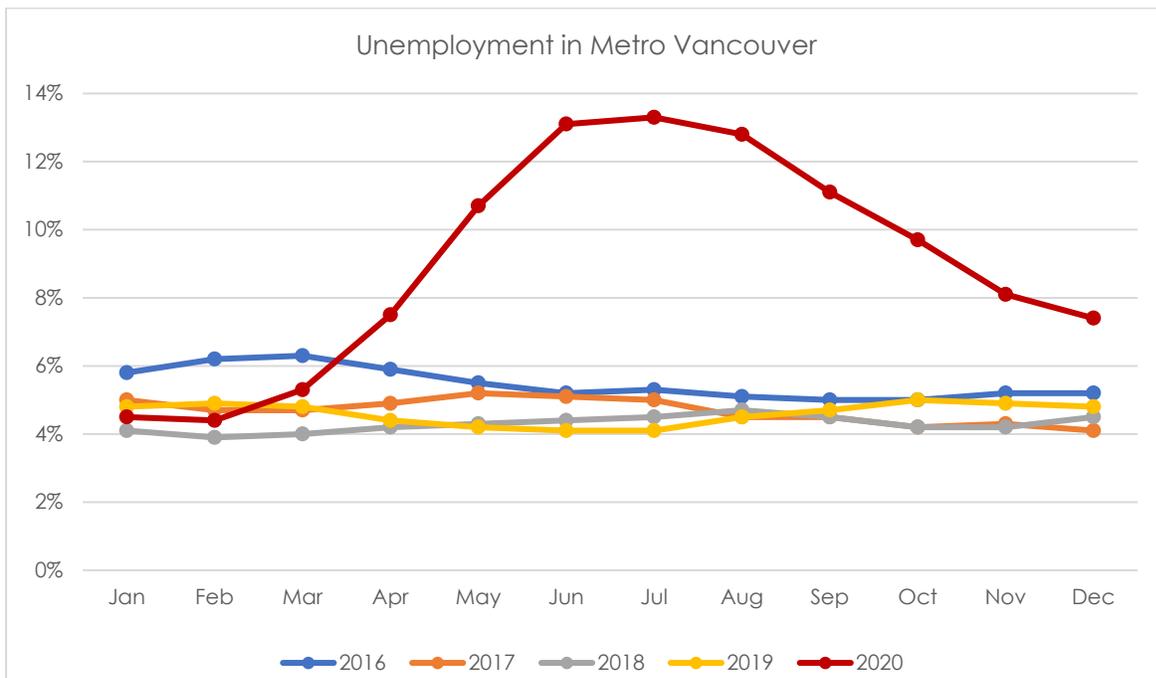


Figure 15: Unemployment trend in Metro Vancouver over the last 5 years

Figures pertain to the seasonally adjusted unemployment rate estimate for Vancouver CMA (census metropolitan area)

Source: Created from Statistics Canada data: Table 14-10-0294-01 Labour force characteristics by census metropolitan area, three-month moving average, seasonally adjusted and unadjusted, last 5 months, inactive.

## Disproportionate Impact on Marginalized Communities

However, it is not just the magnitude of employment losses but also the unequal impacts from the pandemic on the already financially vulnerable population - women, youth, Indigenous people, racialized communities, newcomers, and people with disabilities - that has been even more pronounced.<sup>58</sup> Disproportionate job losses for women relates to their over-representation in the economic sectors that were the worst hit, such as accommodation and food services, retail trade, sales, educational services, and health care and social assistance. 56% of women workers are employed in the hardest hit occupations termed as 5Cs (caring, catering, cleaning, cashiering, and clerical functions).<sup>59</sup> Women from lowest-income households and socially marginalized groups were the most affected.<sup>60</sup> Impact on women's employment due to the pandemic contrasts with past recessions where women entered the labour market to replace lost household income. In this case, however, women often stayed home to replace childcare and educational services normally provided by schools and daycares.

