

Social economy and green transformation in the European Union

Edited by: Sebastjan Pikl







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Inštitut Novum, Koroška cesta 50, 2370 Dravograd

Tel: +386 31 619305 info@inovum.si http://inovum.si

European Liberal Forum asbl, Rue d'Idalie 11-13, floor 6, 1050 Ixelles, Brussels (BE)

info@liberalforum.eu www.liberalforum.eu

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ISBN 978-961-94865-0-4 (Inštitut Novum) 1. Pikl, Sebastjan COBISS.SI-ID 302649088 **The European Liberal Forum (ELF)** is the foundation of the European Liberal Democrats, the ALDE Party. A core aspect of our work consists in issuing publications on Liberalism and European public policy issues. We also provide a space for the discussion of European politics, and offer training for liberalminded citizens. Our aim is to promote active citizenship in all of this. Our foundation is made up of a number of European think tanks, political foundations and institutes. We work throughout Europe as well as in the EU Neighborhood countries. The youthful and dynamic nature of ELF allows us to be at the forefront in promoting active citizenship, getting the citizen involved with European issues and building an open, Liberal Europe.

The NOVUM Institute is a non-profit, educational and policy research organization established in Ljubljana, Slovenia. Its aims include support to political decision-making, democracy promotion, to foster public dialogue, communicating new policy ideas and developing new methods and approaches in political advertising and communication.

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Introduction

In first half of the 21st century human civilisation is faced with an unprecedented test. It is confronted by a rolling catastrophe of its own making. Climate change caused by systemic pollution and a steady rise in carbon dioxide levels will, in our very own lifetime, alter every aspect of our existence and disrupt natural and social systems with an unparalleled effect on life as we live it.

There are basically four possible directions in which this can unfold: one of adaptation, one of surrender, one of trying to reverse the cycle and one of moving to another planet.

Which one would you choose?

My preferred options are adaptation, mitigation and trying to reverse the climate change cycle as quickly as possible. Humankind owes this much to itself and to future generations. And it must be a bold step that no man has taken before.

I remember, from my primary school actually, in the mid-80s, I was told to turn off the lights when not in the room, not to flush the toilet too many times, to sort the rubbish, all as a sort of awareness raising and instilling the idea in a young mind that if each individual does their part we can achieve a global change.

I have been trying to do my part for decades. Now, as a grown up, I can't help but feel deceived. For me and probably millions of others who were and are doing the same, most political decision makers, companies and big capital were and a lot still are, doing the opposite on a grand scale. Pushing for dirty energy, not introducing sustainable solutions fast enough, not doing what they should with the money and the power.

Parallel to a thought experiment contemplating all these different scenarios and memories, reality poses some slightly more framed possibilities to change-makers in the shorter term. There is a lot that must be done to mitigate, to adapt and to reverse.

On the level of European Union, a plan is in the making. If it is liberal enough and/ or realistic, is to be seen.

Writing political guidelines for the next European Commission 2019–2024, President-elect Ursula von der Leyen in July 2019 put a European green new deal at the top of her agenda for the European Union, striving towards Europe being the first climate-neutral continent by 2050. That can be a decisive step in right direction.

The European Liberal Forum, Institute Novum and several other international and national organisations have already discussed how a combination of social economy actors and social enterprises can shed light on and play one of the parts on a path towards a more sustainable economy and better functioning micro societies, at last year's international conference titled: "Social economy and green transformation" in the city of Maribor, Slovenia–Maribor bore the title: European Capital of Social Economy in 2018.

To be as concrete as possible, we narrowed it down even further, to how and why, based on circular economy ideas, social economy actors need to tap into a stream of reuse and recycling of resources—**plastics, textile and food waste**—and be a part of a disruption process.

Social economy, with its many actors and diversity of enterprises and organisations cooperatives, mutuals, associations, foundations, social enterprises, and some of the institutions of social care—goes further from profit-making itself as the one and only measure of success of an organisation. They are, in their value core, trying to address and solve some particular social and ecological problems and challenges, to do it locally, and in a context of a self-organisational capacity as democratically as possible, taking into consideration the participation of employees and the wider community. Social economy actors operate in all the economic sectors such as: industry, education, healthcare and social services of general interest, agri-food, ethical and cooperative banking, insurance, renewable energy, reuse and recycling, retail and consumption; housing, tourism, culture and leisure, construction, professional services, the digital economy, etc...

According to the European Economic and Social Committee's study Recent evolutions of the Social Economy in the European Union there are 2.8 million social economy enterprises and organisations in the European Union, that employ 13.6 million people and represent 8% of the EU's GDP. Even more, social economy has emerged from the economic and financial crisis largely unscathed. Today, the sector provides paid employment to 6.3% of the working population in the EU-28, compared to 6.5% in 2012.

These are some important facts.

Together with its values, social economy constitutes an important pillar in terms of employment and social cohesion across Europe and is one of the key actors towards the achievement of the United Nation's 2030 Agenda for Sustainable Development.

In this sense, social enterprises are the real change-makers of Europe.

Despite its overall size, the social economy remains invisible and insufficiently supported, on both the European level and in most national states, a hurdle that constitutes another major challenge.

Circular economy as an economic system is aimed at eliminating waste and the continual use of resources, creating products that are regenerative by design. The aim is a resource-efficient and sustainable use of natural resources, their reuse and recycling within a circulatory system, and the prevention of waste.

The history of the concept goes back several decades, some say even more, but it was in 2012 when a report was released, titled "Towards the Circular Economy: Economic and business rationale for an accelerated transition". The report, commissioned by the Ellen MacArthur Foundation and developed by McKinsey & Company, was the first of its kind to consider the economic and business opportunity for the transition to a restorative, circular model. Using product case studies and an economy-wide analysis, the report details the potential for significant benefits across the EU.

So how we can mix these two concepts in practice? By introducing social enterprises to circular economy. To combine social values taking into consideration communities, democratic decision-making and investing for the common good while following the path of circular economy.

The authors have prepared five articles to familiarise you with some of the aspects important in this cooperation plan.

The first article in this publication explains in more depth some important facts about social economy and social enterprises in the European Union and its member states. It covers recent developments and efforts of the field and later connects with the circular economy approach, while presenting several examples of social enterprises already working in the green transformation model.

The second article describes the liberal philosophical background and organisational concept which can enrich the European corporate system by introducing a powerful employee ownership model deriving from the USA, where it is known as the ESOP (employee stock ownership plan) model. This organisational model, properly used, and

adapted to European culture and traditions, can add a new quality to social enterprises and other social and non-social economy actors.

The final three articles deal with the concrete topics of food waste utilisation, plastic recycling and reuse, and reuse and recycling possibilities for textiles and clothes.

All three articles offer some interesting statistical facts and describe the current situation of European policies in the fields together with policy proposals, how to move a step further towards circularity, and present several examples of social enterprises already working in the field.

This publication offers congested and somewhat focused information on two fields—social and circular economy—that together can play an important role in a shift towards a sustainable, fairer and more democratic European Union.

Finally, I would like to thank the European Liberal Forum for making this publication possible. Thanks also to the Association Social Economy Slovenia and the city of Maribor for all the help with organising and hosting the event in 2018 from which this publication originated. And, of course, to all contributors to the publication.

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² https://www.eesc.europa.eu/en/our-work/publications-other-work/publications/recent-evolutionssocial-economy-study (Accessed 17.10.2019)

³ Ellen MacArthur Foundation, Towards the Circular Economy Vol. 1: an economic and business rationale for an accelerated transition, (2012, http://www.ellenmacarthurfoundation.org/publications) (Accessed 17.10.2019)

¹ https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission_ en.pdf (Accessed 17.10.2019)



Anastasia Costantini - Diesis The Potential of Social Economy in Advancing a Green Transition

1 Introduction

The Europe 2020 Strategy recognises the central role of the transition towards a green, low-carbon and resource-efficient economy in achieving smart, sustainable and inclusive growth.

There is strong consensus on the need to shift from high- to low-carbon systems and transform production and consumption towards sustainable development. The European Union has been at the forefront of efforts to build a financial system that supports sustainable growth¹.

Addressing the triple crises of recent years (food, energy and finance) is putting forward the concept of a green economy and it requires a transformational effort from the labour market (COM, 2014).

In the early 2000s, the concept of 'green transition' was introduced by a variety of political and economic actors calling for a fundamental shift to an economic system that is less damaging to the environment (UNEP, 2011). The United Nation Environment Programme defines a green economy as an economy that results in *'improved human well-being and social equity, while significantly reducing environment*

risks and ecological scarcities' (UNEP, 2010) thereby addressing the combined forces of global economic recession, human-induced climate change, and socio-economic inequalities (Davies, 2013).

The term 'green growth' is a similar concept, used by others such as the OECD that defines green growth as 'fostering economic growth and development, while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies' (OECD, 2011). Green growth, as a way to reconcile economic growth with environmental sustainability, offers numerous business opportunities for small and medium-sized enterprises (SMEs)².

The Green Action Plan (GAP), proposed by the European Commission in 2014, is aimed at helping SMEs turn environmental challenges into opportunities. Green growth is both a challenge and an opportunity for the labour market and skills which, in turn, are key factors for enabling green growth (EU COM,2014). By increasing resource efficiency, providing circular economy solutions and participating in green markets, European SMEs can generate employment and growth as well as boosting their productivity and competitiveness.

As many have highlighted, transformation into a greener economy calls for a fundamental transformation of existing development practices meeting the complex bundling of policy goals: social, economic and environmental (Hatch et al, 2017).

Labour market policies and regulation need to ensure that green transformation includes decent and inclusive jobs, which requires that greater attention be paid to issues of social reproduction and care. As the ILO Director General wrote "there is ample evidence that the transition to an inclusive green economy can indeed act as a new engine for growth and a strong driver of decent work creation in developing, emerging and advanced economies" (ILO, 2017). Indeed, the jobs in a greener future will not be decent by default, but by design (Kees van der Ree, 2019).

The green transformation is not only a matter of job sector; it cannot be separated from civil society awareness and pressure surrounding issues of environmental sustainability. In Europe, the strong development of ecological organisations, consumer associations, unions, business organisations, and other civil society bodies is the factor that can allow the coming changes to generate an economy that ensures more manageable, sustainable, social and environment-friendly development (EESC, 2014).

Therefore, the green transition can blend technological innovation with social and environmental improvement, into an economic model that is socially inclusive and equitable, and that places more emphasis on human well-being, preserving our planet's natural resources. The matter is about how to make this change less disruptive and seize the opportunities instead.

There are two broad characteristics of social economy organisations that are of particular interest when considering the green transformation: values and structure. The generation of profit is secondary to their explicitly social aims and their democratic structure provides a further distinguishing feature in comparison to profit business. Whatever the actual form, the social economy offers a number of interesting institutional designs within which different forms of participation can be practiced (Smith, 2004).

The European Economic and Social Committee³ (EESC) has always supported the idea of greening the economy as a contribution to sustainable development and the need for civil society recommendations on the transition to an inclusive green economy to be at the forefront of EU and national policy, emphasising the need for close collaboration with all social partners.

Pursuing sustainable development requires participation and the development of a sense of community and social cohesion. Social economy enterprises have a proven potential to contribute to economic growth promoting sustainability, environmental protection and local development.

In the last decade, the social economy has played a significant role in several key EU objectives, including the achievement of smart, sustainable and inclusive growth, high-quality employment, social cohesion, social innovation, local and regional development, and environmental protection. Even more important, the social economy is a sector which has weathered the economic crisis much better than others and is gaining increasing recognition at the European level. (Ciriec, 2012)

This chapter aims to explore the potential role of social economy in supporting the green transformation. It puts forward how social economy can be a strategic tool and approach that has to be considered in implementing green growth in our society.

2 About Social Economy in the EU

The social economy embraces a range of concepts used in the various EU Member States, such as the third sector, solidarity economy, alternative economy, non-profit sector, not-for-profit sector and voluntary sector. Even if the social economy has only recently been recognised as a distinct set of economic actors, the organisations belonging to it have long been an important part of European history.

The term social economy first appeared in France during the first third of the 19th century and its relevance has gone far beyond French borders throughout the centuries, finding a great resonance throughout Europe (Borzaga et al, 2013). Traditionally, social economy organisations are categorised into four groups: associations, mutuals, co-operatives and foundations. They include in this domain both large organisations and small initiatives with significantly different value bases.

Beyond national differences in terminology and legal forms, social economy enterprises are all inspired by common values such as solidarity, social cohesion, the primacy of the individual over capital, social responsibility, democratic management, and the fact that they are not driven by profit and any profits are reinvested in the company and in society. The social economy and social enterprises are exemplary in the sense that they implement unique organisational models based on the principles of democracy, equality and diversity. (GECES, 2016)

Social economy enterprises (SEEs) are economic actors whose main purpose is to create a positive social impact. By definition, social economy enterprises use the majority of their possible profits as a means for achieving their primary social objectives, rather than maximising profits for their owners and shareholders. Their activities rely primarily, but not exclusively, on limited profit distribution business models, whereby most of their surpluses are re-invested in further development of their activity. As suggested by Borzaga (2013), another characteristic shared by most social economy organisations is their ownership structure, in which ownership rights are assigned to stakeholders other than investors and a significant emphasis is placed on stakeholder involvement and participation. These stakeholders can include workers, customers, or even volunteers: many social economy organisations are characterised by strong participation of volunteers who often play a key role, particularly in the startup phase of the organisation (IIo, 2015; Borzaga, Salvatori, Bodini and Galera, 2013) Do not forget that *democratic governance* is one of the foundations of the social economy. In line with the *"one person, one vote"* principle, active participation in decision-making is not dependent on capital ownership. Democratic management can be direct or representative depending on the type of social economy organisation. It encourages the involvement of everyone and guarantees both the independence and autonomy of its enterprises (Social Economy Europe, 2015).

Thus, the social economy represents an instrument that puts participatory democracy into practice in Europe. Its enterprises are organisations of people who conduct an activity with the main purpose of meeting the needs of people rather than remunerating investors of capital.

In other words, the social economy represents a host of practices and forms of mobilising economic resources to satisfy human needs, which are neither for-profit enterprises nor public institutions, but which nevertheless produce goods and services (Borzaga et al., 2013; Moulaert and Ailenei, 2005).

Aside from the traditional types of social economy actors, a transversal category has been receiving increasing attention and political and legislative recognition: *social enterprises*.

Despite the gradual convergence of social enterprise concepts⁴ at the EU level, social enterprises are still conceived in significantly different ways and take a range of organisational and legal forms in different countries across Europe. Most of the EU Member States have some form of legislation that recognises and regulates social enterprise activity. (GECES, 2016; EC, 2016). In the Social Business Initiative (SBI), the European Commission has proposed the following operational definition of social enterprises: "an operator in the social economy whose main objective is to have a social impact rather than make a profit for its owners or shareholders. It operates by providing goods and services for the market in an entrepreneurial and innovative fashion and uses its profits primarily to achieve social objectives. It is managed in an open and responsible manner and, in particular, involves employees, consumers and stakeholders affected by its commercial activities"⁵.

Within its definition the Commission includes enterprises:

- whose social or societal objective of the common good is the reason for their commercial activity, often in the form of a high level of social innovation;
- whose profits are mainly reinvested with a view to achieving this social objective;
- and whose method of organisation or ownership system reflects their mission.

Social enterprises are the most innovative branch of the social economy. They can play a unique role in identifying unmet needs and developing new types of service. As they have developed, the social economy has gradually been expanding its operational sectors, playing a key role during the economic crisis.

The social economy has received increasing policy attention in recent decades, particularly with regard to its contribution to employment. Policy-makers across Europe have shown an increasing propensity to encourage the social economy, which is progressively having an important role to play in strengthening future prospects in both society and the labour market.

In the last decade, the European Commission, in order to promote a "highly competitive social market economy", has identified the social economy and social enterprises as innovative responses to the current economic, social and environmental challenges, in which social entrepreneurs are striving to make a significant impact on society, the economy and the environment. The Social Business Initiative (SBI), launched in 2011, was an important package of actions to support the development of social enterprises. It contained 11 priority measures, organised in three themes: facilitating access to funding, improving the visibility of social entrepreneurship and simplifying the regulatory environment.

In December 2015, the Luxembourg Declaration "A roadmap towards a more comprehensive ecosystem for social economy enterprises" was adopted by France, Italy, Spain, Luxembourg, the Slovak Republic and Slovenia.

In 2016, this intent continued with the Bratislava Declaration "The social economy as a key player in providing effective responses to current societal challenges in the EU and the world" signed by the same Member States plus Cyprus, Romania, the Czech Republic and Greece. In the same year, Parliament's report on the Single Market Strategy and the report by the Commission's Expert Group on Social Entrepreneurship (GECES), called on the Commission to develop a European Action Plan for the social economy.

In April 2017, the Ljubljana declaration – *Scaling up social economy enterprises in SSE* – aimed for stronger and structured cooperation between the EU and South East Europe. In the same year, nine Member States adopted the Madrid Declaration⁶ on Social Economy, which called on the Commission to include a European Action Plan 2018–2020 in its work programme for 2018, with adequate financing, which

will promote social economy enterprises in Europe and boost social innovation. The Action Plan 2018–2020 should address the economic and social development and social cohesion of all citizens, with a particular emphasis on the disadvantaged and vulnerable ones and should involve—through specific system actions—all actors operating in the social economy.

