

Chapter 2

Green Human Resource Management in Circular Economy and Sustainability



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Abstract It is already widely known that the world is facing a serious and difficult struggle against climate change and environmental degradation. As a result of continuous efforts of scientists and researchers to find a solution to these problems, two fields developed in the last couple of years: circular economy and green human resource management. Although these two concepts received substantial amount of attention lately, it is clear that circular economy and green human resource management evolved in opposite directions. Referring to the gap existing in literature, the aim of this chapter is to explore the human aspect of circular economy, specifically green human resource management. With the intention of contributing to better understand the human aspect of circular economy, this chapter aims to establish the relationship between circular economy, green human resource management and sustainability.

Keywords Green human resource management · Circular economy · Sustainability

2.1 Introduction

Climate change and environment degradation are burning issues of our modern world. Scientists agree that without a doubt, the main contributors of these problems are human activities (Intergovernmental Panel on Climate Change, 2014). In order to overcome these challenges, European Commission (2019) adopted The European Green Deal – A new growth strategy with the aim of making European Union’s economy sustainable, by transforming it “into a modern, resource-efficient and

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competitive economy”. In 2020, European Commission adopted a new Circular Economy Action Plan which is the main block of the above-mentioned strategy. Successful transition to green economy will require qualified workforce, and in that sense, people will need to acquire special skills, which will allow them to find jobs in the new economy (European Commission, 2020). Although this Action Plan highlights the importance of human resources in this transition, it falls short in defining the actual human resource practices related to transition towards circular economy. The concept of circular economy has become a popular topic in recent years among scientists as well as politicians, governments, policymakers, corporations, etc. For instance, back in 1996, Germany was the first country to legislate “Closed substance cycle and waste management Act” (Matten, 1996), after which Japan also incorporated circular concept into “Basic law for establishing a recycling-based society” in 2000 (Hongo, 2016). The circular economy concept in China is defined by “Circular economy promotion Law on the People’s Republic of China” in 2009 (Lieder & Rashid, 2016).

With linear model of economy characterized by over-exploitation of natural resources, vast accumulation of waste and driven only by economic benefits, the world faces serious problems threatening to cause irreversible damage to our ecosystem. The concept of circular economy is invented as alternative to current take-make-waste linear model with the aim to minimize the accumulation of waste through design of products and materials that will stay in use longer (The Ellen MacArthur Foundation, 2015). These goals can be interpreted as three main actions in circular economy, better known as 3Rs – reduction, reuse and recycle (Ghisellini et al., 2016). Although the concept of circular economy is in many cases associated closely with recycling, according to Stahel (2014) this action ought to be the last solution, since recycling begins at the end of product life, while the circular philosophy refers to the very beginning of product life. 4R could be found in European Union Waste Framework Directive, with additional R that stands for recover (European Commission, 2008). Some authors extended this 4R framework, adding one or more activities. For example, Sihvonen and Ritola (2015) proposed 6Rs, while Potting et al. (2017) have gone even further with 9R framework. This ambitious idea of transforming world’s economy into circular one is supported by numbers. Estimated by Ellen MacArthur Foundation (2015), shifting towards growth within model could decrease European resource spending by 32% or €600 billion, and generate €1.8 trillion in other economic benefits by 2030.

As mentioned earlier, reviewing the available literature in this particular field, it is clear that the aspect of human resource management in circular economy has been largely neglected (Jabbour et al., 2019b). So far, researches have mainly focused their interest in topic such as: production sector (Koh et al., 2017; Winkler, 2011) including eco-design (Mendoza et al., 2017), green public procurement (Liu et al., 2019a, b; Witjes & Lozano, 2016; Zhu et al., 2013), waste management (Luttenberger, 2020; Salmenperä et al., 2021; Tsai et al., 2020), circular economy indicators (Howard et al., 2018; Yadav et al., 2020), limitations of circular economy concept (Korhonen et al., 2018), eco-industrial parks (Martín Gómez et al., 2018; Wang et al., 2020; Wenbo, 2011) and business incubators (Millette et al., 2020).