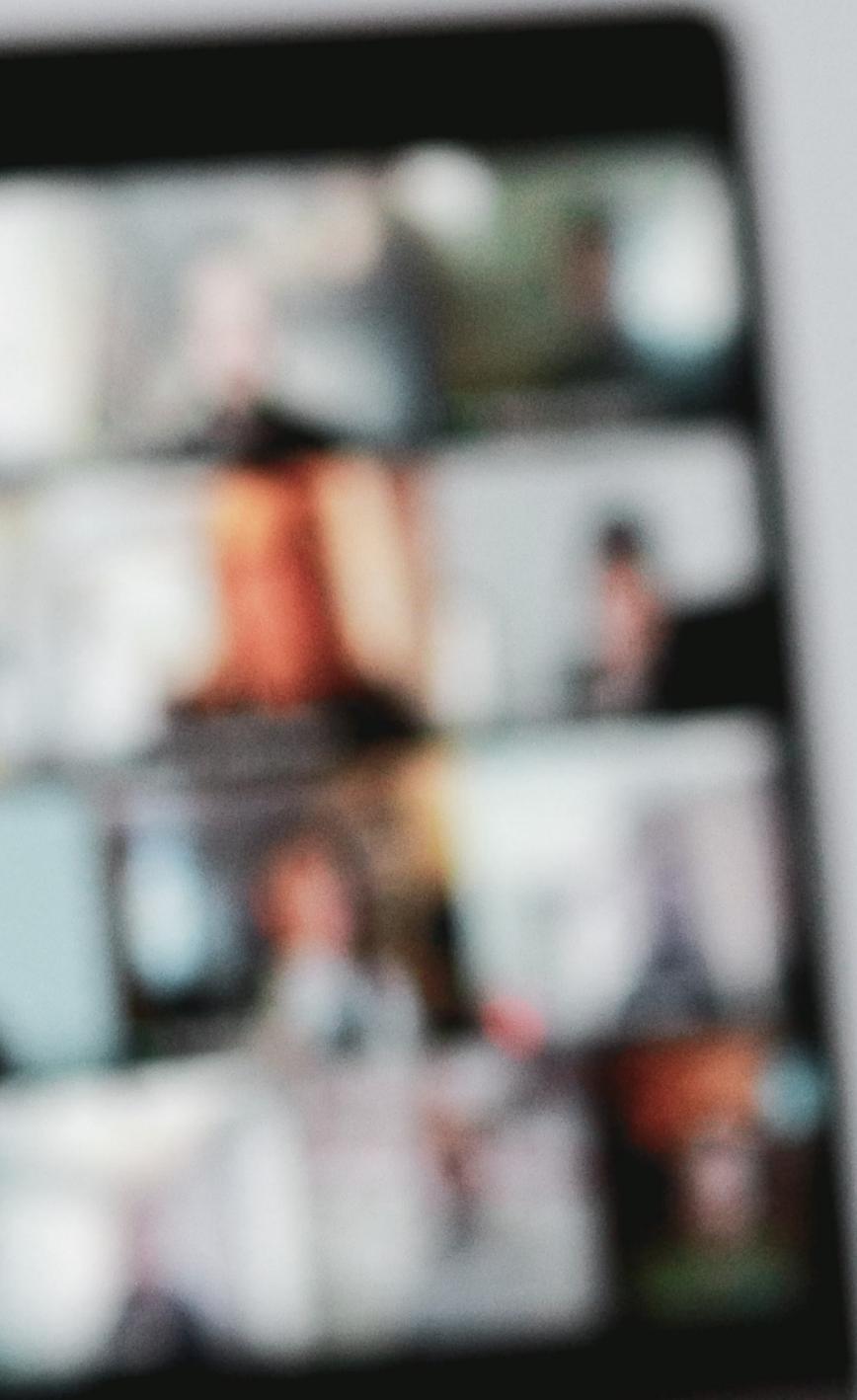
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<sup>58</sup> Several studies have pointed to these trends not just for Metro Vancouver, but also for the Canadian and the global economy; e.g. City of Vancouver. (2020). Planning Vancouver Together: Employment Lands and Economy Review; Vancouver Economic Commission (VEC). (2021). Vancouver Economy Report February 2021: Signs of recovery, but who is left behind?; Statistics Canada. (2020). Economic impacts and recovery related to the pandemic; RBC Economics. (2020). Pandemic Threatens Decades of Women's Labour Force Gains; Labour Market Information Council (LMIC). (2021). Women in Recessions: What Makes COVID-19 Different?