As stressed by the European Parliament's report on a European Pillar of Social Rights⁷ (2016), the social economy sets a good example in terms of creating quality employment, supporting social inclusion and promoting.

Numerous Member States believe that the social economy can contribute to sustainable job creation and social innovation and reaffirm the importance of supporting promotion of the particularities of social economy enterprises in the Single Market, on the importance of including and supporting social economy enterprises through programmes, projects and funds, and on innovative and sustainable development of an adequate financial ecosystem. Social economy, not surprisingly, shares the values and guiding principles contained in the United Nations Sustainable Development Goals, especially of Goal #8 "Promote sustained, inclusive and sustainable economic growth, full and productive employment and a decent job for all".

Recent trends show that social economy enterprises (SSEs) are present in almost every sector of the economy, serving the interests and needs of their communities and society. This trend is not so unexpected since the social economy and social enterprises have proven to be very resilient during the economic and financial crisis in recent years. They have demonstrated an ability to overcome multiple obstacles and to absorb shocks that affect the stability of employment, for instance (GECES, 2016).

In Europe⁸ there are over 2.8 million SSEs. They provide more than 13.6 million paid jobs (6.3% of the working population of the EU-28). Including both paid and non-paid employment, they have a workforce of over 19.1 million, with more than 82.8 million volunteers, equivalent to 5.5 million full-time workers. Cooperatives, mutuals and similar enterprises have more than 232 million members (Ciriec, 2017).

In some countries, such as Belgium, Luxembourg, Italy, France and the Netherlands, SSEs account for between 9% and 10% of jobs, while in the new EU Member States



such as Slovenia, Romania, Malta, Lithuania, Croatia, Cyprus and Slovakia the social economy remains under 2%. For instance, the paid employment rate in the social economy at EU level is 6.3%, while in the in Eastern and Southern Member States it remains at an average of 2.5%. (Ciriec, 2017).

Beyond their direct contribution to growth in quantitative terms, social economy enterprises should be recognised for their qualitative dimension. Innovation, inclusion and creativity can remodel our economies and civil societies to develop inclusive growth, which creates opportunity for all and distributes the dividends of increased prosperity, in both monetary and non-monetary terms, fairly across society. SSEs have been proven to be versatile organisations, which address areas of unmet or inadequately met social need and create new social opportunities where other actors have failed to act. They contribute to smart and sustainable growth by taking their impact on the environment and social cohesion into account in their long-term vision.

The activities of SEEs have a multiplier effect, which brings cultural, social and economic benefits for the community. They contribute to growth, employment and GDP, and are a vehicle for social and economic cohesion across Europe. They are drivers of change, creating innovative solutions to the challenges that Europe faces today (Diesis, 2017).

They are able to contribute to wider economic and institutional transformation by creating a more resilient economy with increased job security and by influencing how all businesses could or should work as part of a more inclusive economy⁹.

3 The contribution of social economy in supporting the green transformation

As stated by Zahedi and Otterpohl (2016) a green social entrepreneur could play two important roles in sustainable development: first as an innovative community to change the structure of the economy through sustainability and second as a community which creates and changes the norms in a society so as to maintain sustainable development. In fact, green social entrepreneurs do not focus only on the most immediate problems, but also seek to understand the context to develop new resources and make them available to influence global society.

| Type of entrepreneurship | | Core motivation |
|-----------------------------------|---------------|---|
| ECO-ENTREPRENEURSHIP | \rightarrow | Contribute to solving environmental problems and create economic value |
| SOCIAL ENTREPRENEURSHIP | \rightarrow | Contribute to solving societal problems and create value for society |
| SUSTAINABLE ENTREPRENEURSHIP | → | Contribute to solving societal and environmental problems through the creation of a successful business |
| INSTITUTIONAL ENTREPRENEURSHIP | \rightarrow | Contribute to changing regulatory, societal and market institutions |

Table 1 - Characterisation of different kinds of sustainability-oriented entrepreneurship.Source: Schaltegger S. & Wagner M., 2012

The greening of the economy is expressly addressed in the Europe 2020 strategy and the European Commission has targeted the circular economy as one of their main objectives through the achievement of a sustainable-development, low-carbon and resource-efficient and competitive economy, in which *"the transition to a circular economy is a systemic change"* (European Commission, 2015).

A Circular Economy is a new economic paradigm which has been defined by the Ellen MacArthur Foundation as "restorative and regenerative by design. Relying on system-wide innovation, it aims to redefine products and services to design waste out, while minimising negative impacts. Underpinned by a transition to renewable energy sources, the circular model builds economic, natural and social capital".

Such a radical change entails a major transformation of our current production and consumption patterns, which in turn will have a significant impact on the economy, the environment and society (Rizos et al, 2017).

The transition towards a green transition requires fundamental changes to production and consumption systems, going well beyond resource efficiency and recycling waste. The transition implies a systemic change and innovation not only in technologies, but also in organisation, society, finance methods and policies (EC, 2014).

Within a circular economy, you design the economy to be regenerative that works to regenerate capital assets (Kibert, 1999).

It is a principle of an ongoing self-renewal process which builds relationships and allows socio-economic and ecological systems to constantly evolve (Brown, 2018).

The circular economy can play a key role towards green transformation that should imply systemic change in the economy.

In its EU action plan for the circular economy, the European Commission recognised that social economy enterprises will make "*a key contribution to the circular economy*". Both models place individuals and sustainable development at the centre of their concerns, where the key factor for both consists in strengthening creative and innovative capacity at local level, where relations of proximity constitute a decisive component (CIRIEC, 2017).

CAUTO - ITALY

Cauto is a social cooperative that manages the food surpluses of large retail outlets and markets in order to recycle it and avoid food wastage. The food surplus is redistributed among other associations, which use it to create preserves, feed the poor, feed animals and make compost. Through this activity, Cauto has been able to create a strong local network with other actors in the territory, reduce food waste, give disadvantaged people the opportunity of a decent job and raise awareness of the negative impact of food waste and how to avoid it. Its social impact is a great indicator on how social enterprise can contribute to green transformation¹⁰.

As RReuse¹¹ highlights "Social enterprises are involved in numerous environmental services including re-use, waste collection, preparing for re-use and recycling. Through these activities, social enterprises are able to provide jobs and training to people distanced from the labour market such as the long-term unemployed, low skilled workers, people with disabilities, ex-prisoners, people who have struggled with addictions, etc. These additional

social services are also valued by municipalities and the wider community within which social enterprises operate. Estimates in Belgium show a EUR 12,000 net return to government and society for the reintegration of one unemployed person through working at a social enterprise".

A significant portion of the social economy interprets social aims in explicitly environmental terms—these organisations range from counter-cultural food cooperatives and ethical trading enterprises through to more mainstream wildlife conservation and community recycling initiatives (Young 1997). The variety of explicitly green economic enterprises within the social economy is impressive and has long been part (though often under-emphasised) of the 'project' of green (and other) new social movements (Smith, 2004: Rowarth, 2014).

PERMAFUNGI - BELGIUM

One of the most explicative examples in Europe that encompasses both aspects green and social is the entrepreneur PermaFungi¹² from Belgium.

PermaFungi is a project for urban agriculture and circular economy whose mission is to help make our cities more resilient. It recycles coffee grounds into two valuable products: oyster mushrooms and compost. This technique completely transforms waste into two useful products. PermaFungi actively promotes sustainable development through social, economic and environmental actions in Brussels. This social enterprise produces and sells fresh mushrooms and compost, and is developing a network of decentralised production. When the founders started their enterprise, they wanted to show that production and consumption habits could be changed by focusing more on environmental and social issues than exclusively on the logic of profit. For them, the social enterprise model represented the best way to develop their mission based on the three pillars of sustainability.

Awareness of the broader ecological context of social aims is emerging—for example the international Statement on Cooperative Identity includes the principle that cooperatives should 'work for the sustainable development of their communities' (International Cooperative Alliance 1996). Pearce has suggested that all social economy organisations should 'report on their environmental policies and impact regularly as part of their social accounts' (Pearce, 2003).

Alongside private and public companies, social economy enterprises bolster a participatory culture, reconciling social, economic and financial dimensions. With

their democratic structure based on a participatory management model, social economy enterprises have a capacity to generate wealth which is not confined to financial capital but embraces also and mainly social capital (Social Economy Europe, 2015).

The values and principles of the cooperative movement and the social economy, such as links with the local area, inter-cooperation, or community ownership are demonstrating pillars for development alternative models to promoting community access to the benefits of renewable energy. For instance, Energy Co-ops Ireland¹³ develops a suite of off-the-shelf renewable energy projects suitable for many locations, communities and commercial conditions. These projects range from biomass and district heating, to energy efficiency and micro generation. They include pilot R&D projects which have significant job creation potential with valuable technology exports. Energy Co-ops Ireland seeks to increase renewable energy use in Ireland through helping communities to set up their own energy producing and/or consuming co-operatives. This is done through the co-operative model of community ownership which maximises primary and secondary benefits of renewable energy to local people.

They want to help their community, business or group at every stage of establishing projects in order to become a successful energy producer, conservator or technology development partner.

Among social economy actors, social housing has an important role to play in achieving the Europe 2020 objectives on climate change and energy sustainability. The sector represents 12% of the European building stock. Home energy use accounts for 25% of total energy consumption in the EU according to the European Environment Agency. Given the *"affordability"* gap in the housing market and the need for energy consumption reduction of which 30% is due to the residential sector, we need to refurbish affordable housing units on a massive scale. The sector is already leading in energy refurbishment in many countries but the financial support of the sector should be improved (Social Platform, 2014).

The creation of networks among social economic actors it can be considered a very powerful tool since it combines two important aspects: to be grounded at the local level and to be connected globally. The network gives the possibility to develop many impactful activities such as development of skills, competences and know-how, testing innovative approaches, exchanging of best practices, networking and promotion of social economy aims, information dissemination,

mentoring and technical support but also to facilitate access to financial and professional opportunity, and so on.

One of the most successful networks at the international level is RREUSE, an independent non-profit organisation which represents social enterprises active in the field of re-use, repair and recycling, with 26 members across 24 countries in Europe and the USA. Their main vision is for Europe to support the role of social enterprise in a circular economy, providing meaningful work opportunities to thousands of vulnerable members of our community through innovative economic, social and environmentally beneficial activities. RREUSE's primary mission is to help tackle poverty, social exclusion and a throwaway culture by promoting policies, best practices and partnerships that support the professionalism and development of social enterprises working in environmental services with high potential for local and inclusive job creation, notably re-use and repair.

For instance, in Germany, there is Netz NRW¹⁴, a business association, founded in 1993, that includes 250 small and micro companies from the areas of serviceorientated business (incl. freelancers), commerce and craft, and also for social, sociocultural and ecological projects in North Rhine-Westphalia/Germany. The members identify with the guiding principles of co-operative, environmentoriented and sustainable economy and try to integrate this into everyday business. Netz NRW supports these efforts with a wide offer of consulting, projects and products that strengthens both the business success and prospects for the future of its members. Through implementation of transnational projects and publications Netz NRW increases public and cross-party interest in the ideas and thoughts of ecological and social-oriented economy, in the co-operation of companies, in self-administration and employee partnership.

The communities' awareness is a way to make them more participative and responsible about the green transition. Thanks to their formal and informal networks, social enterprises are able to be closer to the community. They influence their community because they make real the change of habits and make people part of this change. Social enterprises operate in a way that generates creative solutions where the crisis is turned into an opportunity. They think differently and work differently. They are flexible enough to address complex issues and consider collaboration as a winning strategy. (Diesis, 2017).

4 Lessons learned

Social economy organisations are able to optimise their economic, social and environmental resources, so that the results are more than the sum of their parts. They are able to intercept emerging needs in society and to develop innovative responses addressing social and environmental issues. Based on the special characteristics of their territory and community, they promote a specific strategy of action in order to be more efficient to achieve their goals. In this framework, the greenness seems to be implicitly assumed, rather than explicitly in social economy policies and support programmes.

To exploit the potential of social economy in achieving the green transformation, we believe that EU institutions and Member States should consider the following key messages:

I. Recognise the social economy as key actor for a green economy

The green transformation is not only a matter of job sector, it cannot be separated from civil society awareness and pressure surrounding issues of environmental sustainability. In Europe, the strong development of ecological organisations, consumer associations, business organisations and other civil society bodies allows upcoming changes to generate an economy that ensures more manageable, sustainable, social and environment-friendly development (EESC, 2014). Special attention on social and environmental problems is given by social enterprises that are new players in the open markets. Social enterprises are considered to be the most efficient organisations that can solve social and environmental problems in a sustainable way. Wide evidence of environment-related social enterprises is provided by various authors (Vickers, 2010).

Considering this, we recommend the following:

- The EU institutions should continue working on boosting social economy, improving its visibility, values and characteristics and to advance towards a European legal framework for all social economy enterprises and organisations.
- It is necessary to promote a structured dialogue between the social economy, the green economy and the EU Institutions to provide guidance and demonstrate the potential of social organisation models in fostering green transformation.
 Reestablish the European Parliament's Social Economy Inter group.
- Although many valuable initiatives currently exist across the EU, the opportunities

to exchange know-how and identify and communicate best practices remain limited. The large range of activities that are pursued in social entrepreneurship mean a structured communication and dialogue is particularly challenging. Launch an initiative to create a platform for public dialogue and knowledge exchange about how social economy and social entrepreneurship can contribute to green transformation among Europe. Moreover, the data related to social economy is still difficult to collect. Provide support at national and transnational level for collection of data and reinforce the use of quantitative tools allowing more detailed analysis of social economy impact on green transition at EU, national and regional levels.

II. Unlock the employment potential of social economy in the green economy

The greening of the economy is expressly addressed in the Europe 2020 strategy, which specifies targets to reduce greenhouse gas emissions, and to increase energy from renewables and energy efficiency. Social economy enterprises have the potential to deliver on these targets, set in response to climate change. They represent an important driver of societal change (alternative economy), constitute a response to mass unemployment and offer an instrument for the development of local economies and/or community development. Social economy enterprises employ 6.3% of the EU-28 working population and have shown their capacity to create and maintain the employment during the financial crisis.

Their potential is insufficiently exploited, not least because their way of working and their impact on employment is not well known across Europe. In that regard, we recommend the following:

- Develop a comprehensive job creation strategy aiming for strategic investment in the green sector, viewing green economy through a social lens including decent working conditions, gender equality, training and lifelong learning opportunities, professional and career development, non-atypical contracts, and adequate benefits.
- Take into account social economy, thanks to its community- based approach, as a key actor to promote inclusive green growth.
- Promote the figure of the green social entrepreneur, especially among the youth as a viable option for young people, both women and men, as a job opportunity, for example through training programmes that emphasise the multiplicity and innovation of skills required in the sector now and in the future.

- Facilitate access to financing for social economy organisations.
- Increase the measures proposed for bridging the current gap in green skills and promote social entrepreneurship in the green sector by the efficient and targeted use of the Structural Funds, in particular the European Social Fund (ESF), the European Regional Development Fund (ERDF), the European Agricultural Fund for Rural Development (EAFRD), the European Maritime and Fisheries Fund (EMFF) and innovation instruments—such as Horizon 2020 (H2020), COSME and LIFE, and to ease the development of green microfinance¹⁵. At the same time, we recommend fostering the knowledge and usage of structural funds among social economy organisations. According to a high-level round table discussion titled *"Circular economy as an opportunity for social enterprises what role for European Social Fund support?¹⁶", held in Brussel in March 2018, more can be done to effectively support social enterprises active in re-use and repair through the European Social Fund.*

III. Boosting an adequate ecosystem for a just green transition

Labour market policies and regulations need to ensure that green transformation also includes decent and inclusive jobs, which requires greater attention to issues of social reproduction and care. As the ILO Director General wrote " there is ample evidence that the transition to an inclusive green economy can indeed act as a new engine for growth and a strong driver of decent work creation in developing, emerging and advanced economies"(ILO, 2017). Indeed, the jobs in a greener future will not be decent by default, but by design (Kees van der Ree, 2019). Therefore, the green transition can blend technological innovation with social and environmental improvements, into an economic model that is socially inclusive and equitable, and that places more emphasis on human well-being, preserving our planet's natural resources.

- The EU institutions should support and encourage European social partners to develop further joint initiatives in the context of the European social dialogue, at both cross-industry and sectoral levels in order to further enhance workers' rights to information and consultation.
- Monitor possible labour force and skills shortages through cooperation between networks of associations of the sector at transnational level, EU member states and relevant civil society stakeholders. The lack of green skills in the workforce should be addressed as part of a wider strategy, which includes tailor-made

training and lifelong learning opportunities to create and promote jobs in this sector.

- Provide adequate information on employment opportunities and better exploring the characteristic of social economy as an opportunity for the green sector.
- Networks of civil society actors advocating the transition to a green transformation such as circular economy should be supported by institutions. It is crucial to secure an active role for the social partners and civil society in the design, application and monitoring of national sustainable development policies and in the transition to an environmentally sustainable circular economy with strong potential for creating businesses with high green employment.