This chapter will focus on the human aspect of circular economy, specifically new and emerging concept in human resource management – green human resource management. Greening of human resource management can be understood as process that aims at making contribution to protect and preserve the natural resources and environment. Given the growing concern for the global environment, companies around the world started to adopt green strategies with the goal of becoming “green and competitive” (Charbel José Chiappetta Jabbour et al., 2012). With increasing interest for green human resource management, authors argued that incorporating green practices can play an important role in achieving desired organization sustainability (Jackson et al., 2011; Renwick et al., 2015). Yong et al. (2019) also recognized green human resource management as an option for companies to lower their impact on the environment and contribute to sustainable development.

The aim of this chapter is to fill the gap existing in literature concerning human resource aspect of circular economy. Integrating largely separate literatures of green human resource management and circular economy, this chapter could lay the ground for future research. Further, the author will try to answer the following questions: (1) What is the relationship between green human resource management and circular economy business model? (2) How could green human resource practices in circular economy business model contribute to organization sustainability?

This chapter is divided into four sections. The first section discusses the emerging issue of circular economy followed by innovative circular economy business model by reviewing prominent literature in this field. The second section of this chapter is devoted to green human resource management practices. Starting with definitions of green human resource practices proposed by eminent authors in this field, this short review presents also some positive outcomes these practices can have on organizations’ performance. The next section briefly analyses the concept of sustainability and sustainable development as it is relevant for exploring further relationship between green human resource practices and circular economy. The fourth section of this chapter explains the relation between green human resources and circular economy, effects of adopting green human resource management practices on organization sustainability performance, as well as effects of adopting green human resource management practices on development of circular economy business model.

2.2 Circular Economy

Circular economy and innovative business model are main concepts from which the idea of circular economy business model originated (Geissdoerfer et al., 2020). Sharing the concept of closed loop system (Homrich et al., 2018), different school of thoughts can be found in the literature, regarding the basis for circular economy. Some of them are cradle to cradle (McDonough & Braungart, 2002), industrial ecology (Graedel & Allenby, 1995), biomimicry (Benyus, 2002), laws on ecology

(Commoner, 1971), blue economy (Pauli, 2010), regenerative design (Lyle, 1996) and permaculture (Mollison & Holmgren 1978). Geissdoerfer et al. (2017) are of the opinion that the most comprehensive definition of circular economy is given by the Ellen MacArthur Foundation (2013), where circular economy is defined as a regenerative system, dominated by the use of renewable energy sources, while the design of products and materials is aimed at eliminating the accumulation of waste. However, there is no universal definition of circular economy in scientific literature while there are many possibilities for defining it (Lieder & Rashid, 2016; Yuan et al., 2006). For example, Kirchherr et al. (2017) identified and analyzed 114 definitions of circular economy.

The Ellen MacArthur Foundation (2015), leading organization in developing and promoting the idea of circular economy, identified three main principles on which the circular economy concept rests: (1) preserving and enhancing natural capital – the core of circular economy concept is preserving natural capital from further detriment, by delivering utility virtually. When this is not achievable, circular concept will select technologies based on renewable or better-performing resources. (2) Optimizing resource yields – the circular economy system allows products, components and materials to circulate within technical and biological circles. Technical circle is enabled through design that supports remanufacturing, recycling and refurbishing, while biological circle is conceived to enable the recycling of biological materials and returning them to natural. (3) Fostering system effectiveness – using circular economy as a tool for discovering and decreasing negative impacts of production and consumption on human utility and environment.

2.2.1 Circular Economy Business Model

While the term business model has been in use for over sixty years (Bellman et al., 1957), only with development of information technology and creation of electronic businesses this concept started gaining popularity in scientific literature (Wirtz et al., 2016). Good business model is crucial for every successful organization (Magretta, 2002) given that it defines the way a company does business and represents a significant initiator for innovation (Chesbrough, 2010; Teece, 2010). There are two approaches to business model innovation, designing a completely new business model or recomposing the present business model (Zott et al., 2011). According to Chesbrough (2010), dissimilar business models introducing the same idea or technology will produce different financial result; therefore, it is clear that it is of great importance that organizations create possibilities for innovation. Further, as Teece (2010) observes, business models should be designed to “capture value from innovation”, because developing new products and technologies without commercialization strategy can lead to economic and profit failure.