<sup>59</sup> In contrast only 17% of male workers are employed in these 5C jobs. [Source: Sultana, A. & Ravanera, C. (2020). A Feminist Economic Recovery Plan for Canada: Making the Economy Work for Everyone. The Institute for Gender and the Economy (GATE) and YWCA Canada]

<sup>60</sup> Kabeer, Naila. (2021). "Feminist Economic Perspectives on the COVID-19 Pandemic." *Feminist Economics*. doi:10.1080/13545701.2021.1876906.

# Community Interviews



# Community Interviews

The author interviewed different organizations that work with marginalized communities in the Greater Vancouver region to allow for a deeper dive into these communities' participation in the region's circular economy.

## METHODOLOGY AND LIMITATIONS

About twenty organizations were approached in the greater Vancouver region for an interview, representing communities marginalized on the axis of gender, race, ethnicity, disability status, nationality and economic exclusion. Eight interviews were conducted to understand three defined areas of exploration:

- » **Daily Lives:** Community members' participation in sharing, reuse and repair in their daily lives
- » **Employment:** Community members' employment in sharing, reuse and repair; and what they consider to be an inclusive reuse or repair job
- » **Enterprises:** Businesses or enterprises within the community that operate in the share, reuse or repair space

The interviews were intentionally kept semi-structured to allow for the participants to pursue or diverge to any specific ideas that were important to them; and leave room for some follow-up questioning. Each interview was around 45 minutes in length and was conducted online in a video interview format.

The communities that we reached out to were representative of women, newcomers and refugees, racialized communities, persons with disabilities, hard-to-employ<sup>61</sup> in Vancouver, youth, Indigenous entrepreneurs and city neighbourhood associations. Eight out of the twenty interviews sought were conducted, capturing a subset of the marginalized communities in the region. Entities interviewed included representatives from organizations from these communities: new immigrants and refugees (2), youth (1), Downtown Eastside neighbourhood (1), city neighbourhoods (2), Indigenous entrepreneurs (1) and employment services organization (1). Our engagement was limited to organizations that represent marginalized communities given the limited scope and time for this project. We recognise that our interviews are not entirely representative of each community member's experience and would emphasize the need for expanded engagement, including with those with lived experience, to validate and extend our results.

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<sup>61</sup> Hard-to-employ covers individuals that face barriers to employment due to a variety of circumstances, for instance individuals that are home insecure, have criminal records, who abuse substances

## WHAT WE HEARD

A set of themes emerged from the interviews. However, this does not imply that all community members have the same experiences. It was consistently observed that members of each marginalized community have a diversity of experiences, with varied causes and motivations. We summarise below interview responses in three areas - daily lives, employment and businesses.

### Share, Reuse and Repair in the Community Members' Daily Lives

Key themes emerged across the interviews as described below:

#### *Financial needs drive participation, but differently for reuse and share versus repair*

Financial stress faced by marginalized community members is both a motivation and a barrier in their participation in circular<sup>62</sup> activities.

#### » Affordability is the primary motivation for reuse and share

Affordability of reused goods or shared resources emerged as the leading motivation for the communities using these services. In some contexts, such as the most barriered in the Downtown Eastside neighbourhood that face extreme financial constraints, along with an intersectionality of hardships, their access to reused goods was at times facilitated by way of charitable means.

#### » Cost is a key barrier for repair

While sharing and reuse are options that are exercised due to being financially more affordable, repair is a service that is deemed unaffordable despite there being an intent to salvage broken goods rather than discard them. In cases where time and resources were available, many community members engaged in self repair of broken items (especially mending clothes), however electronics or difficult to self-repair items often required replacement due to the high costs of repair. Repair thus emerged as an area where larger policy level action may be required to make it readily available and accessible to marginalized communities.