FOOTNOTES

- ¹ Some examples: United Nations Conference on Sustainable Development -Rio+20 (2012); UN 2030 Agenda and Sustainable Development Goals; the Paris Climate Agreement (2014), Green Employment Initiative and the circular economy policy package (2015/2016).
- ² It focuses on resource efficiency, green entrepreneurship and green skills, eco-innovation, greener value chains and facilitating market access for SMEs. It also provides tools for the internationalisation of European SMEs, taking advantage of Europe's leadership in green technologies. The Plan complements other EU initiatives, such as the Green Employment Initiative, a Roadmap to a Resource Efficient Europe, Circular Economy and European Industrial Renaissance,
- ³ The EESC is an advisory body in the institutional set-up of the European Union, representing organised civil society. With 350 members distributed among three groups (employers, workers and various interests), the EESC acts as a vibrant forum for European civil society dialogue—hence ensuring a broader democratic legitimacy and effectiveness of the European Union.
- ⁴ The Organisation for Economic Co-operation and Development (OECD) defines social enterprises as "any private activity conducted in the public interest, organised with an entrepreneurial strategy, but whose main purpose is not the maximisation of profit but the attainment of certain economic and social goals, and which has the capacity to bring innovative solutions to the problems of social exclusion and unemployment".
- ⁵ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and The Committee of the Regions "Social Business Initiative: creating a favourable climate for social enterprises, key stakeholders in the social economy and innovation" COM (2011) 682/2
- ⁶ http://www.lavoro.gov.it/notizie/Documents/2017-05-23-DICHIARAZIONE-MADRID-English-Version.pdf
- ⁷ http://www.europarl.europa.eu/doceo/document/A-8-2016-0391_EN.html
- ⁸ Accurate data on the social economy remain very difficult to come by for different reason such (i) the absence of a harmonised and accepted definition of the social economy; (ii) the difficulties in extracting precise data concerning social economy entities out of other relevant existing

statistical categories; (iii) the fact that traditional indicators such as GDP disregard key elements of what the social economy is (Liget et al, 2016). http://www.europarl.europa.eu/RegData/etudes/ STUD/2016/578969/IPOL_STU%282016%29578969_EN.pdf

- ⁹ The international literature suggests these broad clusters of activity in which the social economy has been shown to promote inclusive growth. Joseph Rowntree Foundation, Cities, the social economy and inclusive growth: a practice review, June 2017 https://www.jrf.org.uk/
- ¹⁰ For more info http://www.nowlife.eu/eng/about_us.html, https://www.cauto.it/
- ¹¹ RReuse is an independent non-profit organisation which representing social enterprises active in the field of re-use, repair and recycling, with 26 members across 24 countries in Europe and the USA. https://www.rreuse.org/
- ¹² https://www.permafungi.be/
- ¹³ https://www.energyco-ops.ie/
- ¹⁴ https://www.netz-nrw.de/
- ¹⁵ For further opinions, please consult the opinion of EESC on the circular economy: job creation and Green Action Plan for SMEs NAT/652 (2014).
- ¹⁶ In the framework of Social Economy Thematic Network, in 2018 DIESIS in collaboration with RReuse and Aeidl organised the seminar Circular economy as an opportunity for social enterprises – what role for European Social Fund support?" with the involvement of 3 representatives of the European Commission (DG ENV and DG EMPL and DG Grow), European social economy networks, social enterprises in the circular economy and #ESF managing authorities from 8 countries, that took place in Brussels on March 20 and 21.

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David P. Ellerman and Tej Gonza Classical Liberalism, Social Responsibility, and Employee Ownership

1 Abstract

Classical liberalism has always emphasised the agency and empowerment of individuals to help themselves as opposed to government organisations 'doing good things for people.' The usual imagery is an individual acting as a 'sovereign' in the marketplace. But there is a tradition of democratic classical liberals, represented by Alexis de Tocqueville, John Stuart Mill, John Dewey, and James Buchanan, who have also emphasised the agency and empowerment of individuals in organisations such as the workplace. In an insider-owned organisation like a family firm or farm, there is a natural self-regarding incentive for social responsibility since people are inclined not to 'foul their own nest.' But much of modern industry is characterised by absentee ownership where the decision-makers do not face the adverse consequences of their decisions. Within the tradition of democratic classical liberalism, there is, however, the recurrent theme of employee ownership which restores the natural incentives for social responsibility. After outlining these arguments in the first part of the paper, we turn to the rather recent social invention in America of the Employee Stock Ownership Plan or ESOP that has proven an effective way to increase employee ownership (e.g. 10% of the private US workforce work in ESOPs). There is now a generic model of the ESOP that can be implemented in Europe or other private property market economies, which presents a complementary tool for succession or ownership change.

2 Theory: The philosophy of democratic classical liberalism

Doing good

Political philosophy deals with many difficult questions, and one of the most relevant is about how governments might "*do good*" for the citizens in a given society. In general, we may recognise two different political philosophies for "*doing good*."

- 1. (progressivist) the purpose of obtaining political power is to do good things for people (particularly those in most need) which usually takes the form of social programmes that are universal and available as a matter of rights (e.g. social security, health care, education including higher education, basic income, and so forth); and
- (classical liberal) the purpose of obtaining political power is changing the conditions of empowerment so that people can do good things for themselves (which does not preclude short-term targeted government social safety-net programmes).¹

Classical liberalism expresses a scepticism about universal governmental programmes and organisations being able to "*do good*" for people. The reasons for the general ineffectiveness of the government to directly do good for people are not unique to government; the reasons apply as well to other external organisations that are also tasked to "*do good*" such as philanthropic, development aid, or other helping organizations in general.² As John Dewey (1859–1952) put it:

The best kind of help to others, whenever possible, is indirect, and consists in such modifications of the conditions of life, of the general level of subsistence, as enables them independently to help themselves. (Dewey and Tufts 1908, p. 390)

The aim of a helping organisation should not be to "*do good*" in any direct sense. Instead, the central role of government should be to set up and maintain the conditions for people to be empowered and enabled to do good for themselves. This approach could range from providing transparent information to citizens about the candidates in a democratic election race, to establishing and enforcing the private property prerequisites for the functioning of a market economy.

Much of the classical liberal literature uses the model of the individual as a
sovereign actor in the marketplace, e.g. the shopkeeper, farmer, or worker. But the goal of increasing people's agency to do good for themselves is not restricted to the marketplace. The goal should be to increase people's autonomy, organisational efficacy, and effective social agency so they can do good for themselves—individually in the marketplace or, more likely, jointly in their own organisations. That is how the virtues of individual self-regarding activity in the marketplace (the usual setting for classical liberal imagery) generalise to the virtues of collective activity by people in their own organisations.

The democratic classical liberal normative framework that emphasises this autonomy and self-efficacy is perhaps best stated by James M. Buchanan (1919–2013):

The justificatory foundation for a liberal social order lies, in my understanding, in the normative premise that individuals are the ultimate sovereigns in matters of social organization, that individuals are the beings who are entitled to choose the organizational-institutional structures under which they will live. In accordance with this premise, the legitimacy of social-organizational structures is to be judged against the voluntary agreement of those who are to live or are living under the arrangements that are judged. The central premise of individuals as sovereigns does allow for delegation of decision-making authority to agents, so long as it remains understood that individuals remain as principals. The premise denies legitimacy to all social-organizational arrangements that negate the role of individuals as either sovereigns or as principals. (Buchanan 1999, p. 288)

It should be particularly noted that Buchanan goes beyond the common image of the sovereign individual acting in the marketplace to the individual acting in an organisation which allows *"for delegation of decision-making authority."* Then the legitimacy of the *"social-organizational arrangements"* depends on the individuals being principals in their own organisations, meaning that they hold in their hands the power to give and take the power from their representatives.

In this paper, we will develop a brief intellectual history of this democratic classical liberalism through Tocqueville, Mill, and Dewey, who, as the reader will see, all promoted democratic organisation of a workplace, and, finally, we will show that classical liberalism has a functional counterpart in the special employee-ownership programme in the USA, which could be extended and generalised into other market-based private property economies.

The implications for today's social-organisational structures

We have taken James M. Buchanan's description of the normative basis for classical liberalism as the foundational framework, which we are going to apply to in thinking and understanding about the classical liberal approach to "doing good". Buchanan's mature thought moved beyond the conventional liberal idea, expressed in his *Calculus of Consent* (Buchanan and Tullock 1962), about the consent being a sine qua non for a legitimate human conduct. He made a stronger requirement that people should always be sovereigns or principals who delegate decision-making authority in an organisational setting. Buchanan's strictures imply democratic self-governance in contrast to the consent of the governed as conferring legitimacy on non-democratic governance, e.g. startup or charter cities (Freiman 2013).

In many modern discussions of associative and deliberative democracy (e.g. in the tradition of Tocqueville), there is a curious "dog that didn't bark". The emphasis is rightly on the associative activities of citizens who come together for discussion, dialogue, deliberation and responsible action to address problems that they cannot resolve at the level of the individual or the family. People create many associations for collective action: church groups, charities, issue-oriented non-profits, unions, social clubs, hobby groups, political parties and *ad hoc* special-purpose groups. People might participate after-hours in these various Tocquevillean associations to try to accomplish together what they cannot accomplish individually.

But that list of non-governmental associations leaves out the one organisation that dominates most people's lives outside the family, namely, the workplace.³ Of course, some people work for themselves or in small family firms, so those workplaces are only a marginal extension of family life. But most people work in larger organisations requiring the concerted associated activities of many nonfamily members. These work organisations provide the primary sites, outside the family, where people acquire mental habits and social skills and where they engage in effective collective activities.

Almost all workplaces today are organised on the basis of the employment contract. In common usage, to have an income-producing job is to be *"employed."* Indeed, in his iconic paper *The Nature of the Firm*, Ronald Coase (1910-2013), a

Nobel prize-winning economist and one of the pioneers of the theory of the firm, identifies this relationship as the *"legal relationship normally* called that of 'master and servant' or 'employer and employee'" (1937, p. 403).⁴

With the employment contract, the employees are not Buchanan's principals. They are not the owners of the things they produce; they are simply hired hands, paid in a similar way as the employer pays for the electricity or other 'inputs' for production. Despite the fact that they enter the employment relationship on a voluntary basis, this does not by itself guarantee the legitimacy of the relationship. To argue for this would be analogous to the libertarian argument in favour of voluntarily entering the autocratic state and saying that the consent itself legitimates the autocracy of the government.

When evaluating according to the principles of classical liberalism, it becomes clear that workers in a conventional business enterprise do not delegate decision-making authority to the employer. The employer is not the representative or delegate of the employees; the employer does not manage the organisation in the name of those who are managed. The employees are not directly or indirectly part of the decision-making group; the employees have alienated and transferred to the employer the legal discretionary decision-making rights over their activities within the scope of the employment contract.

The form of workplace organisation that would satisfy the strictures of Buchanan's Principal's Principle is one where all the people working in a firm are the principals, members or co-owners in the workplace and have a democratic governing right.

Brief intellectual history of the classical liberal alternative: Tocqueville, Mill, and Dewey

To see the context and corroboration for Buchanan's normative framework, we might consider the work of three earlier liberal philosophers, Alexis de Tocqueville (1805–1859), John Stuart Mill (1806–1873) and John Dewey.

Today, the welfare rights movement would be seen as a progressivist movement aimed at increasing public welfare programmes and getting better access to existing programmes—not on the poor using their agency to remove their need to access such programmes. Tocqueville, however, thought along classical liberal and civic republican lines. For instance, government programmes of land reform might make individual parcels of land available to landless agricultural workers or larger parcels available to agricultural cooperatives. But, even in his time, the economy was becoming more industrial than agricultural. In our opinion, the crux of the problem to be solved is this:

To find a means of giving the worker the small farmer's spirit and habits of property ownership. (Tocqueville 1837)

Thus, government programmes might foster individuals and families starting their own small businesses, groups of individuals starting cooperative businesses, or the conversion of existing firms with the *"aristocratic form"* (*Ibid.*) into employee-owned companies. Such government programmes would assist existing wage workers to acquire shares in their company to eventually become more *"owner"* than *"employee."* In contrast, progressivist government programmes would focus more on labour unions and industrial legislation to better protect and care for wage workers.

Tocqueville explicitly notes the need for large capital to exploit returns to scale but he infers that this requires "large" owners.

Until now, experience has shown that in order to engage in most commercial enterprises with any hope of success, large capital concentrated in a small number of hands is necessary. Thus, we find a few individuals who possess great wealth and who put to work on their behalf a multitude of workers who possess nothing themselves. Such is the spectacle that French industry presents nowadays. It is exactly what happened here in the Middle Ages, and what we see still happening to agricultural industry over much of Europe. (*Ibid.*)

Today, with the development of the public equity markets in the late 19th and early 20th centuries, we see that "large capital concentrated in a small number of hands" is not needed to exploit returns to scale. The largest publicly traded companies will have the largest number of owners. But the small passive owners in public security markets are not the industrial analogues of the small farmers actively working their own land who are promoted in classical liberalism and civic republicanism. Day-trading on the stock market is hardly an anti-poverty programme for the poor.

As already noted, the "crux of the problem" is "To find a means of giving the worker the small farmer's spirit and habits of property ownership." But Tocqueville ends up focusing, in the latter part of his unfinished memoir, on individual savings accounts. Tocqueville recognises that the "most efficacious" means of improving the situation of the industrial worker is for them to have:

an interest in the factory. This would produce effects in the industrial class similar to the division of landed property among the agricultural class. (*Ibid*.)

But he considers that the only way for workers to acquire such an interest in an existing factory is for the:

industry's capitalist entrepreneurs...to give their workers a proportionate amount of the profits or to contribute to the company small sums which could be shared with the workers. (*lbid*.)

While Tocqueville thinks that the employers should make such gifts in their own interest, he finds little inclination for them to do so. Despite his previous argument about large capital requiring large owners, Tocqueville also recognises the possibility of workers' industrial associations. But he notes their largely unsuccessful experience in his time. He sees that as an option for the future but as not being ripe for his own time.

Nevertheless, I am led to believe that a time is approaching when a large number of industries might be run in this manner. As our workers gain broader knowledge and as the art of joining together for honest and peaceful goals makes progress among us, when politics does not meddle in industrial associations and when government, reassured about their goals, does not refuse them its benevolence and its support, we will see them multiply and prosper. In democratic ages like ours, I think that associations of all sorts must gradually come to take the place of the commanding action of a few powerful individuals.

It thus seems to me that the idea of workers' industrial associations is bound to be a fertile one, but I do not think it is ripe. (*Ibid.*)

In today's world, Tocqueville's scepticism and suggestion about savings accounts are unnecessary. There are many possible ways of organising labour into workerassociations, and many of them have proven to be very successful through the decades (see below). Before going to the alternative models of economic organisation, let us see what other classical liberals had to say about the normative principles of "doing good".

John Stuart Mill argued that social institutions should be judged in large part by the degree to which they "promote the general mental advancement of the community, including under that phrase advancement in intellect, in virtue, and in practical

activity and efficiency..." (Mill 1972, Chapter 6). Mill saw government by discussion as an "agency of national education" and mentioned "the practice of the dicastery and the ecclesia" in ancient Athens as institutions that developed the active political capabilities of the citizens.

In his *Principles of Political Economy*, Mill considered how the form of work would affect those capabilities and how the workplace association could become a school for the civic virtues if it progressed beyond the employment relation.

But if public spirit, generous sentiments, or true justice and equality are desired, association, not isolation, of interests, is the school in which these excellences are nurtured. The aim of improvement should be not solely to place human beings in a condition in which they will be able to do without one another, but to enable them to work with or for one another in relations not involving dependence. (Mill 1899, Book IV, Chapter VII)

Previously those who lived by labour and were not individually self-employed would have to work *"for a master"*, i.e., would not be a principal in their work activity.

But the civilizing and improving influences of association, ..., may be obtained without dividing the producers into two parties with hostile interests and feelings, the many who do the work being mere servants under the command of the one who supplies the funds, and having no interest of their own in the enterprise except to earn their wages with as little labor as possible. (Mill 1899, Book IV, Chapter VII)

One halfway house in this direction would be various forms of association between capital and labour.

The form of association, however, which if mankind continue to improve, must be expected in the end to predominate, is not that which can exist between a capitalist as chief, and workpeople without a voice in the management, but the association of the labourers themselves on terms of equality, collectively owning the capital with which they carry on their operations, and working under managers elected and removable by themselves. (Mill 1899, Book IV, Chapter VII)

Under this form of cooperation, Mill sees an increase in the productivity of work since the workers then have the enterprise as "their principle and their interest."

It is scarcely possible to rate too highly this material benefit, which yet is as nothing compared with the moral revolution in society that would accompany it: the healing of the standing feud between capital and labour; the transformation of human life, from a conflict of classes struggling for opposite interests, to a friendly rivalry in the pursuit of a good common to all; the elevation of the dignity of labour; a new sense of security and independence in the labouring class; and the conversion of each human being's daily occupation into a school of the social sympathies and the practical intelligence. (Mill 1899, Book IV, Chapter VII)

What Mill sees as happening in the democratic workplace echoes what he earlier found in Tocqueville's description of the educational effect of the New England township. In Tocqueville's words:

Nevertheless, local assemblies of citizens constitute the strength of free nations. Town-meetings are to liberty what primary schools are to science; they bring it within the people's reach, they teach men how to use and how to enjoy it. A nation may establish a system of free government, but without the spirit of municipal institutions it cannot have the spirit of liberty. (Tocqueville 1961, Chap. V, p. 55)

As Mill expanded on the point:

In this system of municipal self-government, coeval with the first settlement of the American colonies...our author (Tocqueville) beholds the principal instrument of that political education of the people, which alone enables a popular government to maintain itself, or renders it desirable that it should. It is a fundamental principle in his political philosophy, as it has long been in ours, that only by the habit of superintending their local interests can that diffusion of intelligence and mental activity, as applied to their joint concerns, take place among the mass of the people, which can qualify them to superintend with steadiness or consistency the proceedings of their government, or to exercise any power in national affairs except by fits, and as tools in the hands of others. (Mill 1961 (1835), p. xvii)

Thus, Mill agrees with Tocqueville that organisational self-governance develops the democratic capabilities of the people. A century later, John Dewey emphasised the formative implications of people's daily activity in an industrial society.