Traditionally, the concept of value management relies heavily on creating and capturing value for organizations and customers (Osterwalder & Pigneur, 2010). One of the most mentioned business model frameworks in literature is developed by

Richardson (2008), and consists of value proposition, value creation and delivery system and value capture. Authors studying the field of sustainable business models stress the need to go beyond traditional meaning of value and include all stakeholders' interests, especially the society and environment (Bocken et al., 2014; Yang et al., 2017). Depending on the authors and literature, circular business model can be categorized under sustainable business model (Bocken et al., 2014). Although circular business model is considered to be one archetype or sub-category of sustainable business model, this model has additional characteristics that cannot be classified as sustainable (Geissdoerfer et al., 2018).

According to Geissdoerfer et al. (2020), the term circular business model was introduced in an article by Schwager and Moser (2006) that investigated the development and implementation of specific business model that would support sustainable industrial development. Although the concept of circular business model appeared earlier, it was only in 2015 that it began to gain popularity when exponential growth in published works began to show (Geissdoerfer et al., 2020). Reviewing the available literature, it can be understood that circular business model concept evolved from research fields of closed-loop supply chain (Atasu et al., 2008; Kumar & Malegeant, 2006), sustainable product-service systems (Tukker, 2015) and industrial ecology (Lifset & Graedel, 2002).

ReSOLVE framework developed by Ellen MacArthur Foundation (2015) provides set of circular strategies for companies wanting to move towards new business model. In order to make shift from linear to circular economy, this framework includes the following six actions for successful transition:

1. *REgenerate* – Uses renewable energy and recovers natural resources
2. *Share* – Extends product lifespan through repair, refurbish or remanufacture; maximizes the use of a product by selling it to another consumer; maximizes the utilization of a product through sharing
3. *Optimize* – Minimizes the use of natural resources and raw materials in production process; eliminates the waste throughout the lifespan of a product; maximizes the efficiency of the product
4. *Loop* – Keeps products and materials in closed-loops longer; responsible product use has an advantage over product lifecycle extension, while recycle ought to be the last option
5. *Virtualize* – Delivers the same product or service in a dematerialized state
6. *Exchange* – Uses new technologies and innovative materials and designs

Relying on classification provided by Rosa et al. (2019), previous research work done in the field of circular business models could be divided based on the starting point various authors used in their research. In that respect, Charbel Jose Chiappetta Jabbour et al. (2019a) investigated the relationship between circular business model, based on ReSolve framework, and large-scale data. Similarly, Manninen et al. (2018) developed environmental value proposition table based on ReSolve framework, which organizations can use to confirm the environmental benefits of their business model. Some authors focused on Business Model Canvas proposed by Osterwalder and Pigneur (2010) and used this model to design a business model for

circular economy (Lewandowski, 2016). Bocken et al. (2014) developed sustainable business model archetypes to cluster mechanisms and solutions for better circular model design, starting from Richardson's (2008) business model. Reviewing the literature in this particular field it is clear that the human resource aspect of circular economy and circular economy business model has been neglected which is in line with previous research (Jabbour et al., 2019b).

2.3 Green Human Resource Management

Wehrmeyer (1996) was one of the first to address the importance of human resource management in environmental management. He puts human resources in a role of supporter of organization's environmental activities and classifies human resource management functions in three categories: supply competent staff, management of staff and promote organizational dynamics. The term green human resources management first appeared in a study by Renwick et al. (2008) which paved the way for future research in this field. In the following years, researchers began in greater amount to include environmental aspect in human resources in their studies.

2.3.1 Green Human Resource Management Practices

Green human resource management relies on basic human resource practices such as recruitment and selection, training and development, performance management and appraisal, pay and rewards system and organizational culture (Charbel José Chiappetta Jabbour & de Sousa Jabbour, 2016; Charbel José Chiappetta Jabbour & Santos, 2008b; Renwick et al., 2015). These green human resource management practices are defined below.