#### *Low levels of participation in sharing practices*

Although most members in these communities rely on reusing goods by purchasing them from second-hand stores or through charitable means, their participation in the most common regional sharing platforms was limited. These include online platforms like [Quupe](#) and the [Thingery](#) (a community-owned lending library of things housed in a modified shipping container). Youth were an exception to this observation and participated in sharing platforms to a similar degree as they did with reuse options. There could be a set of underpinning influences at play for the communities, despite the financial advantages afforded by both reuse and sharing.

While it was not touched upon in the interviews, a conjecture from literature<sup>63</sup> suggests the following explanation for low-income and marginalized communities' low participation in sharing:

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<sup>62</sup> For ease of comprehension, we use the term circular as a proxy for sharing, reuse, and repair, which are the three inner loop circular practices that were the focus of our interviews

<sup>63</sup> Greene, McGinty. (2016). [What if Cities Could Create a Truly Inclusive Local Sharing Economy?](#). Urban Institute; Dillahunt, Malone. [The Promise of the Sharing Economy among Disadvantaged Communities](#)

- » digital divide - inconsistent access to the internet and online banking that serves as the basis for most sharing platforms' memberships,
- » cultural biases - cultural biases that these community members face could prevent their participation,
- » trust in commercial sharing platforms - the members preference for bartering rather than accessing commercial or otherwise formally established sharing platforms due to a bi-directional lack of trust in these formal sharing platforms

Although sharing through formal platforms may be limited among marginalized community members, it was noted that the members frequently shared resources and goods within their smaller communities through more informal means i.e. borrowing.

### *Environmental and community values*

A consistent theme that emerged from the interviews is that despite financial affordability being the primary motivator for participation in share and reuse activities, marginalized communities care deeply for their immediate community and hold strong environmental values. Interviewees noted that financial exclusion and a host of other barriers are the key reason for lower levels of participation in 'green' activities and it is not for lack of interest. This was distinctively mentioned for the most-barriered community in DTES, refugees and new immigrants, and Indigenous communities.

Strong environmental and community values were also key themes for employment of marginalized community members. A meaningful job that provides a sense of purpose and contributes to the community and environment were stated as priorities by interviewees (discussed further in the employment themes).

### *Culture and way of life*

Culture and a way of life that relies on share, reuse, and repair practices is a theme that was echoed in interviews with organizations serving Indigenous communities and newcomer populations. They mentioned, for instance, that repairing a broken item by way of informal community arrangements and sharing and reusing items has been a way of life for many of them and they continue to engage in these through informal networks within their communities.

### *Other themes*

Other barriers to the participation of marginalized communities in circular practices include:

- » *access* - convenience or access to shared and reused goods, and services of repair
- » *information* - lack of knowledge about circular products and services
- » *geographical distribution* - long distances to circular goods and services make it inconvenient to access them

## Employment in Share, Reuse and Repair Activities

There were two different sets of enquiry concerning employment in sharing, reuse and repair. The first pertains to the communities' employment in SRR activities and the second is the communities' idea of a just and inclusive circular job.

Interview questions were initially kept open-ended, without a framing of a just and inclusive job as defined in our literature review. Prompts on what a just and inclusive job 'may' mean were added only if requested. Overall, it came across that while there are jobs in the circular space that could employ the marginalized community members, so far these jobs have been inaccessible to these communities for different reasons. This calls for further research and action to bridge this employment gap.

### *Very low/ no employment in SRR*

Most communities recognised that currently very few of their members are employed in circular jobs. However, there have been some volunteer opportunities. There is likely to be some youth employment in the SRR space, especially in retail trades, food and hospitality and not-for-profit organizations, but it is not a significant number as yet.