For illustration, I do not need to do more than point to the moral, emotional and intellectual effect upon both employers and laborers of the existing industrial system. ... I suppose that every one who reflects upon the subject admits that it is impossible that the ways in which activities are carried on for the greater part of the waking hours of the day, and the way in which the share of individuals are involved in the management of affairs in such a matter as gaining a livelihood and attaining material and social security, can not but be a highly important factor in shaping personal dispositions; in short, forming character and intelligence. (Dewey in: Ratner 1939, 716-7)

Do these primary sites for outside-the-family socialisation and development foster the virtues of associative democracy? While "democratic social organization makes provision for this direct participation in control: in the economic region, control remains external and autocratic." (Dewey 1916, 260)

Control of industry is from the top downwards, not from the bottom upwards. The greater number of persons engaged in shops and factories are "subordinates." They are used to receiving orders from their superiors and acting as passive organs of transmission and execution. They have no active part in making plans or forming policies—the function comparable to the legislative in government—nor in adjudicating disputes which arise. In short their mental habits are unfit for accepting the intellectual responsibilities involved in political self-government. (Dewey and Tufts 1932, 393-2)

Here, Dewey is talking about the employees, who are, in Buchanan terms, not sovereigns within the scope of the employment contract, but rather "*passive organs of transmission and execution*", subjects of authority, who have no say in putting this authority in place and having a capability of removing it from there. From his earliest writings in 1888 to his mature years, Dewey's liberalism saw democracy as a norm applicable to all spheres of human activity, not just to the political sphere.

(Democracy) is but a name for the fact that human nature is developed only when its elements take part in directing things which are common, things for the sake of which man and women form groups—families, industrial companies, governments, churches, scientific associations and so on. The principle holds as much of one form of association, say in industry and commerce, as it does in government. (Dewey 1948, 209) It should not be too much of a surprise that the normative framework of James M. Buchanan's classical liberalism has the same implications for Tocqueville's *"science of associations"* in this regard as Mill and Dewey⁵ even though the full implications were not explicitly drawn.

Contemporary corporate ownership

There have been a few social commentators who have pointed out the institutionalised irresponsibility of the *absentee-owned* joint stock corporation. The first to theorise about *absentee ownership* and to actually coin the term was an eccentric economist Thorstein Veblen, who was, in his book Absentee Ownership (1923), one of the first to explain and problematise the economic returns on merely owing capital. His analysis was quickly supplemented by the classic from A. Berle and G. Means, who in their 1932 book *The Modern Corporation and Private Property* argued that in the modern economy ownership have been separated from control. Some years later in a 1961 book aptly entitled *The Responsible Company*, George Goyder quoted a striking passage from Lord Eustace Percy's *Riddell Lectures* in 1944:

Here is the most urgent challenge to political invention ever offered to the jurist and the statesman. The human association which in fact produces and distributes wealth, the association of workmen, managers, technicians and directors, is not an association recognised by the law. The association which the law does recognise—the association of shareholders, creditors and directors—is incapable of production and is not expected by the law to perform these functions. We have to give law to the real association, and to withdraw meaningless privilege from the imaginary one. (Percy 1944, 38; quoted in Goyder 1961, 57)

As argued at the outset, "doing good" in the classical liberal sense means creating the capacity enabling institutions. Government policy should promote social structures so that people can take associative collective actions to address their own problems and the problems of their communities. People are involved in effective collective action all day long in their work associations. But today the structure of most companies of any size—namely, the employment relation with the employer being the absentee owners on the stock market—institutionalises irresponsibility by disconnecting the far-flung shareholders from the social and environmental impact of their "corporate governance." Or viewed the other way around, that employment structure prevents

the local managers and staff in widely held companies from being the principals to use the main outside-the-family organisational involvement to address local problems.

3 Practice: employee ownership and social responsibility

Family firms and social responsibility

Family-owned small and medium-sized enterprises (SMEs), which are arbitrarily defined as companies of up to 250 employees, but could be much larger, do not have serious problems of corporate social responsibility for a very good reason—everyone has a natural incentive not to foul their "own nest." The family typically lives in the community containing the enterprise and has a tradition of respect for creating jobs in and otherwise supporting the local community.

However, the family business is not sustainable on its own. It needs an ownership and control succession plan. Founders pass on and the children may have little interest in running the family business, so these companies are often sold to a competitor or to a larger industrial or financial conglomerate. In any case, the firm then becomes absentee-owned, and the new owners have a very different set of incentives than commitment to the local community. The enterprise may continue to operate for a time while the customers are switched to other facilities, while the value of the assets is *"milked out"* by not undertaking replacement investments, and with less attention to costly pollution controls. Eventually the enterprise is closed, citing high labour costs and increased competition from cheaper foreign or domestic labour.

SMEs in Europe currently employ around 65% of the total workforce (European Commission 2016), and are a major contributor to local jobs, to sustaining local communities and municipalities, and often dedicate some of their funds to socially responsible programmes (Werther Jr & Chandler, 2010). It is in the interest of European citizens to keep these companies locally owned, and locally governed. This may, however, soon become a serious issue; a baby-boom generation of entrepreneurs is now reaching a retirement age, which may lead to a substantial withdrawal of family businesses from operation if there is no systemic succession plan in place.⁶ We can only imagine the social consequences of the mass retirement of SME founders, if there is no alternative in place.

Fortunately, there is a way out. This way out builds on the values of classical

liberalism as exposed above. There is a time-tested alternative—replace familyownership by employee-ownership—that has proven successful in some 7000 enterprises in the United States (covering 10% of the private workforce), and this alternative can readily be adapted to other private property market economies. But objections arise immediately; the employees do not have the money to buy out the family owners and they are well-advised not to risk their own savings and mortgage their own homes on such a venture. These objections are well-taken. The 7000 firms with partial or whole employee ownership did not arise from employees risking their own private savings or assets. They arose from a new legal mechanism, the Employee Stock Ownership Plan (ESOP), which allows a partial or 100% employee *"leveraged buyout*," while avoiding the old problem of employees risking their own savings and assets.

The ESOP mechanism directly addresses the old problem of family ownership giving way to absentee ownership and the resulting downward spiral in corporate social responsibility to the local community.⁷ The ESOP mechanism is, however, not limited to solving family succession problems; it can also be used to partly or wholly spinoff corporate subsidiaries which are no longer part of the core business strategy. In any case, some significant employee ownership brought about by the ESOP mechanism changes the mix of incentives for corporate management and establishes a more natural alignment between corporate and social responsibilities.

It is our belief that the ESOP is an important "social invention" compatible with classical liberalism that is too little known in Europe and other market economies. The question is, how to implement ESOP, which is legally a fairly complex institution, into European economies?

What is an ESOP?

It is firstly important to say what an ESOP is not. The acronym "ESOP" is often used to denote any form of employee ownership no matter how it was established. In particular, an ESOP is quite different from the relatively common Employee Share Purchase Plans (ESPPs) where employees set aside a portion of their wages and salaries on an individual basis to purchase shares at a discounted price. Such plans rarely amount to a significant percentage of corporate ownership. The slow increase in employee shares through an ESPP seems to have little effect on either employee or management perceptions or incentives. In contrast, the ESOP leveraged buyout involves a loan to buy a significant amount of ownership at one time, although the employees only gain control over the shares as the loan is paid off over a period of years.

The key to the ESOP leveraged transaction is an Employee Stock Ownership Trust (ESOT) separate from the company with the employees of the company as the beneficiaries of the trust; indeed, it is a special type of private pension trust. The ESOT then approaches a bank or other financial institution to take out a loan to buy shares from the exiting owner (e.g. the family or corporate owner) or to buy newly issued shares.



Figure 1: The ESOP Mechanism for an Employee Leveraged Purchase of Shares

The purchased shares are initially held in a special 'suspense account' in the trust and they will be forfeited if the loan payments are not made. But banks and financial institutions do not want to hold shares in a privately held company so the real security is that the company commits to make the loan payments (as in an ordinary loan) except that the 'loan payments' leave the company as pension contributions to the ESOT, which are then passed through to the lender. This creates a significant tax advantage for the company since the whole pension contribution is deducted from taxable income as deferred labour compensation—whereas ordinarily only the interest portion of the loan payment is deductible. Then, shares, equal in value to the loan payment, are distributed from the suspense account to the individual employee share accounts in the trust in proportion to their compensation.



Figure 2: Shares allocated to individual accounts and repurchased on exit

When the employees retire or otherwise leave the company, the ESOT repurchases their shares over a period of time, and the repurchased shares are reallocated to the individual accounts of the employees still with the company. Unless the company is a publicly traded company, the company is obliged to repurchases the shares of the exiting employees since there is no external public market. That repurchase liability of the company can be financed out of current earnings transferred to the ESOP as a pension contribution or by another loan paid off in the same manner. In that manner, the employee ownership is stabilised over time.⁸

Legislative History of ESOPs

In an ordinary American private pension fund associated with a company, the pension contributions would be used to buy other shares or securities with at most 10% allowed to be invested in employer securities. Hence the legislative route to create the ESOP mechanism was to 'carve out' the ESOP as a special type of pension trust that was different in two respects: 1) it could be invested 100% in employer shares, and 2) it could be 'leveraged,' i.e., could take out a loan, guaranteed by the company, to buy shares for the trust.

It is particularly interesting that the ESOP legislation and amendments over the years has been supported both from the Right ("turning workers into capitalists")

and from the Left ("moving towards the old idea of workplace democracy and worker ownership"). Now, around 10% of the private workforce in the USA (around 14 million workers) work in the 7000 companies with ESOPs, while, in comparison, only about 7% of the private workforce is unionised. The major accounting and finance firms have departments devoted to ESOPs in addition to many smaller 'boutique' firms specialising in ESOP transactions.

4 The Next Steps

It is now possible to set up a generic Coop-ESOP in any European or other democratic country (Ellerman et al. 2019) that has worker cooperative legislation and normal corporate laws. However, special legislation would be needed to provide a standardised tax-favoured model. Unfortunately, the label "ESOP" is used very loosely in Europe to mean most any type of employee ownership scheme from marginal and partial Employee-Share Purchase Plans (ESPPs) to Employee Stock Options Plans for just the managers and a few key employees. The Coop-ESOP model is an "ESOP" in the strict sense that: (1) all employees (beyond a probationary period) must by law be included and (2) the buyout of the old ownership is based on contributions from the company to the ESOP, not on the personal assets of the employees. Moreover, by using a worker cooperative as the ESOP mechanism, the governance of the employee portion of the ownership is democratic (one person, one vote), a rare feature of US ESOPs.

One of the forms of democratic social enterprise is the worker cooperative. But worker co-ops have always had the '**problem**' of being all or nothing without any transition mechanism from a conventional firm. ESOPs address that problem which is one of the reasons why in the whole of the USA, there are about 300 worker cooperatives and 7000 ESOPs. The Co-op-ESOP model addresses that problem of both the transition and of democratic governance of the worker cooperative that holds some percentage of the ownership of the otherwise conventional company. Thus, democratic and locally oriented green values can begin to inform company policy long before the transition to 100% cooperative ownership is complete. When the percentage of cooperative ownership reaches 100%, then the company can be folded into the worker cooperative which would then fully take over the business operations as a Mondragon-style worker cooperative.

The Mondragon cooperative complex gives a good example of how worker co-ops also sponsor other social enterprises as a part of the complex:

- the Mondragon University (including an internal manufacturing cooperative to introduce students to co-op principles) which grew out of the original polytechnical high school and college;
- the Mondragon Bank that serves both the cooperatives and the general population in the Basque region and surrounding provinces in Spain;
- the associated social insurance and medical cooperatives since the cooperative members are not considered as "employees" in the Spanish social insurance system;
- the hybrid worker/consumer supermarkets that have spread out of the Basque region into other parts of Spain;
- the associated technical research centres to do the preliminary 'spadework' research into new technologies to see what marketable products might be developed; and
- small business development and support centres.

The whole Mondragon system developed using only the 100%-or-0% co-op model without any ESOP-like transition mechanism. Hence, the development of the Co-op-ESOP transition mechanism has the potential for a much larger uptake with corresponding multiplier effects. The question that is very important is how can European institutions help to realise the potential behind the ESOP model in Europe?

Awareness campaign and research

While the EC is already discussing the negative consequences of the 'silver tsunami' or the wave of the retirement of business owners in the EU, not many practical and socially conscious solutions have been proposed to address this problem. Employee ownership in the form of the ESOP model is one potential solution. A general campaign informing European business owners about the succession planning and the employee ownership as a way out would be an important strategy on the part of the EC. Financial support should be given to the decentralised institutions and initiatives, which are equipped with in-depth knowledge and technical know-how, so that they individualise the campaigns and adapt them within the individual Member State's cultural context. In addition to this, EC should finance research that legitimises the employee-ownership agenda in Europe. In the USA, there is a 40-year-old research tradition that focuses on studying the effects of ESOPs on business indicators, job stability, worker satisfaction and wealth inequality. Most of the literature agrees on the positive effects of employee ownership. This is a first step to a sympathetic public and political opinion towards economic democracy.

EU directive on adopting appropriate legislation

The ESOP model in the USA was a success because it was institutionalised through appropriate legislation. ERISA is a retirement act that defines a special legal vehicle called ESOT (*Employee Stock Ownership Trust*), which receives tax benefits on different levels. ESOT may be a 100% owner of the contributing company, while the company may transfer money to the ESOT without it being taxed, if the money is used to buy the company stock in the name of the employees, who are members of the ESOT. All employees must be included in the ESOT if it is to be recognised for the tax breaks, and the buyout must be financed with the company's revenues and not the savings of the individual employees. Owners may postpone the tax on capital gain by selling their stock to ESOT if they invest the received capital in the American economy. Finally, banks, who are financing the ESOP buyout, receive tax breaks on the interests that charge to the receiving end of the loan. Each individual EU Member State should adopt laws adapted to the existing state's legislation to recognise a special ownership vehicle, which would function as the employee ownership and employee governance participation entity.

Thinking about the supporting industry

There would not be 7000 ESOPs in the USA if there were not supporting consultant businesses with the knowledge about employee ownership, the ESOP model, and the general business expertise. The consulting and engineering part is crucial, because you need people with specialised knowledge to restructure the companies correctly, otherwise either nothing gets done or it gets done in an incorrect way. Both are a problem. In addition to this, there are educational institutions in the USA that teach management and employees about the ownership culture. The management of a democratic enterprise has to internalise new and progressive values of leadership, which does not only allow employee participation but also encourages it. Employees, on the other hand, should be educated on what it means to be a business owner, and to have a basic understanding of the financial statements, annual reports and other business-related material. The EU should encourage and finance the creation of the consulting and educating institutions to help newly democratised enterprises up to the point where the business picks up, then one can leave it to the market competition.

Thinking about the supporting financial institutions

There would be many more ESOPs in the USA if there were more capital available for the restructuring of the companies in the direction of employee ownership. While ESOPs in the USA are a success story, there is much potential unleashed. We should learn from the American experience and build national financial institutions that could either (i) complement the loans with business banks, which are to be used for the employee buyouts, or (ii) provide collateral for the loans with business banks.

5 Concluding Remarks

Our point is simple. If all this can happen in forty-odd years in the most labourhostile industrialised country, there is no reason why it can't happen on even a larger scale in the industrialised democracies of the European Union with appropriate legislation fully in accord with democratic classical liberal principles (e.g. Tocqueville, Mill, Dewey, and Buchanan).

A systematic programme to promote employee ownership with cooperative values and an ESOP-like transition mechanism would have a concomitant impact on:

- improving the income and wealth distribution in a direct pre-distributive manner⁹ as opposed to after-the-fact redistributive policies¹⁰;
- improving productivity normally promoted by trying to get employees to "act like owners" whereas in an ESOP, they are owners¹¹;
- counter-cyclical income stabilisation since firms with significant employee ownership would in the face of a downturn or recession tend to foster the 'belt-tightening' of all the members rather than laying off some of the members;
- community stabilisation by avoiding absentee ownership and eventual closures in the business succession of local firms—which requires a prior public education programme to inform SME owners of the employee ownership opportunity; and
- overall improvement in corporate social responsibility by aligning the incentives of the owners and the local social/green concerns.