Attracting and hiring competent staff represent a starting point in human resources management. Green recruitment and selection of employees who are dedicated and sensitive to environment issues increases the possibility that future employees' performance and behaviour will follow organization's green strategy (Tang et al., 2018). Some studies show that applicants are more interested in working for pro-environmental organization (Bauer & Aiman-Smith, 1996) with greater odds for accepting job offer based on company's ecological rating (Aiman-Smith et al., 2001) and concern for environment (Greening & Turban, 2000). Although it is common to find in literature recruitment and selection described in the same context, selection process can be viewed separately. Pham and Paillé (2019) identified selection as a method of determining and assessing applicants' environmental awareness, ecological principles, as well as susceptibility to environmental problems.

Training and education were the topics of studies conducted in the 1990s where researches concluded that environmental training and education are essential to organization management approach and commercial success of business (Marshall

& Mayer, 1992; Hale, 1995; Venselaar, 1995). For employees to be able to accept progressive environmental practices, Sarkis et al. (2010) are of the opinion that environmental training plays an important role in that process. Tang et al. (2018) indicated three aspects of green training: awareness enhancement, knowledge management and climate building. Paillé et al. (2020) explored the effect green human resource management practices have on achieving environmental goals and concluded that training is the best green practice that will motivate employees to make effort towards green objectives.

Tang et al. (2018) are of the opinion that organizations should introduce green performance management standard and therefore set green targets for employees, form green performance index for measurement of employees' green results and use dis-benefits. Negative reinforcements are intended for employees who fail in following organization's green practice. However, warning or suspension may not be the best approach, as Renwick et al. (2013) argue, utilization of negative reinforcements may not motivate or educate employees enough to change their environmental behaviour.

Compensation and reward system is an important tool which aligns corporate objectives and individual interests of employees through rewarding for their good performance (Ahmad & Nisar, 2015). The main reason for providing compensation is to "attract, retain and motivate employees" (Mondy & Noe, 2005). Common practices for rewarding employees for their good environmental performance could be monetary incentives in form of bonuses or salary increase and non-monetary rewards like praise and recognition as well as special benefits like work from home or flexible work hours, while special rewards should be reserved for employees who show advanced environmental initiatives (Hosain & Rahman, 2016).

Besides these most common green human resource practices found in the literature, it is important to mention a couple of others that any pro-environmental organization can adopt. Although individually employees can contribute to organizations' environmental performance, better effect is achieved through teamwork (Daily & Huang, 2001). In that sense, special team are being formed in eco-oriented organizations known as green teams (Charbel José Chiappetta Jabbour et al., 2013). These green teams could be formed on voluntary or obligatory basis (Al Kerday, 2018) and could be functional or cross-functional, depending on whether the team members are working in the same or different organizational unit (Charbel José Chiappetta Jabbour et al., 2013). Survey of 94 Brazilian companies with ISO14001 certification revealed that cross-functional teams are more represented than functional team, and confirmed that green teams are important practices in environmental management (Charbel José Chiappetta Jabbour et al., 2013). Providing safe and healthy workplace for employees is the obligation of every organization. Further, employees are more eager to work for a company that provides safe and healthy workplace, and therefore more satisfied with their jobs and have a sense of security (Amrutha & Geetha, 2020). The main role of green health and safety management, according to Hosain and Rahman (2016), is to supply green workplace for everybody, the place that is eco-conscious, socially responsible and resource-efficient (The Society for Human Resource Management, 2009).

2.4 Sustainability and Sustainable Development

Although the idea of sustainability according to some sources (Geissdoerfer et al., 2017) dates back to early eighteenth-century “*Sylvicultura oeconomica*” (von Carlowitz, 1713), not until the World Commission on Environment and Development (also known as Brundtland Commission) released a publication with their results in 1987 (known as the Brundtland Report), sustainability concept started gaining popularity and interest worldwide. It was actually this report that provided the most commonly used definition of sustainability, emphasising the need to support the development of society to a point that does not endanger natural resources, and ensuring human society and its environment’s a long-term sustainability (World Commission on Environment and Development, 1987). This report also encompasses the goals and strategies for sustainable development. In the following 20 years after the Brundtland Report, Johnston et al. (2007) estimated that about three hundred definitions of sustainability and sustainable development emerged, mostly in environmental management and associated disciplines research.