### *Potential for such jobs exists*

It was recognised that given the low-training needs of some of these jobs (e.g. sorting and handling of used goods or washing and refilling reusable containers with food), this space could potentially offer employment opportunities for barriered communities. But there was not widespread practice or understanding about how to connect marginalized communities with businesses offering circular jobs.

### *Just and Inclusive Jobs in the SRR space*

It was not surprising to hear that most community members interviewed echoed the broad themes of decent work and social inclusion we found in the literature when they were asked to describe the labour concerns that the community would have for a circular job. It was clear that the members cared about the purpose and meaning derived from the job, stability, flexible working conditions and a fair wage. It was emphasized also that no two members face the same circumstances and value these aspects differently. For instance, while flexibility of employment and trust by the employer were significant factors for the DTES community, newcomers and refugees valued a low language barrier and acceptability of prior education and experience.

## Share, Reuse and Repair Businesses or Enterprises within Marginalized Communities

Interviewees cited limited evidence of circular businesses run by members of their community, with the exception of youth. Several local circular businesses have been started by youth looking for impact-focussed entrepreneurship opportunities (such as the tool library and local sharing platforms). These enterprises expressed a need for metrics to measure and report business success, environmental benefits, and social purpose outcomes.

## Concluding Thoughts

The circular economy is a viable strategy for a more just and sustainable post-pandemic socio-economic recovery. A circular transition contains the potential for net job growth, with certain sectors and types of jobs experiencing relatively higher growth compared to others. Circular jobs would likely be across skill-level requirements and occupations and be geographically dispersed. While net circular job growth is anticipated, certain job types and sectors would likely witness job losses, displacement or transformation. Jobs in the inner loops of the circular economy focused on sharing, reuse and repair could be particularly labour intensive, address areas of high structural unemployment and be more resilient to job loss over time through technological change and relocation.

To manage potential trade-offs in the labour market in a just, inclusive and equitable manner, and to lay the course for circular jobs to be decent and inclusive work opportunities, Greater Vancouver first needs to understand existing circular jobs. This would create a regional baseline of the existing situation that could be used to understand the impact of business innovation, policies and other measures on regional jobs. Quantifying circular jobs is a complex task and results from other regions are only indicative for Greater Vancouver given variations in the region's resource base, competencies and labour market challenges. However, learnings from the literature and precedents from other countries provide a useful foundation for a quantification of circular jobs in the region.

Quantification of circular jobs must be accompanied by a focus on the nature or quality of circular jobs in the region's labour market. This is particularly important, as developing a better understanding of decent work considerations at the outset of this circular transition is critical. While the transition could present a possibility to employ marginalized populations and create more local jobs, this would require facilitation and concerted action from all stakeholders involved, including marginalized communities and social economy actors. Integrating social enterprises as stakeholders in particular could be a mechanism for moving towards a circular transition that is just and inclusive. Mapping and creating platforms of engagement that involve a full spectrum of social economy and circular economy actors will be of critical importance to fostering a circular economy that enables shared and lasting prosperity for all within planetary boundaries.

# Appendices

## APPENDIX 1 | CANADA'S DEFINITION OF GREEN JOBS

While the Government of Canada does not currently have a formal definition of green jobs, work is underway within the Department of Human Resources and Skills Development Canada (HRSDC). The green jobs taxonomy combines both specific and standard nomenclatures in order to categorise industrial sectors and occupations that contribute to green economic activities. The two standard nomenclatures are the North American Industry Classification System (NAICS) and the Canadian National Occupational Classification (NOC). The green jobs taxonomy is organized into five broad green domains: Environmental Protection, Green Energy, Energy Efficient Construction, Green Manufacturing and Transportation, and Green Services. Each domain aggregates several green industry sectors. These industry sectors are based on a specific nomenclature that is then mapped to a standard industry nomenclature based on NAICS industry groupings. For each NAICS industry grouping, a selection of green occupations was identified and subsequently mapped to a standard occupational nomenclature, the Canadian NOC occupational groupings. Progress thus far on a green jobs taxonomy is based on research conducted by organizations including: Occupational Information Network (O\*NET), the Bureau of Labor Statistics (BLS), the California Centre for Excellence, the United Nations Environmental Program, the Globe Foundation, the International Labour Organization, HRSDC Service Canada LMI Regional Network, Statistics Canada and ECO Canada.