FOOTNOTES

- ¹ This juxtaposition of two philosophies is not meant to be a binary dichotomy. Depending on the design, many progressive programmes can be seen as empowering rather than displacing decentralised agency and initiatives.
- ² The phrase "external organisation" does not apply to associations where people join together to apply their collective efficacy to address some problems of their own; it applies to organisations, particularly those with paid staff, tasked to help others. The aim of a helping agency should be to do itself out of a job—which is rather difficult for a professionally staffed organisation of any type. See Ellerman (2005) for a development of this theme along with a philosophical analysis of why it is so difficult for such external helping organisations to actually "help people help themselves."
- ³ Cornuelle (1991) is a welcome exception to the rule.
- ⁴ The older name of the relation was the master-servant relation but, aside from a few law books on agency law that use the master-servant language as technical terms (e.g. Batt 1967), that usage was slowly replaced in the late 19th century and early 20th century with the Newspeak terms of "employer" and "employee."
- ⁵ Note how the implications of Buchanan's Principal's Principle gives essentially the same results as Dewey's democratic "principle (that) holds as much of one form of association, say in industry and commerce, as it does in government."
- ⁶ See Duh 2012; Malinen 2001; Močnik et al. 2019; Pendleton et al., n. d..
- ⁷ See Brill 2017 and http://www.nceo.org/articles/esop-business-continuity and Frisch 2002.
- ⁸ For more information, see the literature of the National Center for Employee Ownership such as: Gordy et al. 2013 or Rosen and Rodrick 2014.
- ⁹ "Property-owning democracy avoids this, not by the redistribution of in¬come to those with less at the end of each period, so to speak, but rather by ensuring the widespread ownership of productive assets and human capital (that is, education and trained skills) at the beginning of each period, all this against a background of fair equality of opportunity. The intent is not simply to assist those who lose out through accident or misfortune (al¬though that must be done), but rather to put all citizens in a position to manage their own affairs on a footing of a suitable degree of social and eco¬nomic equality." (Rawls 2001, p. 139). See also: O'Neill and Williamson 2012 and Thomas 2017.
- ¹⁰ In a comprehensive review of the literature on ESOPs and inequality, Jared Bernstein (economic advisor to former US Vice-President Joseph Biden), argued that ESOPs': "impact on inequality reduction could well be significant. In part, I argue that this is a result of transferring wealth in the form of stock in their companies to workers who, because they own little such wealth, reside in the lower reaches of the wealth distribution." See also National Center for Employee Ownership 2017.
- ¹¹ See Kruse 2002; Kruse et al. 2010; and O'Boyle et al. 2016.

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Urša Zgojznik

Circular economy and the activities to lower food waste

1 Introduction

Annually around 4 billion tons of food are produced worldwide, one third of which around 1.3 billion tons—is discarded. Food production methods and changing eating habits have a profound impact on consumption. This is the crux of the problem—a more complex one than it seems. On the one hand, food waste is a major environmental burden, but on the other hand, a large part of the population cannot afford a varied and nutritious diet. Food loss also means the loss of vast financial resources.

Food is becoming a strategic issue for Europe and the world, as evidenced by a range of programmes, plans and initiatives. Europe wants to be resource-savvy and reducing food waste is included in the circular economy package in Priority objective 2 of the Seventh Environment Action Programme: *transform the EU into a green, competitive, low-carbon, resource-efficient economy.*

In the 2030 Agenda for Sustainable Development, the goal is clearly stated: *By* 2030 *the amount of food discarded per individual must be cut in half*. However, reaching this goal does not seem easy. Food loss occurs throughout the food chain where there is a range of stakeholders with diverse characteristics and interests.

Whereas a decade ago food waste was hardly discussed, in recent years there have been a number of developments at European level. In addition to several projects and platforms, solutions are being sought at the legislative level. In May 2019 the Directorate-General for Health and Food Safety (DG SANTE) presented a methodology for measuring quantities of food waste, which will help to obtain better data and thus seek more concrete solutions.

2 Complexity of the food waste problem

In Europe about 88 million tonnes of food are wasted each year. This amounts to 173 kilograms per capita, with an estimated value of EUR 143 billion.¹

It is surprising to many that the largest proportion of food waste, 53%, occurs at the household level; agriculture and production account for 11%; processing 19%; sales 5%, and distribution 12%.

Much of the food wasted is still edible. As estimated by the EU Joint Research Centre, an average European could reduce food waste by 80%.²

Food waste is not only an environmental but also a major economic and social problem. In 2016 one in six EU citizens (17%, or about 87 million people) lived below the poverty line, with even more people being at risk of social exclusion. There are still more than 820 million people living in hunger globally. At the same time, the Food and Agriculture Organization of the United Nations (FAO) estimates that food production will need to increase by 70% by 2050 to meet the needs of the growing population.³

The causes for food loss are varied, which is why addressing them is extremely complex. Given that the largest share is generated at the household level, it is important to be aware that one is addressing communities of people with various characteristics and habits, and that their behaviour is difficult to monitor and influence. That said, public and private organisations have a greater interest in operating efficiently and, due to larger quantities of food, reducing food waste benefits them more quickly. Countries themselves have an important role to play, as differences in agricultural and processing activities and living standards can be considerable.

- A third of the food produced in the world is discarded.
- In Europe, 88 billion tons of food is discarded annually, which amounts to 173 kg per capita.
- The estimated value of discarded food is EUR 143 billion.
- As much as 53% of food waste is generated by households.
- By 2050 food production will need to increase by 70% to meet the needs of the growing population.

2.1 Definition of food waste

In general and at the legislative level, food waste is any food that has become waste. However, the issue must be examined more broadly, because the definition might affect measurement and the search for reduction measures.

According to the European FUSIONS platform, food waste is any food, and inedible parts of food, removed from the food supply chain to be recovered or disposed (including composted, bio-energy production, disposal to landfill, etc.).⁴

The FAO, however, subdivides food waste according to where in the food chain it occurs and why. It differentiates between food waste (food that is suitable for human consumption and becomes waste) and food loss (decrease in quantity or quality, most often due to inefficient distribution), and in doing so, when looking for solutions, takes both into account.⁵

Food waste is divided into edible and inedible parts (peel, bones, shells, etc.), the share of the edible part differing from one food chain stakeholder to another. The largest share of discarded edible food is attributed to the sales phase (83%), followed by the primary production and processing phase (50%), while restaurant service and household consumption accounts for around 60%.⁶

- Food waste is any food, and inedible parts of food, removed from the food supply chain to be recovered or disposed.
- Food is divided into edible and inedible parts.

2.2 Environmental impact

People discard a third of the food produced, thereby also discarding all natural and human resources used in production, processing, sales, distribution and other processes. The impact of production, the soil burden, as well as water and energy consumption in production, storage, transport and processing, are largely underestimated due to poor data throughout the chain.

The latest report by the International Climate Change Forum states that food waste accounts for one tenth of greenhouse gas emissions. It also states that human activity affects 70% of the soil. Climate change is significantly affected by soil, which is under great pressure due to increased use (especially deforestation and the burning of forests for cattle and monocultures), population growth, lower carbon absorption, and endangered ecosystems and biodiversity. To limit global warming to 1.5 °C it is necessary to reduce greenhouse gas emissions in various fields, including agriculture, food production, as well as food consumption—by shifting to a balanced diet with fewer foods of animal origin. The world's population could be fed using existing arable land, but this requires rapid and long-term cross-sector action, otherwise all four pillars of food security will be compromised.⁷

By discarding food, a lot of energy goes to waste (an estimated 10% of total energy in Slovenia), along with large amounts of water wasted and enormous amounts of carbon dioxide emitted. Whereas there is a growing trend towards calculating the carbon footprint of food waste, the water footprint remains largely neglected. As much as 92% of the water that humanity consumes is said to be used for food production. Fruit, vegetables and cereals are among the most discarded foods because of their shorter shelf life, affordability, and oversupply; however, the quantities of waste meat, milk and eggs have a much larger carbon and water footprint. Therefore, even a small reduction in waste meat lowers the consumption of water and nitrogen resources significantly.

Each phase in the food chain adds to food loss and carbon footprint, but a kilogram of food wasted in an early stage of the food chain (production) brings about a smaller carbon footprint than a kilogram of food wasted at the end (consumption). For example, according to the FAO report: most emissions are generated in the consumption phase (37%), even though the share of food waste is smaller in this phase (22% of the total food waste).

If one compares the total carbon footprint of food waste with the carbon footprint of individual countries, food waste would be the world's third largest emitter.



Fig1. Total emissions and food waste by country⁸

- Food waste accounts for one tenth of greenhouse gas emissions.
- The largest carbon and water footprints are caused by discarded meat, milk and eggs.
- The most emissions are generated in the consumption phase, even though the share of food waste is smaller in this phase.

2.3 Food safety

Food waste is closely linked to food safety—often food safety risk is the reason why food is discarded. The key question here is how to reduce food waste while preserving food safety.

Food that is not safe to eat needs to be discarded, but nonetheless there are still many options to feed people. Food that has lost some of its original quality, but is still edible, can be distributed to those who need it. In order to do so, precise criteria must be laid down. In some countries, national law allows excess food to be donated to the socially disadvantaged within 24 hours of preparation, but whether one makes good use of this option is another question.

When it comes to providing appropriate food, food safety will also need to be addressed, bearing in mind that food is unevenly distributed globally, that climate change affects food production, and that areas where food production is no longer possible are emerging and expanding. Another important factor is migration, which may continue to increase in the future.

3 Objectives of sustainable development and the circular economy

At the United Nations Sustainable Development Summit of 25 September 2015, global leaders unanimously adopted the 2030 Agenda for Sustainable Development with 17 Sustainable Development Goals, which entered into force on 1 January 2016.

In the agenda, which takes into account all three sustainability aspects—economic, social and environmental—the importance of reducing food waste can be found in conjunction with several goals. Reducing food waste is an objective in Goal 12 (Ensure sustainable consumption and production patterns). Target 12.3 reads: *"By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses."*

In addition, due to the positive impact on problem solving and other fields, this has directly contributed to the following goals:

- Goal 1: End poverty in all its forms everywhere
- Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 10: Reduce inequality within and among countries
- Goal 13: Take urgent action to combat climate change and its impacts
- Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Reducing food waste indirectly contributes to many other goals.

In the European Commission's first announcement of a package of directives for the transition to a circular economy in 2014, reference was made to the goal of reducing food waste as an important waste stream. The goal of reducing food waste by at least 25% by 2025 was withdrawn before adoption at the end of 2015 due to lack of data and a unified measurement methodology. After four years of preparation, new directives and new targets were adopted in 2018, while the European Commission is tackling the food waste goal with a commitment to decide by 2024 whether a binding target is needed at all.

As Directive 2008/98/EV on waste (Waste Framework Directive) was amended in May 2019, the Commission adopted a common methodology for measuring quantities of food waste throughout the European Union (EU) at each stage of the food supply chain. The methodology is the basis for the implementation of EU waste legislation, which requires Member States to monitor, measure and report on quantities of food waste, as well as implement national food waste prevention programmes. The methodology should establish a measurement framework by 2020, with the aim of enabling the Commission to obtain the first data under the new methodology at EU level by 2022.¹⁰

However, halving per capita global food waste by 2030 remains a binding goal under the Sustainable Development Agenda.

4 About food waste specifically

4.1 From farm to fork

Food can become waste throughout the food chain, from the producer to the consumer or household. Because each phase is specific, the reasons for food loss and waste are varied.

Food waste issues must be addressed in all phases, or 'from fork to fork.' Each phase requires tailored actions and addresses specific target groups. As a result it is also necessary to understand the specifics that determine the functioning of each target group, for example, a farmer who has a surplus of green beans left unharvested in the field because their contract with the buyer was terminated, or a consumer susceptible to marketing campaigns (for example, '**3 for the price of 2**').

One should keep in mind that the largest part of food waste is generated at the household level, that the largest share of edible food loss occurs during sales and the lowest during production. However, the carbon footprint grows towards the end of the food chain.

4.2. Food and drink material hierarchy

It is also necessary to understand what food-related behaviour reduces food waste the most, when it prevents food waste from occurring, and when it addresses the existing problem of excess food. Those working in this field want to know when



food will still be edible and safe for human consumption, suitable for animal food in the next phase, and ultimately fit for incineration and disposal. The Food and drink material hierarchy presents the most and least desirable options.



FOOD AND DRINK MATERIAL HIERARCHY¹²

4.3. Platforms

The **EU Platform on Food Losses and Food Waste** supports the Commission and Member States and aims to interconnect all players searching for solutions to reduce food waste and loss. The outcomes of the platform are the following: preparation and implementation of food waste reduction measures, guidelines for food donation, an improved methodology for measuring quantities of food waste and other results.¹³

FUSIONS (Food Use for Social Innovation by Optimising Waste Prevention Strategies) is a project-based European platform funded by the European Commission's Seventh Framework Programme to support Europe's efforts to manage resources more efficiently in reducing food waste. Through social innovation, the 21 project partners, with the support of various sectors and organisations, created a broad vision and strategy to prevent and reduce food waste and loss across the food chain. The project took place between 2012 and 2016 and contributed significantly to understanding the field, with a wealth of data obtained, recommendations and guidelines, and a range of publications.¹⁴

REFRESH is a 2015–2019 project funded by a Horizon 2020 Framework Programme of the EU that builds on the results of the FUSIONS project. The project backs research to better understand the drivers of food waste and supports better decision-making by industry and individual consumers. More specific objectives of the project are to develop strategic agreements to reduce food waste with governments, business and local stakeholders in four pilot countries (Spain, Germany, Hungary and the Netherlands), and to formulate EU policy recommendations and support national implementation of food waste policy frameworks.¹⁵

The REFRESH project group and DG SANTE have partnered and created the REFRESH Community of Experts¹⁶ online platform to find and share information and best practice on food waste prevention. This site provides a wealth of information and good practices across Europe and across the 'farm to fork' chain.

4.4. Good practice examples

The following are some examples of good practice and specific examples of prevention, redistribution and reuse of discarded food.

1. Prevention

FOOD WASTE ATLAS (United Kingdom)¹⁷

The british wrap (the waste and resources action programme), which has tackled waste reduction for several years, produced a food waste atlas. The atlas is a global database for tracking food loss by type, sector and geography. It also contains data from countries, cities, companies and other organisations on quantities of food waste and loss, with the aim of finding solutions across sectors and comparing successful practices.

PREVENTING FOOD WASTE IN HOSPITALS

In public and private institutions, measures can be taken that can produce results quickly enough to take concrete action. increasingly, schools, hospitals, nursing homes and other institutions are beginning to reduce food waste. A Simplified Model To do this is 'measureact-measure'.

The Novo mesto general hospital also decided to reduce the amount of food waste, measuring the quantities of food prepared and discarded regularly and in great detail. this indicates a number of shortcomings in food preparation and distribution. Measures can be taken at almost every stage, from the preparation of food in the kitchen to communication between medical staff and patients and an improved public procurement system. What is most important for hospitals is that the problem of food waste is linked to the nutritional care of the patient. by taking greater care to reduce food waste one also reduces the time and cost of treatment, the amount of medicines consumed, etc.

RAISING AWARENESS

Prevention is deemed the most important measure. the best waste is waste that does not occur at all, and the same goes for food. When it comes to prevention it is essential to raise awareness, conduct campaigns, connect with stakeholders, produce awareness materials and tools, inform and communicate. Because awareness-raising is an activity that can produce the best effects, it should not be overlooked—on the contrary, it should be paid extra attention.

2. Distribution

PROJEKT DONIRANA HRANA (donated food project, Slovenia)18

Under the auspices of the slovenian lions club federation, the donated food project is underway with the help of volunteers and in cooperation with several humanitarian organisations collecting food in 102 stores in 27 towns across Slovenia. Each day they collect 1–1.5 tons of food from stores, which they distribute to communities and socially disadvantaged individuals on the same day. Annually, this can amount to up to eur 1.5 million in donated food, which would otherwise be discarded.

TECHNOLOGICAL SOLUTIONS

Technology can certainly help to improve distribution, inventory management and information on food distribution options before the expiry date. It seems that there are many solutions both for the food industry and buyers in horeca (hotels, restaurants, and cafés), who—having better solutions to hand—can plan better, and move raw materials and food more quickly, thus saving significant amounts of food in stock.

That said, there are already a number of mobile apps helping to distribute food surpluses both within households and in the local environment, where stores can offer their surplus food or food shortly before expiry to the public. Some of those apps are Olio, Food Cloud and Too Good To Go.



Olio mobile app¹⁹

ECOBOX (Luxembourg)²⁰

ECOBOX is a deposit-return scheme operating in the Luxembourg area.

The scheme helps save leftovers that restaurant customers would like to take home. In all the participating restaurants, for a deposit of EUR 5, customers can take away their meal in an ECOBOX container. This deposit-return system solves two problems at the same time—reducing the amount of food waste and the amount of one-way packaging. ECOBOX containers are made of thermoplastic resin (PBT polyester), which is suitable for food packaging and fully recyclable. The lid is made of polyethylene (PE), which is one of the most widely used plastics in food packaging. Defective containers are returned to the manufacturer and used as raw material for new products.



3. Recycling, reuse

Bread is the most commonly discarded food. It is estimated that a quarter of bread and other baked goods are discarded in the materially developed world, most at consumer level, but also in distribution and production. (https://www.foodwin.org/wp-content/uploads/2018/01/Factsheet-Bread-Waste.pdf)

Old bread most often ends up as animal feed or material used in biogas plants, and less often as a raw material for new products, e.g. breadcrumbs.

KNÖDELKULT (Germany)21

Knödelkult is a German start-up established first and foremost out of passion for dumplings. Many people lack the time to make fresh dumplings, and the market does not offer quality products. The team behind Knödelkult linked this market need to vast quantities of waste bread (500,000 tons a year in Germany), thus extending

its shelf life. The dumpling mix is made from 100% waste bread from selected bakeries, and new flavours and recipes are being developed to make dumplings from different types of bread.