Ubiquitous concept of sustainability in scientific and other literature can be found in form of three pillars supporting sustainable development – economic, environmental and social, informally known as profit, planet and people. The three pillars are designed to complement each other, be equally represented and not mutually exclusive. Origins of this concept cannot be attributed to someone specific but continuous academic research of economy from environmental and social perspective together with strong efforts of United Nations to decouple economic growth from environment degradation and social injustice (Purvis et al., 2018) led to its gradual development. Traditionally observing, rapid economic growth leads to large production, distribution and consumption, creating negative impact on environment and society. Massive exploitation of finite natural resources on one side and inevitable increase in demand for natural resources on the other, created a need for economic sustainability. Designing a system of production that can keep up with current consumption needs, without jeopardizing future demands presents the core of economic sustainability (Lobo et al., 2015). Economic pillar encompasses group of practices underpinning economic growth with consideration for environmental and social aspect of sustainability (Zhai & Chang, 2019). According to Morelli (2011), environmental sustainability could be defined as responsible utilization of natural resources to a point that satisfies the human needs but at the same time not exceeding its capacities. Negative effects of climate change could be already seen in ecosystem, water resources, food and human health, rising of sea levels and oceans becoming more acidic (Du & Kang, 2016). All of this dangerous change makes a compelling argument for environmental sustainability. Third pillar of sustainability received substantially less attention compared to economic or environmental sustainability (Amrutha & Geetha, 2020). The basis for social sustainability in organizations lies in the first six of the United Nations Global Principles framed in two words: human rights and labour. There is obvious disbalance between three pillars

of sustainability, more precisely, the social pillar is the least represented and poorly treated compared to the other two (Bubicz et al., 2019).

2.5 Green Human Resource Management, Circular Business Model and Sustainable Performance

Human resources management practices are considered essential for successful implementation of environmental management, aligning organizations' green goals with human resources strategy and practices, and thus helping organization in achieving desired environmental performance (Charbel José Chiappetta Jabbour & Santos, 2008a). Renwick et al. (2013) suggested that implementation of green human resource systems as a whole could have greater impact on environmental performance rather than individual green human resource practices, as it was done in the previous researches. Apart from advantages such as employee retention and organizations' good reputation, that green culture brings along, it is noted that green human resource practices can reduce cost and increase sales (Mehta & Chugan, 2015). Green practices, such as recruitment and selection, can attract competent and qualitative employees who are interested working for environmentally aware organization (Linnenluecke & Griffiths, 2010), and as a result enhance organizations' financial performance. Although there are a certain number of studies concerning link between green human resource practices and organizations' sustainability performance, more precisely the environmental and economic dimension of sustainability, social aspect of it is under-researched and represents the weakest pillar of sustainability (Saeed et al., 2019). Amrutha and Geetha (2020) proposed a model connecting green human resource management and social aspect of sustainability, with mediating role of "employee green behaviour at workplace". These two authors are of the opinion that green human resource practices (such as: recruitment, training, appraisal, rewards and employee involvement) positively affect organizations' social performance, with green behaviour as a mediator.

Based on reviewed literature, specific area of interest for researchers is green supply chain management. This concept is becoming more and more popular for companies who want to boost their environmental performance (Testa & Iraldo, 2010). Authors investigated links between human resources management and green supply chain management (Charbel José Chiappetta Jabbour & de Sousa Jabbour, 2016; Nejati et al., 2017) and their studies show that human resources play important part in making supply chains more sustainable. Nejati et al. (2017) study confirmed that biggest effect on supply chain management has green empowerment and green training and development. Longoni et al. (2016) confirmed the hypotheses mentioned earlier by Renwick et al. (2013), that green human management practices together with green supply chain management will have positive effect on environmental and financial performance, and greater impact is achievable when both systems are implemented together.