## APPENDIX 2 | METHODOLOGIES FOR CIRCULAR JOBS QUANTIFICATION

### *Methodologies for Circular Jobs Quantification*

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Effect on employment through a transition to a more circular economy has been researched and analyzed using different methodologies, dependent upon the research questions being answered. Below is a short overview of the methodologies used to conduct these analyses

#### 1. Quantitative Analysis

- a. **Accounting models** – Models that begin with a list of drivers of change, for instance: levels of recycling, reuse, refurbishment, remanufacturing in an economy; and forecast potential based on a scenario mapping exercise through expert elicitation and stakeholder engagement. Green Alliance & WRAP study.
- b. **Input-output models** – Models that characterize sector interdependencies in an economy. Dubois and Christis (2014) used IO analysis to determine the potential impact on employment of a transition to a more CE. Circle Economy & EHERO developed a amalgamated the sector-based approach (for defining the core, enabling and indirect jobs) and input-output models (for identification of circularity share of enabling and indirectly circular jobs) for quantifying circular jobs in Scotland and the Netherlands
- c. **Computable general equilibrium models** – a CGE model is a mathematical representation of an economy and consists of a detailed database of actual economy-wide data to simulate the effect of a policy change
- d. **Macro-economic models** - A macro-econometric model can comprise a wide range of probability models for macroeconometric analysis and estimation to focus on different aspects of policy.
- e. Circular Jobs definitions from Circle Economy

#### 2. Qualitative Analysis: Literature reviews, experts and stakeholder interviews

## APPENDIX 3 | GREEN AND DECENT JOBS SCHEMATIC

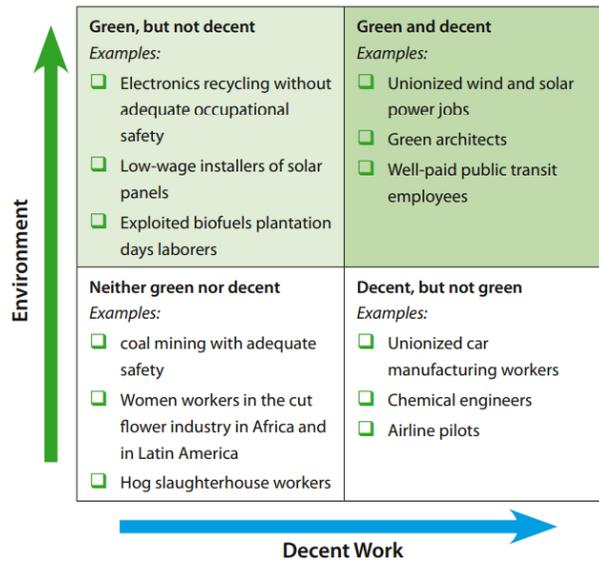


Figure 16: A schematic overview of green and decent jobs framework as defined by the Green Jobs Initiative of UNEP, ILO, et al

Source: figure reproduced from United Nations Environment Programme's report *Green Jobs: Towards decent work in a sustainable, low-carbon world*. This report was prepared as a part of the joint Green Jobs Initiative of - United Nations Environment Programme (UNEP), International Labour Organization (ILO), International Organisation of Employers (IOE), International Trade Union Confederation (ITUC)

## APPENDIX 4 | COMMUNITY INTERVIEW QUESTIONS

### Interview Questions | Share, Repair, Reuse Practices in the Community

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This interview pertains to the project on Just Circular Recovery that focuses on inclusive job creation and affordable and equitable access to sharing, reuse and repair (SRR).

This interview is up to **45 minutes**. After a brief note about your organization, it comprises of questions on three broad themes: questions about sharing, reuse and repair in *daily lives* of the community your organization represents; *employment* in SRR and SRR enterprises or organizations.