BRODKA (Slovenia)22

Martin Kržič and his team from the Slovenian start-up Brodka followed the model of brewing beer from waste bread and developed an innovative recipe that uses surplus bread (specifically: the crust of dry toast) to produce spirit drinks, making it the world's first distillery of this kind. It takes about three kilograms of crust to make a litre of spirit. In this way, some parts of bread are reused to make a beverage that is fit for consumption. At the Slovenian *Agrobiznis 2019* competition organised by the Finance newspaper, Brodka was selected as the best food of choice by consumers.



4.5. Policies to reduce food waste

It not only takes a few big steps to bring about a solution, but rather a series of measures throughout the food chain. In order to tackle the entire food chain and find points of influence, cooperation is key. What is needed is interdisciplinary, cross-sectoral cooperation at the political level as well as in food production, processing and consumption. Only combined approaches can have a real impact, provide relevant data, and uncover possibilities for action.

The partners of FUSIONS—the first major European project aimed at finding causes and solutions for food waste—formulated six sets of recommendations for policies, strategies and practices, both at EU and Member State levels. This was published at the end of the project in 2016 in a dedicated publication Recommendations and guidelines for a common European food waste policy framework: ²³

1. Definition of food waste and methodology for measuring its quantities.

Both were adopted in 2019 and the Waste Framework Directive obliges Member States to measure the quantities of food waste annually, as well as in individual phases of the food chain every four years.

2. Promoting dialogue between the state and stakeholders in the food chain

Cooperation needs to be strengthened at European level in order to share knowledge and best practices. One must also consider existing platforms and the

possibility of creating regional platforms, taking into account the characteristics of specific areas.

The EU Platform on Food Losses and Food Waste has been set up with the support of DG SANTE. However, more incentives are needed to set up regional and national platforms. There are various activities underway in some countries, while there are hardly any in others. After reviewing existing cases, it can be said that there are considerable discrepancies between activities in Central and Northern Europe, on the one hand, and in Southern and Eastern Europe, on the other. This means that efforts to reduce food waste are uneven and cooperation is hindered.

3. Promoting social innovation in food waste prevention

It is important to formulate guidelines and provide specific socio-economic incentives for the creation of new cooperation models, the conclusion of voluntary agreements and public-private partnerships, research and development, awarenessraising and education, and the development of policy evaluation indicators.

At the same time, funding sources need to be secured, as stable funding for social innovation projects is proving to be the biggest obstacle. One must encourage entrepreneurship, the active exchange of good practice, and related information.

4. Improving conditions for donating food

Before food really turns to waste, it can be donated if food safety conditions are met. In doing so, it is necessary to (re)formulate appropriate legislative frameworks and to draw up guidelines on health aspects and food safety, environmental and trade standards, as well as tax relief, such as exemption from value added tax on foods donated. Again, some countries have already included all this in their legislation, and others have not.

A comprehensive European redistribution and donation scheme for unsold edible food should be developed together with all players in the food chain, also taking into account the principles of the circular economy. Donation conditions should be facilitated at all costs, while encouraging the preparation of national guidelines and monitoring country specifics.

5. More efficient management

It is crucial to have close cooperation between the Directorates-General of the

EU and any kind of inter-sector coordination. Addressing ways to reduce food waste should be harmonised at the highest level, awareness campaigns should be common, policy frameworks for developing better measures should be uniform, and the impact of food waste on future legislation should also be assessed. For now, there are too few tax-oriented solutions, which could increase interest significantly.

At the same time, the use of by-products and discarded food for the production of animal feed should be made possible, and more should be done to understand the difference between 'best before' and 'expiry' dates.

6. Encouraging further research

There are still gaps in understanding why food waste is occurring at all and in knowing the environmental, social and economic reasons that cause this. This is why it is important to promote research at European and national levels. It is also important to look into the content of contaminants in food, since sometimes poorly measured zero tolerance results in greater food discards.

The report comprehensively covers most of the key recommendations and actions referred to in other projects, by round table participants, national groups and the like. Of course, not all of them are quickly achievable and effective to the same extent, but the need to activate large groups indicates the complexity of the causes of food waste.

Notwithstanding the need to activate both European and national branches of government, associations of producers, processors, stores, research, humanitarian and other non-governmental organisations, much can be achieved through voluntary commitments (for example, donating surplus food), measurements and agreements to reduce food waste within individual institutions and organisations, both public and private. It is also crucial to support research and strive for good quality statistics, especially because national and European climate and energy plans are being drawn up and the impact of food waste is not negligible.

What is not measured cannot be addressed effectively, so it is crucial to take *measurements*, *look for causes and propose action*. Within an organisation, arrangements can be made more efficiently, and industry associations can exchange concrete experience and good practice more quickly. Particularly in the public sector

(hospitals, military facilities, schools, nursing homes), reducing food waste should be binding, as it preserves natural resources and reduces the environmental impact, while also cutting public spending. National regulations should make it mandatory for *public institutions to report on measures and quantities*, thereby providing better data and concrete examples of successful actions. All major reports contain the recommendation to tackle the food waste problem at national level and to *create national platforms*, because this is the only way to take into account all country specifics.

The current definition of food waste does not cover non-harvested crops in fields and orchards that are the result of prices that are too low and unfulfilled contracts between producers and stores. Resources and work have been put into growing these crops, so in the face of the need to provide food for a growing global population, it will be necessary to look for solutions to this problem as well. Agricultural and food policies are rigid but will need to address the food waste problem more seriously in the future.
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Felicita Medved

The New Plastics Economy: Policy and Social Innovation

1 Introduction

The topic of the new plastics economy is high on the political agenda. It is an integral part of a circular economy which aims to redefine growth, focusing on positive society-wide benefits. By comparison with the linear economy's 'takemake-consume and dispose' approach hitherto widely conceived as traditional and acceptable, circular economy entails gradually decoupling economic activity from the consumption of finite resources, and designing waste out of the system. It is based on three principles: (i) design out waste and pollution, (ii) keep products and materials in use and (iii) regenerate natural systems. Applying these principles, the new plastics economy (mainly focused on plastics for packaging) has three goals: (i) to create an effective after-use plastics economy by increasing and improving design, repair/maintenance, re-use and recycling, (ii) drastically reducing leakage of plastics into natural systems and (iii) seeking to decouple plastics from fossil feedstocks by adopting where possible renewable sources.¹ Social enterprises are recognised as key actors in the implementation of an inclusive circular economy. The European Council's new strategic agenda 2019-2024 seems to encourage a favourable ecosystem for social enterprises in the circular economy.²

Fifty years or so after mass consumption of plastics, our civilisation struggles to make efficient and sustainable use of this material. Of the 8,300 million tonnes of

plastics produced by humankind since the 1950s, it is estimated that 70 per cent of the total amount has become waste, of which 84 per cent, or 4,900 million tonnes, has been disposed of in landfills or in the environment. On average, every European produces 31 kg of plastic packaging waste per year, from 12 kg in Croatia to 60 kg in Ireland. This adds up to 15.8 million tonnes of plastic packaging waste generated in the European Union (EU) and it has steadily increased in the last decade or so.³ Pollution, with its impacts on, among others, biodiversity, increased greenhouse gas emissions and human health, is already seen as a global challenge.

It is clear that a big effort will be needed to rethink the way we use plastics today. After reviewing the EU policy and legislative framework pertaining to the new plastics economy, this article focuses on waste management, particularly into the situation of recycling. Finally, it looks into some good practices connected with social entrepreneurship and innovation.

2 EU Policy

A policy push towards circular economy in the EU was put forward by the 2015 Circular Economy Action Plan that gave a concrete and ambitious mandate for Jean-Claude Junker's European Commission (EC) (2014–2019) to support the transition towards a circular economy and set out measures "to close the loop" of the circular economy by tackling all the phases of a product's life: the product design, production, waste management to secondary raw materials and water reuse.⁴ Waste management has a central role in the circular economy which determines how the EU waste hierarchy is put into practice. The latter establishes a priority order from prevention, preparation for re-use, recycling and other recovery e.g. energy and disposal, such as landfilling (Figure 1).





Source: https://ec.europa.eu/environment/waste/framework/

The first Circular Economy Package included revised legislative proposals on waste comprising in particular: long-term recycling targets for municipal waste and packaging waste, and to reduce landfill, provisions to promote greater use of economic instruments, general requirements for extended producer responsibility schemes (EPR) as well as simplification and harmonisation of definitions and calculation methods.

Key waste laws

The key horizontal legislation on the waste issue, the Waste Framework Directive⁵ and the Directive on Landfilling of Waste⁶ are designed to reduce the amount of waste going to landfill and to protect the environment and human health by proper waste management. The Waste Framework Directive sets the basic concepts, definitions and the waste hierarchy, explains when waste ceases to be waste and becomes a secondary raw material (so-called end-of-waste criteria), and how to distinguish between waste and by-products. It sets recycling and recovery targets to be achieved by 2020 (among these 50 per cent for household waste and 70 per cent for construction and demolition waste). Accordingly, Member States are to adopt waste management plans and waste prevention programmes. Furthermore, the Directive confirms the 'polluter pays principle' and the EPR meaning "a set of measures taken by Member States to ensure that producers of products bear financial responsibility or financial and organisational responsibility for the management of the waste stage of a product's life cycle."7 The latest revision of this directive sets new general minimum requirements for EPR schemes to improve their effectiveness and performance across the EU.⁸ These requirements specify, inter alia, the costs that should be covered by producers, including costs of separate waste collection, its transport and treatment, as well as costs of providing information to the waste holders and the costs of monitoring and reporting. In addition, the requirements set an obligation for collective schemes to modulate the financial contributions paid by producers for their individual products or groups of similar products, taking into account their durability, reparability, re-usability and recyclability and the presence of hazardous substances, thereby taking a life-cycle approach. This new obligation is still pending implementation by the Member States and is expected to provide a further economic incentive for product design more in line with the principles of circular economy. In line with Article 8(5) the EC will provide guidelines for the Member States on the modulation of financial contributions. The aim is to provide

this prior to the deadline of transposition of the revised Waste Framework Directive which is mid-2020.⁹

New provisions can help inspire Member States to move towards a more socially inclusive circular economy. As pointed out by RREUSE, the European network of social enterprises active in re-use, repair and recycling, new elements of the Waste Framework Directive can foster the development of re-use and preparing for re-use centres and networks operated as social enterprises leading to the creation of local green jobs. Member States must monitor and measure re-use and preparing for re-use activities from 2020 onwards with potential future EU-wide targets by the end of 2024. They must also help facilitate access to discarded reusable goods for organisations that can prepare them for re-use rather than letting them be prematurely recycled, incinerated or landfilled.¹⁰

Relating to different products, the EU has established wide sectoral legislation. Packaging, while itself not a product, is obviously strongly associated with products and the high impacts of packaging on the environment, particularly when littered, are widely acknowledged. The Packaging and Packaging Waste Directive¹¹ contains, inter alia, essential requirements which all packaging placed on the EU market needs to comply with. The Directive was recently amended twice, once specifically to reduce the use of lightweight plastic bags¹² and once as part of the wider revision of the legislation applicable to waste, notably to increase the recycling targets for different packaging materials and strengthening the emphasis on prevention of packaging waste.¹³ Member States should increase the share of reusable packaging placed on the market and systems to reuse packaging without compromising food safety by, for example deposit-return schemes, economic incentives, targets and other measures. At least 65 per cent of all packaging must be recycled by the end of 2025 and at least 70 per cent by the end of 2030 (for plastics the targets are 50 and 55 per cent respectively). The EC is currently examining the feasibility of reinforcing the essential requirement with a view to, inter alia, improve design for reuse and promote high quality recycling, as well as strengthening their enforcement.¹⁴

Plastics Strategy

In January 2018, in the spirit of circular economy, the EC revealed its European Strategy for Plastics in a Circular Economy,¹⁵ calling for all plastic packaging on the EU market to be either reusable or recyclable in a cost-effective manner by 2030. The strategy

aims to transform the way plastic products are designed, produced, used, reused, repaired and recycled as well as to reduce the consumption of single-use plastics and restrict the intentional use of microplastics.¹⁶ The challenge is to turn new plastics economy into a positive agenda for the future of Europe and to contribute to reaching the 2030 Sustainable Development Goals and the Paris Agreement objectives on climate change. To achieve these goals, the strategy calls for a more integrated supply chain, replacement or elimination of substances that hamper recycling processes, the development of innovative materials and alternative, more sustainable feedstocks for plastic production, and for improved collection and sorting of plastic waste. To turn a vision for Europe's new plastics economy into reality four action steps are outlined: (i) improve the economics and quality of plastics recycling, (ii) curb plastic waste and littering, (iii) drive innovation and investment towards circular solutions and (iv) harness global action. The EC also adopted a monitoring framework, composed of a set of ten key indicators which cover each phase of the cycle and measure progress towards the transition to a circular economy at EU and national level.¹⁷

Single-use plastics

To curb plastic waste, in particular to prevent and tackle marine litter—plastics making up to 85 per cent of it in our oceans and seas, the EC proposed new rules targeting ten single-use plastic products, supported by new rules on Port Reception Facilities for the delivery of waste from ships in May 2018.¹⁸ A year later, relatively soon after the first draft, the new rules were formally approved.

According to the preamble, the Directive on the reduction of the impact of certain plastic products on the environment (the so-called SUP Directive) "promotes circular approaches that give priority to sustainable and non-toxic re-usable products and re-use systems rather than to single-use products, aiming first and foremost to reduce the quantity of waste generated."¹⁹ It covers single-use plastic products, thus products which are made wholly or partly from plastic, and conceived to be used only once (or a few times) before they are thrown away.²⁰ This definition includes single-use plastic-coated paper, such as cups and plates made of paper but with a plastic layer. It is important to highlight that it also covers single-use plastic items made of bio-based as well as biodegradable single-use plastics.²¹

The measures are proportionate and tailored to get the best results. This means different obligations and restrictions will be applied to different products. Where

alternatives are readily available and affordable, single-use plastic products will be banned from the market by mid-2021. The ban will apply to plastic cotton buds, cutlery, plates (including plates with plastic lining), straws, drink stirrers and sticks for balloons, expanded polystyrene food containers, beverage containers and cups as well as oxo-degradable plastics.²² For products without straight-forward alternatives, the focus is on limiting their use through national targets for reduction in consumption (by 2026 compared to 2022). Member States will have to reduce the use of plastic food containers and drinks cups, including their covers and lids. They can do so by setting national reduction targets, making alternative products available at the point of sale, ensuring that single-use plastic products cannot be provided free of charge and similar. For each of the products already addressed by existing EU laws, the SUP Directive establishes different measures including market restriction, product design, marking/labelling requirements, awareness-raising measures, EPR schemes, and separate collection. PET (Polyethylene Terephthalate) bottles, for instance, will have to contain 25 per cent of recyclable plastic by 2025 and all other types of bottles 30 per cent by 2030; caps and lids will have to be attached to bottles by 2024. Separate collection of beverage bottles up to three litres will be required in order to achieve the 77 per cent target by 2025 and 90 per cent by 2029. Certain other products such as wet wipes and sanitary towels, balloons and tobacco products will require clear and standardised labelling which indicates how waste should be disposed of, the negative environmental impact of the product, and the presence of plastics in the products.

EPR will apply to the costs of waste management and clean-up, as well as awarenessraising measures for food containers, packets and wrappers (such as for crisps and sweets), drinks containers and cups, tobacco products with filters (such as cigarette butts), wet wipes, balloons, and lightweight plastic bags. The industry will also be given incentives to develop less-polluting alternatives for these products.

Member States have until July 3, 2021, to comply with most of the provisions of the Directive, although longer deadlines apply to certain provisions. For example, Member States have until July 3, 2024 to apply measures to ensure that certain single-use beverage containers that have caps and lids made of plastic may only be placed on the market if the caps and lids remain attached to the containers. The Directive also includes deadlines for the EC. For instance, a July 3, 2020 deadline to publish guidelines, in consultation with Member States, which would include examples of what is to be considered a single-use plastic product. Importantly, the

EC prepared a statement to express concerns about the feasibility of complying with several deadlines, including this one.²³

Europe, in view of the Rethink Plastic Alliance, deserves praise for being the first region to introduce new laws to reduce single-use plastics. However, the SUP Directive falls short of what is needed to fully tackle the plastics crisis in key areas, including no binding EU-wide target to reduce the consumption of food containers and cups, and no obligation for EU countries to adopt targets.²⁴ Member States are strongly encouraged to go beyond the measures established under the Directive and to be as ambitious as possible. Moreover, Zero Waste Europe calls on Members States to take the lead in the fight against plastic pollution and beyond, and to build on strong enforcement and monitoring of the measures.²⁵

3 Waste management

A central principle in the circular economy is to preserve value in material cycle by maintaining the materials' structural integrity. The most value-preserving cycles (or 'loops') are repairing/maintenance as well as reuse, for which there is significant potential especially in durable plastic products. It has been estimated that reuse can be an attractive option for at least 20 per cent of plastic packaging currently on the market.²⁶

However, for a large share of plastic packaging recycling is crucial to create circular material flows. In 2016 recycling became the first option for plastic packaging, 40.8 per cent was recycled and 38.8 per cent used for energy. A fifth of waste collected ended up in landfills. Countries with landfill restrictions of recyclable and recoverable waste have, on average, higher recycling rates.²⁷ According to PlaticsEurope, the EU plastic packaging recycling rate is close to 41 per cent, well above the requested 22.5 per cent of the EU Packaging Waste Directive. Some 19 countries have plastic packaging recycling rates higher than 35 per cent, while some recycled half or more of plastic packaging waste collected, thus achieving the new 50 per cent target for 2025.²⁸ Eurostat reports a slightly higher EU recycling rate of plastic packaging, an estimated 42 per cent in 2016. This means that the recycling rate of plastic packaging has almost doubled since 2005.²⁹ In eight Member States, more than half of the plastic packaging waste generated was recycled in 2016. The highest recycling share was recorded in Lithuania (74 per cent), ahead of Cyprus (64 per cent*), Slovenia (62 per cent), Czechia (59 per cent), Bulgaria (53 per cent), Slovakia and the Netherlands

(both 52 per cent) and Sweden (51 per cent). In contrast, less than one third of plastic packaging waste was recycled in Luxembourg (33 per cent), Hungary and Ireland (both 31 per cent), Malta (29 per cent*), France (26 per cent), Finland and Estonia (both 25 per cent).³⁰ A recent survey among stakeholders in Slovenia has shown a serious doubt in data collection, due to various reasons, among them, insufficient legislation. Some 77 per cent of respondents estimate the recycling share at 33.2 per cent.³¹

Collection of waste

An essential first step in any waste management process, playing a key role in its overall performance, are proper collection plastic waste schemes. They determine the amount and composition of waste streams and therefore their suitability for downstream pre-treatment, sorting and recycling. In addition, efficient collection schemes help solve litter issues.