Jabbour et al. (2019b) developed an integrative framework capturing the main relationship between green human resource practices and circular economy, arguing that the adoption of green practices in workplace, such as recruitment, selection, training and rewards, may have positive impact on the implementation of circular economy organizational strategy. According to Jabbour et al. (2019b), the basis for integration of green human resource management and circular economy business model lies in two organizational theories – stakeholder theory and resource-based view. On one hand, stakeholder theory emphasizes the linked interactions that exist between an organization and its employees, buyers, suppliers, shareholders and all other interested parties that have a stake at the company (Freeman, 1984). On the other hand, the resource-based view of the firm recognized human resources as an important and irreplaceable organization's resource for achieving strategic competitive advantage (Wright et al., 1994; Kamoche, 1996), while Hart (1995) extended this theory into natural resource-based view, adding natural environment into resource-based view of the firm, and thus argued that sustainability strategies can positively influence organization performance.

Although the concept of circular economy is widely recognized as economic model with primary goal of achieving economic growth without harming the environment, there are some evidences that can be supportive of circular economy contributing to sustainable development. Bocken et al. (2014) referred to closed loop business model as one of the archetypes of sustainable business model. Given that circular business models through innovative solutions like new technology, new product and process designs (The Ellen McArthur Foundation, 2015) can influence environmental organizational performance, it is possible to argue that circular economy can benefit overall sustainable development. Similarly, Zhu et al. (2010) based on the study involving Chinese manufacturing companies concluded that both circular economy practices and circular economy targeted performance can be related to economic and environmental sustainability.

2.6 Discussion and Conclusion

The literature concerning green human resource management and circular economy developed noticeably in the past couple of years. Accelerated development of these two fields can be contributed to burning issues facing humanity such as climate change and environment degradation. However, observing the great amount of literature concerning green human resource management and circular economy, it becomes obvious that these two topics developed in separate directions. Researches focused their attention mostly to technical aspects of circular economy and the human resource aspect remained largely unexplored. There is a visible gap in scientific research related to the role of human resources in development of circular economy confirmed also by Jabbour et al. (2019b).

This chapter represents an attempt towards bridging the gap existing in current scientific as well as other relevant literature mentioned earlier, by connecting two

fields – green human resource management and circular economy. More specifically, this chapter explores the relationship between green human resource management and circular economy and identifies the possible effects of implementing green human resource practices in circular economy business model on organization's sustainability.

In order to discover this possible joint relationship of green human resource practices and circular economy and their effects on organization sustainable performance, sustainable supply chains have an important role. Organizations interested in boosting their sustainable performance are considering “greening” the supply chain. Examining the literature concerning the topic of supply chains, it is revealed that human resources play an important part in making supply chains sustainable. Empirical study conducted by Nejati et al. (2017) confirmed this positive effect of green human resources and marked off green empowerment and green training and development as green practices with the greatest effect on sustainability of supply chains. Based on the knowledge that the concept of circular economy is closely associated with sustainable supply chains (Koh et al., 2017), it could be argued that green human resource management can have a positive effect on circular economy business model.

Referring to previous research regarding interactions between green human resources and sustainability, it has been established that green human resource practices have substantial impact on organization's sustainability. Green human resource practices such as recruitment, selection, training, development, appraisal and rewards positively affect organizational sustainable performance. It is also worth mentioning, that greater effect could be achieved if these green practices are implemented as a green human resource system rather than individually.

This chapter has several limitations. First, it is based on secondary data source. Finding and accessing relevant articles was done using academic databases and search engines with key words “circular economy”, “green human resource management” and “sustainability”. Although it was an intention to encompass wider range of academic articles, some of them were not accessible. Also, snowballing technique was applied which itself has certain shortcomings. Second, only the most common green human resource practices found in articles are selected and further explained. Third, this research is limited to effect of green human resource practices on circular economy development, mostly due to lack of literature for exploration of a reverse relationship.

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