SRR is a project of MakeWay charitable society, building a vibrant culture and economy of share, repair and reuse that brings together government, business, and community innovators to build a culture and economy of sharing, reuse, and repair in the Greater Vancouver region in order to prevent waste, support lighter living and enable circular innovation.

#### Organization (5 Minutes)

1. In a few sentences, could you tell me about your organization's mission, what community members you serve and how?
2. How have your community's members been affected by COVID and what are you concerned about as we transition out of this in 2021?

#### I. SRR Practices in Daily Lives (12 Minutes)

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##### Background on SRR Practices

**Sharing** is access to consumer goods as needed vs. individual ownership e.g. online rental platforms, lending libraries (e.g. the Thingery), clothing subscription, furniture leasing.

**Reuse** favours goods and materials that already exist instead of buying new e.g. second-hand goods; and products made from 'waste' like furniture from used lumber or clothing from worn-out items/scrap.

**Repair** of clothing, electronics, furniture, household goods by grassroots entities, non-profits, municipalities and businesses; and designing more durable and repairable goods.

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1. How do your community members practice sharing, reuse and repair in their daily lives?
2. What are the reasons or motivations these SRR practices exist?
3. What are the barriers to your community members in sharing, reuse and repairing?
4. What do you think would support your community members to SRR more in their daily lives?

#### II. SRR Employment (15 Minutes)

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##### Background

Research has shown that there are promising new possibilities for new and inclusive employment generation and also on affordability with a circular recovery assimilating SRR e.g. building deconstruction, leasing versus owning models, repair and reuse in textiles, food, etc.

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1. What, if any, SRR jobs employ members of your community right now?
2. What would be important for a just SRR job for your community members?
3. What are some concerns your community might have about SRR jobs?
4. What would support your community members to have jobs in the SRR sector?

5. Does the community have access to jobs / skills training opportunities – through your organization or from elsewhere?

### III. **SRR Enterprises/ Organizations** (10 Minutes)

1. Do members of your community run businesses or organizations that provide SRR goods or services and employ people?
2. What would support the growth of SRR enterprises or organizations in the communities that you serve?

*Finally:* Is there anything else you would like to add?

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#### Just Recovery Leadership Circle

SRRI is forming a Just Recovery Leadership Circle that comprises leaders from marginalized communities and the local social and circular economy who employ marginalized community members and/ or provide SRR goods and services for their benefit. Would you be interested in some follow up about that? We can share more about what that means and entails.

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## APPENDIX 5 | PHOTO CREDITS

Cover Page: National Geographic. “The Strong & Subtle: Women in Waste Management”. May 2018. Retrieved from <https://blog.nationalgeographic.org/wp-content/uploads/2018/05/DSCF1842-720x405.jpg>

Page 1: Creator: Patrick Chappatte. Retrieved from [Chappatte’s Covid cartoon wins top award - SWI swissinfo.ch](https://www.swissinfo.ch/eng/2020-03-11-swiss-cartoon-competition-wins-top-award)

Page 5: Creator: [Raoul Ortega](https://www.instagram.com/raoulortega/). Retrieved from [https://unsplash.com/@raoul?utm\\_source=medium&utm\\_medium=referral](https://unsplash.com/@raoul?utm_source=medium&utm_medium=referral)

Page 17: Creator: [Clark Young](https://www.instagram.com/clarkyoung/). Retrieved from <https://unsplash.com/photos/fQxMGkYXqFU>

Page 20: “Jobs & Skills in the Circular Economy”. Circle Economy. Retrieved from [https://assets.website-files.com/5d26d80e8836af2d12ed1269/5e6897dafa8092a5a678a16e\\_202003010%20-%20J%26S%20in%20the%20circular%20economy%20report%20-%20297x210.pdf](https://assets.website-files.com/5d26d80e8836af2d12ed1269/5e6897dafa8092a5a678a16e_202003010%20-%20J%26S%20in%20the%20circular%20economy%20report%20-%20297x210.pdf)

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