We need to separate plastics into different kinds that can be processed together without causing contamination. That depends on their chemical and physical properties, and the polymer types from which they are made (and gives us seven main kinds—recycling symbols numbered 1-6 and 7 - 'other' on plastic packaging). There is a variety of household waste collection systems across Europe with differences in what materials are collected and where, and whether or not manual pre-sorting is done by the user.³² Consequently, the rate of collection for recycling varies considerably across Europe, even within the same polymer type. For example, this rate ranges from zero per cent for PET household films to 80 per cent for PET household bottles. While adaptation to certain local conditions is needed, such fragmentation negatively affects the efficiency and cost-effectiveness. Ideally, these schemes should share the same objective of maximising recovery of recyclables, to be aligned with downstream infrastructure for pre-treatment, sorting, and recycling, improve environmental performance and manage costs. In addition to municipal waste collection schemes, other product-related systems, for example for endof-life vehicles, electrical and electronic appliances and plastic agricultural films, also provide a valuable stream of resources for recycling (and recovery) as well as appropriate collection of industrial and commercial waste.

Hence, it is advised to ensure full implementation and enforcement of EU waste legislation, to harmonise collection systems across the EU allowing a certain degree

of local adaptation to socioeconomic conditions and to develop regulatory measures such as EPR to cover the costs of waste collection and processing, to incentivise product design and fund innovation in the field, integrating new digital technologies. It is also important to facilitate gathering and sharing of information and data on collection, sorting and recycling performance and best practices, to enable cross-value-chain collaboration and compatibility.³³

Recycling

EU waste legislation defines recycling as "any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations."³⁴

Mechanical recycling

Mechanical recycling of plastics refers to the processing of plastics waste into secondary raw material or products without significantly changing the chemical structure of the material. It is the almost sole form of recycling in the EU, representing more than 99 per cent of the recycled quantities. However, only around 22 per cent of plastic waste is suitable for mechanical recycling.³⁵ In principle, all types of thermoplastics—plastics that can be repeatedly reheated, reshaped and frozen—can be mechanically recycled.³⁶ The best are those waste streams that can easily provide clean plastic of a single type in large quantities e.g. PET drinking bottles, large films or window frames.³⁷

Of the total volume collected for recycling, only 13 per cent reaches European converters, mainly in the packaging, construction and automotive sectors. A total of 30 per cent is exported, with scarce information on its final fate.³⁸

One of the aims of the EU Plastics Strategy was to promote the use of recycled plastic material. A pledge campaign was launched to invite voluntary commitments from industry to replace virgin plastics in their products with recycled plastics, aiming to multiply the amount of recycled material used by 4 to 10 million tons annually. The EC followed up on the campaign by launching the Circular Plastics Alliance, together with stakeholders from the plastics value chain, which aims at improving the economics and quality of plastics recycling in the EU, in particular by better matching supply and

demand for recycled plastics. However, the 2017 survey on the use of recycled plastics materials in Europe, conducted by the European Plastics Converters Association (EuPC), found that the quality of plastics materials available to recycle is the biggest barrier to greater use of recyclates as raw materials. Almost 60 per cent of the 485 converting companies that took part in the survey find it hard or very hard to get a supply of recycled plastics materials that meet their quality standards. Almost 60 per cent of the companies stated that the current regulations are not suitable to support stronger use of recycled plastics materials in the future.³⁹

Partly due to a lack of a systemic perspective of mechanical recycling, including product design and technologies needed to improve separation of additives and nonintentionally added substances that are present in plastic waste, plastics are often recycled into applications requiring lower quality. This explains why contaminated plastic cannot be turned into high grade plastic which could be used for food contact applications. As long as recycled plastic use is limited to lower-quality products ("downcycling"), it cannot replace the production of virgin plastic, which is almost entirely sourced from fossil fuels.

Challenges to high quality mechanical recycling are imposed by the increasing complexity of the plastic materials and products, such as composites, thermosets, multilayers, inks, labels and adhesives. Furthermore, multiple grades and the presence of additives mean that mechanically recycled polymers are below-virgin quality. Therefore, it is difficult for them to fulfil regulatory requirements and to compete with virgin feedstock.

Developing design of materials and products that can be effectively reused or recycled could help in overcoming these barriers as well as developing high-quality recycling and decontamination technologies. For example, measures under the Ecodesign Directive have included requirements on the disassembly of components for recycling and on the identification and accessibility of hazardous materials, with a view to facilitating recycling of the products at end of life. Certification and labelling could also be a part of wider quality assurance.⁴⁰

Moreover, the EU market for recycled plastics is not well developed, partly because of the past reliance on exports of plastic waste, mainly to Asia. The price difference between virgin and recycled plastics remains a great challenge. Rebalancing the true cost of virgin plastics, including the environmental and social costs, can improve the competitiveness of recycled plastics. There are benefits from an environmental perspective as substituting virgin material generally exceeds the environmental burden from collection, sorting, transport and recycling operations. It is estimated that the carbon footprint, expressed as the global warming potential (GWP) of recycled plastics can be up to ten times smaller than that of a virgin equivalent.⁴¹ On the other hand, the economics of plastics recycling can be a hindrance to recycling and there have been calls for incentives that take into account the environmental benefits of recycling. One of the members of the European Recycling Industries' Confederation pointed out that while the price of recycled plastics is fully correlated with crude oil prices, the market fails to internalise the recycling net environmental benefits in price setting.⁴²

Policymakers can further support a well-functioning secondary materials market through facilitating matchmaking (e.g. EU-wide standard for recycled grade qualities), harmonising existing legislation (e.g. on legacy additives), ensuring sufficient sorting and recycling capacity and developing a favourable regulatory framework (e.g. mandatory level of recycled content for certain applications while safeguarding health).⁴³ Hence, there is untapped potential in the current recycling system, and with technical improvements the ability to process used plastics can even increase and generate further benefits. Notwithstanding, not all plastic can be mechanically recycled and plastic cannot be endlessly mechanically recycled without reducing its properties and quality.

Biodegradation

Biodegradation such as organic recycling best fits into a circular economy. However, there is a lot of confusion, controversy and lack of understanding about biodegradable plastics and their possible role in the new plastics economy. A plastic is considered biodegradable if it can be decomposed by the action of living organisms, usually microbes, into water, carbon dioxide, and biomass in a given time frame (dependent on different standards). Despite the release of CO2 into the environment, biodegradable plastics leave a smaller footprint than other plastics that accumulate in landfills. This is why biodegradable plastics are explored as alternatives to traditional plastics. They are produced with renewable raw materials, micro-organisms, petrochemicals, or combinations of all three.

Terms like bioplastics, oxo-degradative plastics and compostable plastics, though not synonyms, are often used in place of biodegradable plastics. A bioplastic or biobased plastic is produced partly or wholly with biologically sourced polymers.⁴⁴ Some

bioplastics are biodegradable.⁴⁵ Some are not biodegradable, for instance bio-based PET, which is the same PET plastic derived from fossil fuels, but synthesised with bacteria.⁴⁶ Like most conventional plastics, bio-based plastics need to be recycled in separate streams for each material type. Since they are chemically identical to their conventional counterparts, where a recycling stream for a specific plastic type is established (e.g. PET stream), the bio-based alternatives can be recycled together with it. Also, oxodegradable plastics that are often perceived as biodegradable are neither bio-based nor biodegradable. They are conventional plastics with additives (prodegradants) that accelerate the oxidation process. Oxo-degradable plastics rapidly break down through exposure to sunlight and oxygen and persist as huge quantities of microplastics.⁴⁷ As a result, oxo-degradable plastics hamper both composting and mechanical recycling and also represent a danger for the environment and the food chain.⁴⁸ The SUP Directive, as already noted above, will restrict or ban their use in the EU.

A significant market breakthrough of biodegradable plastics has not yet taken place. Since the increase of oil prices in the early 2000s potential solutions have been sought, but many of these have their drawbacks, such as high water use, carbon emissions, or toxicity of by-products as well as competition with food production, as the primary feedstock is currently corn. Nevertheless, they are a step toward a more sustainable future and could, in principle, replace many applications for conventional plastics, specifically disposable items like packaging, cutlery and food service containers. Noting that more than 80 per cent of the environmental impact of a product is determined at the design stage, the Plastics Strategy said that circularity will require making better and sustainable decisions at this stage. It specifically mentioned the need for innovation in developing materials that fully biodegrade in seawater and freshwater and are harmless for the environment and ecosystems. Financially, however, their production is favourable only if supported by specific regulations limiting the usage of conventional plastics. For example, biodegradable plastic bags and shoppers have been compulsory in Italy since 2017 with the introduction of a specific law.49

Composting

Compostable materials have so far mainly been considered from the viewpoint of industrial or municipal compostability, in particular for packaging. Composting requires strictly controlled conditions (temperatures, pressure, humidity, nutrient concentration, etc.).⁵⁰ It typically takes place in aerobic environments, while

biodegradation may take place in anaerobic environments which has hardly been considered until now, although both organic matter and energy, in the form of biogas (a mixture of CO2 and methane), can be recovered. When adequate collection and sorting infrastructure is present (e.g. collection of food leftovers), compostable plastics can support the organic recycling of biowaste. In some countries, the Netherlands, Germany and Belgium for example, it is well established, while in many others it is still in its infancy. Only 25 per cent of biowaste is collected and organically recycled in Europe, while the rest, roughly 100 million tonnes annually, is lost as a valuable resource. Significant barriers to compostable plastics exist at a legislative acceptance level. In several countries compostable plastic items are not accepted in the organic waste stream and distinction between truly compostable plastics and false claims is not sufficiently clear.

Compostability is defined by specific standards. The European standard EN 13432 for the industrial compostability of plastic packaging was first published by the European Committee for Standardisation in 2000.⁵¹ Materials and products complying with this standard can be certified and labelled accordingly. One of the latter systems that have appeared on the market is the Seedling logo from European Bioplastics.⁵² This harmonised standard provides the assumption of conformity with the essential requirements of the Packaging and Packaging Waste Directive.

Only relatively recently has home compostability been more closely looked at. There are some national standards specifying the conditions for home composting of biodegradable plastics. Belgian certifier TÜV Austria Belgium developed the OK compost home certification scheme, requiring at least 90 per cent degradation in 12 months at ambient temperature. Based on this scheme, the French standard NF T 51-800 was published in 2015.⁵³ Directive 2015/720 calls on the EC to ask the European Committee for Standardisation to develop a separate standard for homecompostable packaging.⁵⁴

With the assumption that there is a clear link to environmental safety, biodegradable plastics could play a role in particular applications rather than being widely applicable, general solutions for waste treatment. There is a need for development of test methods and international standards on how to determine biodegradability and compostability. Policymakers could create clarity for citizens and business alike by enforcing correct communication and providing guidance on products where the use of compostable or biodegradable plastics would be appropriate.⁵⁵

Chemical recycling

The term chemical recycling most often refers to three main types of processes. Processes such as thermal depolymerisation or feedstock recycling (gasification and pyrolysis) break down plastic waste and most of its additives and contaminants into basic chemicals. These can be refined into new materials using the existent petrochemical infrastructure.⁵⁶ Gasification is a process that generates synthetic gas (syngas) through melting plastics at very high temperatures in the near absence of oxygen. The most common example in Europe is currently the use of plastic waste in blast furnaces, where syngas replaces coke, coal or natural gas.⁵⁷ A more attractive technology for the chemical industry is pyrolysis, in which plastics are shredded and melted at lower temperatures than gasification and in the presence of even less oxygen. The heat breaks polymers down into smaller hydrocarbons, which can be refined to diesel fuel and into other petrochemical products, including new plastics.⁵⁸ In addition, solvent-based purification converts some types of plastics back into monomers for the production of virgin plastics. Most of these technologies are under development or at pilot stage and not yet available on an industrial scale.

While chemical recycling is gaining momentum within the industry,⁵⁹ there are growing concerns within the NGOs about controversial technologies that convert plastics to fuel. In general, chemical recycling can complement mechanical recycling mainly for two reasons. Firstly, it can help in diverting from landfill certain plastic waste which cannot be sustainably recycled by mechanical processes such as laminated and composite plastics, low quality mixed streams and contaminated plastics. Secondly, it is able to generate (near) virgin quality materials. However, there is no guarantee that the output chemical will be converted into new plastic material, given the environmental considerations such as energy requirements. The output can also be fuel, which means that in the case that pyrolysis and gasification are scaled up, they would propagate linear fossil-based plastics economy rather than circular economy.⁶⁰ Zero Waste Europe argues that allowing plastic-to-fuel to be considered chemical recycling risks creating a legislative loophole in both the EU Circular Economy and the Climate agendas while on the other side, it could also become the new plastics industry El Dorado.⁶¹

Therefore, it is important to set up the right policy framework in order to accommodate chemical recycling as complementary to mechanical recycling and to ensure that carbon stays in the plastic and is not released into the environment. For this to happen, Zero Waste Europe offers a potential definition for chemical recycling meaning "any recovery operation by which waste materials that are unfit to be mechanically recycled are reprocessed into building blocks of a material of higher quality than the waste input."⁶² Furthermore, a new level in the EU waste hierarchy is recommended in order to accommodate material recovery operations that are not mechanical recycling but whose output allows closure of the material loop. A priority order from best to worst use in the Zero Waste Hierarchy is as follows: Refuse/ Rethink/Redesign; Reduce and reuse; Preparation for reuse; Recycling/composting/ anaerobic digestion; Material and chemical recovery; Residual management; and Unacceptable (Figure 2).



Figure 2: Zero Waste Hierarchy

Source: Zero Waste Europe

Many questions thus remain to be answered, including gaining clarity on the definition of chemical recycling to ensure that implementation of these technologies complements rather than jeopardises circular economy. More insight is needed into how to make chemical recycling work on an industrial scale, from a market, infrastructure and legislative perspective, and what the economic, environmental and social impacts would be.

Energy recovery

Another way to use plastic waste is to burn it in order to generate heat, steam or electricity. As claimed by PlasticsEurope, energy recovery is the most resourceefficient solution available for mixed and soiled plastic waste when compared to landfilling or even to enforced recycling. In some European countries, combined heat and power recovery plants (CHP Plants) provide for up to 10 per cent of energy needs. In addition, solid recovered fuel (SRF), which contains plastics as well as other solid waste, is increasingly used by thermal power plants as well as a number of energy intensive industries, for example cement and lime kilns, reducing the need for virgin fossil fuel.⁶³

The EU already burns 42 per cent of its waste and according to the World Energy Council, the waste-to-energy sector is likely to witness steady growth in the coming years. Incineration will increasingly be pushed as an easy alternative as countries like China close their doors to foreign waste and the recycling industry fails to keep up with the plastic pollution.⁶⁴

In the public eye waste-to-energy plants are much less valued. No one wants to live near one. Sophisticated incinerators are also expensive to build and operate and to run efficiently steady streams of waste are needed, often by import from far away.

Although incineration may seem like a viable quick-fix, with waste-to-energy or plastic-to-fuel promising not only to reduce the volume of waste but also to generate energy, the nature of all incineration technologies is the same as that of burning waste in an open area. Despite all the different terms used and regardless of the composition of the waste, incineration like open burning turns one form of waste into other forms of waste, including emissions and toxic ash. It is the primary driver of emissions from plastic waste management.⁶⁵

Moreover, studies have shown that recycling plastic waste saves more energy than burning plastics can generate, by reducing the need to extract fossil fuel and process it into new plastic. In short, as cautiously stated by the World Energy Council: "These technologies are useful as long as the combustion plants are properly operated and emissions controlled."⁶⁶

4 Social Innovation Initiatives

Social enterprises are involved in numerous environmental services including reuse, waste collection, preparing for reuse and recycling. Through these activities, social enterprises are able to provide jobs and training to people distanced from the labour market. They are also valued by municipalities and the wider community within which they operate. As noted above, the latest policy initiatives open more opportunities for a resource-efficient, socially inclusive circular economy. It is important that reuse of unwanted but reusable goods is prioritised above recycling and that the role of social enterprises in the sector is explicitly supported within the legal text. A great future potential for social enterprises lies specifically in the area of durable plastic products. Many small and medium-sized enterprises (SMEs) are involved in mechanical recycling of plastics.⁶⁷ As the costs of technological investments are high, it is difficult for social enterpreneurs to be active in this field. Nevertheless, constitution of cooperatives might be an option as well as social enterprise activity in home and community composting projects.

Numerous initiatives are raising awareness about plastics, how to reduce their use and waste, and how to revalue plastics. Some are global and well known, like the big campaigns and activities of Greenpeace and the World Wildlife Fund (WWF) that highlight the ways in which plastic impacts the environment, animals and the oceans.⁶⁸ Major global companies across the plastic value chain in the *Alliance to End Plastic Waste* (AEPW) are seeking to develop and bring to scale solutions to help eliminate plastic waste in the environment.⁶⁹ With a mission to stop ocean plastic by fighting poverty, Plastic Bank is an economic development firm, established in 2013, which currently operates in Haiti, the Philippines and Indonesia. It offers people cash or vouchers in exchange for the waste they collect, which then goes on to be recycled. The recycled plastics, called 'social plastic' because it provides social benefits to impoverished communities, is then sold to companies such as Henkel, whose researchers are looking into ways of integrating it into their product packaging.⁷⁰

Many EU-funded projects focus on plastics, either working purely on research activities or featuring aspects of social innovation. Many regions, cities and local communities are developing and implementing circular economy for sustainable cities. For example, the FORCE project *Cities Cooperating for Circular Economy* involves four European cities (Copenhagen, Hamburg, Lisbon and Genoa) which aim to engage enterprises, citizens and academia in 16 participatory value chain-based partnerships to create and develop eco-innovative solutions together, demonstrating new applications for plastic waste, strategic metals from electronic and electric equipment, surplus food and biowaste, and wood waste. Each city will establish a lead partnership for one type of waste and also establish three local partnerships for the other materials. In this project Copenhagen is the leading partner for plastics.⁷¹ In the Northern Periphery & Arctic region, the *Circular Ocean project* is pursuing innovative and sustainable solutions for marine plastic waste and seeks to inspire enterprises and entrepreneurs to realise the hidden opportunities of discarded fishing nets and ropes.⁷²

A number of initiatives address waste prevention. All over Europe, there are small shops which offer products in bulk and are using either paper bags or returnable packaging to deliver the products to their clients. One of the goals of the project Plastika naša vsakdanja, conducted by Ecologists Without Borders in Slovenia was to inform and convince consumers of such forms of purchase and to convince more shops of this alternative. The study found that most of the plastic packaging from a basket of our daily food and beverages falls into category 7 which means it is rarely recycled.⁷³ A good example of waste prevention is Recircle, a Swiss social enterprise that provides reusable lunch boxes to restaurants for take-away food. Along with these, it has created a deposit scheme for reusable take-away boxes. More than 400 restaurants across Switzerland and in the city of Stuttgart in Germany are already using Recircle's 70,000 reusable meal boxes.⁷⁴

Plastic Twist designs, deploys and validates an open platform for plastics lifecycle awareness, monetisation and sustainable innovation. It is aiming to revalue and transform recycled plastics by boosting citizens' awareness and circular economy practices in line with the new plastics economy vision. Three local and globally synchronised practices (Switzerland, the Netherlands and Greece) involve and engage multiple stakeholders (citizens, communities, inventors, innovators, entrepreneurs, public institutions) with an emphasis on the social gains and sustainability potential.⁷⁵ One idea that emerged from the Plastic Twist Swiss Pilot is the *Re-Button Initiative* which was launched as a way of creating awareness among young children to reduce plastics waste. Commencing with the experience of producing 400 ReButtons with schoolchildren, the initiative is now expanding and developing materials for use in training teachers to use the approach and tools to run the activity in their schools, with support from FabLab Luzern.⁷⁶ The Fablab is a part of larger global network of Fablabs and focuses on Personal Digital Fabrication—making personal things using modern computer-controlled technology, and making it available to all.⁷⁷

A global community *Precious Plastic* is another initiative working towards a solution to plastic pollution. It started in 2013 in the Netherlands and relies on numerous people across the world contributing their knowledge and skills. The initiative provides knowledge, tools and techniques that are shared online, for free.⁷⁸

In the area of eco-friendly design, the UK social enterprise Belu Water was the first to use 'bio-bottles' made of corn which can be disposed of either by recycling with other plastic or through commercial composting. Profits are invested back into society through the charity *Water Aid*. In partnership with the *Sustainable Restaurant Association* (SRA) since 2016, they launched the 'Unwrapping Plastics Guide' for the UK hospitality sector in June 2018, and a Sustainable Water Toolkit to help the industry on the road to a more sustainable water service.⁷⁹

A Slovenian start-up Evegreen designed compostable plant pots made out of waste from the legume industry.⁸⁰ Following a good market test response, the company is currently scaling up to meet industrial production and entered into a strategic cooperation with Germany-based *Spectalite* to boost biodegradable applications with an initial focus on gardening, agriculture and hygroponics applications.⁸¹ The company also moved into production of biomaterial suitable for plastics industry products and established links with similar companies across Europe, among them with the Polish *Biotrem*, which is involved in biodegradable tableware and cutlery production from wheat bran.⁸²

These examples show that the line between social enterprise/innovation and traditional business initiatives is blurred when it comes to plastics circular economy. The social impact of all initiatives to reduce plastic use and waste, however, is evidently clear.

5 Conclusion

Circularity is at the heart of Europe's economic transformation "towards a greener, fairer and more inclusive future." The EU policy and legislative framework is an important instrument to push countries, businesses and society towards this ambition. The key waste directives have paved the way for waste management. Evaluations of and reporting under these instruments shows that they have led to an increase in the amount of plastics being collected and recycled, even if in some cases the performance in some countries fails to meet the targets set. Addressing single-use plastic applications is among the measures established under the EU Plastics Strategy as a starting point to curb plastic pollution. The new rules are still to be implemented into national legislations. The European Council's strategic agenda for the next five years stresses the importance of an effective circular economy for a successful green transition and explicitly makes the link between inclusiveness and sustainability.

With two thirds of the EU's plastic waste still being landfilled or burned, there is a big opportunity for innovative approaches to increase plastic reuse, recycling and revaluation. Bearing in mind the need to reduce the use of plastic for single-use applications and the new rules thereof, and the necessary diversion from disposal and incineration to mechanical recycling—itself facing capacity and modernisation challenges—there is a legitimate question about what to do with those plastics that are too degraded or too contaminated to be reintroduced into the production cycle. Currently, this fraction of plastic waste is exported, downcycled or disposed of, but in recent years some technologies have been presented claiming to be able to recycle this waste stream under the name of chemical recycling. These developing technologies can have a role to play when their output allows closure of the material loop and no plastic escapes it via plastic-to-fuel. Some alternatives to the use of fossil-based plastics are available, but in small volumes to date. Similar applies to biodegradable plastics and composting plants which are few and far between.

The key moves to curb plastic pollution from an environmental and economic perspective will need to occur at source, we need to move on from the clean-up initiatives and invest in reduction and reuse solutions, in the development of detoxified and simplified new plastics and in designing business models to make efficient use of plastics. In this sense, the SUP Directive carries the potential to set the stage for this transition. The most important avenue to achieve ambitious goals of new plastics economy and the transformation from a disposable society to a 'zero-waste society', however, might be behavioural and cultural change—individual, societal, corporate and institutional. Recent initiatives suggest that social innovation is going to play a major role in tackling this challenge.

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- ¹⁹ Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment (Text with EEA relevance). https://eur-lex. europa.eu/legal-content/EN/ALL/?uri=CELEX:32019L0904
- ²⁰ The SUP Directive defines single use plastic as a product that is made wholly or partly from plastic and that is not conceived, designed or placed on the market to accomplish, within its life span, multiple trips or rotations by being returned to a producer for refill or re-used for the same purpose for which it was conceived.
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- ³⁴ Article 3.17, WFD, 2008/98/EC.
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- ³⁶ In 2016 plastics demand in Europe was 50 million tonnes, of which roughly 40% were used in packaging. This total demand is made up of 80% thermoplastics such as Polyethylene (PE), Polypropylene (PP) and PET, 15% thermosets that cannot be remoulded or reheated, such as polyurethane (PU), epoxy resins, and phenolics, and 5 % of other, specialised materials. Despite being easily recyclable, PET represents only 6% of the plastics produced. Ibid.
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Sebastjan Pikl

Social economy actors as a part of a circular economy approach in the reuse and recycle of textiles and clothing

1 Introduction

The textile and clothing industry is the world's oldest branch of consumer goods manufacturing. It is a diverse and heterogeneous sector which covers the entire production chain of transforming natural and chemical fibres (such as cotton, wool and oil...) into end-user goods, including clothes, household goods and industrial textiles.

Textile and clothing production is not just one of the biggest sectors of global economy. It is an indispensable part of our everyday life and to many an important expression of individuality.

It is also one of most polluting industries. Fashion is widely considered the second most destructive industry to the environment after oil.¹ Textile and clothing waste ending up in landfills has become a huge concern globally. Its use also has a large environmental footprint due to the water, energy and chemicals used in washing, tumble drying and ironing, as well as to microplastics shed into the environment.

"The current system for producing, distributing, and using clothing operates in an almost completely linear way. Large amounts of non-renewable resources are extracted to produce

clothes that are often used for only a short period, after which the materials are largely lost to landfill or incineration. It is estimated that more than half of fast fashion produced is disposed under a year. This linear system leaves economic opportunities untapped, puts pressure on resources, pollutes and degrades the natural environment and its ecosystems, and creates significant negative social impact at local, regional and global scales."²

"In the last 15 years, clothing production has approximately doubled, driven by a growing middle class population across the globe and increased per capital sales in mature economies. The later rise mainly due to the **"fast fashion"** phenomenon, with quicker turnaround of new styles, increased number of collections offered per year and – often- lower prices.³

Less than half of used clothes are collected for reuse and recycling when they are no longer needed, and only 1% are recycled into new clothing, since technologies that would enable recycling clothing into virgin fibres are only starting to emerge.⁴

It is being widely accepted that the global textile and clothing industries need to change its production model to a more sustainable one. If every brand along the supply chain began to implement eco-friendly practices, the textile and fashion industries could become significantly more sustainable.

A new economic and industrial concept was introduced several years ago, named "circular economy", which takes into consideration a holistic approach beyond the "the current take-make-waste extractive industrial model" ... "It entails gradually decoupling economic activity from the consumption of finite resources, and designing waste out of the system."

This model was developed in a report by McKinsey & Company commissioned by the Ellen MacArthur Foundation in 2012.⁵

Concerning the clothing and textile lifecycle, the Ellen MacArthur Foundation commissioned another report in 2017 titled "A new textiles economy: Redesigning fashion's future economy"⁶

Such a new textiles economy based on the principles of a circular economy would provide access to high-quality, affordable and individualised clothing, capture the full value of clothing during and after use, would run on renewable energy and use renewable resources. It would reflect the true cost (environmental and societal) of materials and production processes in the price of products. It also foresees designing out waste and pollution, with the phasing out of substances of pollution and micro-fibre release. It transforms the way clothes are designed, sold and used, to break free from their increasingly disposable nature and radically improves recycling by transforming clothing design, collection and reprocessing.

We would like to complement this model on the level of reuse and recycle processes and introduce social and economic benefits that can be offered by the social economy sector in Europe already engaged in textile and clothing reuse and recycling for some time.

Social economy and social enterprises, with their values focused on tackling social and environmental problems first detected a problem and an economic opportunity arising from discharged clothing and textiles in Europe some decades ago. Social enterprises and charities have positioned their work in prolonging the lifecycle of clothes. Where once clothes were discharged into landfills after use there is now a thriving used clothing industry of reuse, repair, reconditioning and even recycling. A raft of techniques is used such as restyling, reshaping, embellishing and overprinting to give discarded, torn and stained fabrics added value, a new life, and to divert (or delay) waste from landfill.

And there are various ways and potentially new business models to address the issue of reuse and recycle of textiles and clothing—as clothing rental, upcycling, designing clothes that would make recycling easier, convincing customers to buy fewer clothes of better quality (slow fashion)—pursued not only by social economy actors but also the clothing industry at large. In the time period towards implementation of circular economy and until new technological solutions are developed for successful recycling, the social economy sector in the EU can be a part of the solution equation.

In this article we will present some recent economic data on the textile and clothing trade, globally and in the EU, legal provisions for textiles and clothing on the EU level, and how social economy actors can complement a circular economy approach with some important factors and values for transformation process towards greener and more sustainable industry. The idea is to reuse first and recycle later.

2 Some economic data on the retail market for textiles and clothing: World and the EU

In terms of intensity of trade, textile and clothing is the world's second-biggest economic activity (The global clothing retail market is forecast to reach USD 1,652 billion (bn) in value in 2020, an increase of 31.8% since 2015) and account for app. 7% of world exports. Some trade tensions, exemplified by the United States – China trade war are accelerating the shift out of China as a sourcing country to other countries in Asia, with India becoming one of the biggest producers of textile.

While a hundred years ago the majority of textile production was concentrated in Europe and North America, today the bulk of textiles and clothing is sold in Asia, particularly in China and India. According to McKinsey Fashion-Scope, Greater China is expected to overtake the US as the largest fashion market in the world in 2019.⁸

Despite this shift, the EU region as a whole remains a leading producer of both textiles and clothing. The value of EU textile and clothing production totalled EUR 142.9bn in 2017.⁹



Data source: Eurostat (2019)

According to data from different sources, in 2017 there were approx. 186,000 companies in the textile and clothing industries in Europe, employing between 1.4 and 1.7 million people. The textile and clothing sector accounts for around 3% of total manufacturing value added and has a 6% share of employment in total manufacturing in Europe.¹⁰¹¹

In the context of the EU customer: "About 5% of household expenditure in the EU is spent on clothing and footwear, of which about 80% is spent on clothes and 20% on footwear. It has been estimated that in 2015 EU citizens bought 6.4 million tonnes of new clothing (12.66 kg per person)"¹²

The sector in the EU is mostly based around small businesses. Companies with fewer than 50 employees account for more than 90% of the workforce and produce almost 60% of the value added.

Clothing manufacturing in the EU includes two primary categories: one is mediumpriced products for consumption in the mass market, which are produced primarily by developing countries in Eastern and Southern Europe, such as Poland, Hungary, and Romania, where cheap labour is relatively abundant. The other category is high-end luxury apparel produced by developed Western EU countries, such as Italy, the UK, France, and Germany.



Value of EU (28) Apparel output in 2017 (€/person)

Data source: Eurostat (2019)

It is also interesting to note that in Western and Southern EU countries labour costs only accounted for 21.1% of the total clothing production cost in 2016, which was substantially lower than 30.1% and 38.2% respectively, back in 2006, whereas Eastern Europe has a fairly steady share of personnel costs. This change suggests that clothing manufacturing is becoming capital and technology intensive in some developed Western EU countries, with more production outsourcing to the lower income countries inside and outside the EU.



Share of Personnel Cost in Eu Apparel Production

Intra-regional trade is also an important feature of EU textile and clothing industries. Despite the increasing pressure from cost-competitive Asian suppliers, statistics from the World Trade Organization (WTO) show that of the EU region's total USD 65.3bn textile imports in 2017, as much as 58.2% (or USD 38bn) were in the category of intra-region trade. Similarly, of the EU countries' total USD 166.4bn clothing imports in 2017, as much as 47.2% (or USD 78.6bn) came from other EU members. In comparison, close to 97% of clothing consumed in the United States was imported in 2017, more than 75% coming from Asia (Eurostat, 2019; WTO, 2018).¹³

Data source: Eurostat (2019)

Intra-region trade% in the Eu textile and apparel industry $^{\tt 14,\, 15}$

| | 2000 | 2010 | 2014 | 2015 | 2016 | 2017 |
|---------|--------|--------|--------|--------|--------|--------|
| Textile | 71,0 % | 61,7 % | 59,5 % | 58,1 % | 58,4 % | 58,2 % |
| Apparel | 49,9 % | 43,4 % | 44,9 % | 44,1 % | 46,2 % | 47,2 % |

Note:

1. Data based on 28 members of the European Union

2. Intra-region trade%= Imports from other EU members/EU total Imports

Data source: Eurostat (2019)

3 European regulations and policy regarding textile and clothing sales and waste

In 2011 European legislation on textiles and clothing (EU No 1007/2011) was adopted, replacing all other previous directives, effectively aligning textile fibre names, related labelling and marking of the fibre composition of textile products across the EU.¹⁶

According to the regulation, textile products have to be labelled or marked whenever they are available on the market. The indication of the fibre composition of a product is mandatory at all stages of the industrial processing and commercial distribution of that product. All products containing at least 80% by weight of textile fibres, including raw, semi-worked, worked, semi-manufactured, semi-made, and made-up products are covered by the regulation. The regulation does not cover size, country of origin, or washing/care labelling.

Other legislation related to textiles and clothing includes:

- Directive 2001/95/EC on general product safety
- Directive 765/2008/EC on market surveillance
- Directive 29/2005/EC on Unfair Commercial Practices
- Directive 1907/2006/EC on Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- Directive 425/2016/EC on PPE
- Directive 48/2009/EC on Toy Safety
- Directive 75/2010/EC on Industrial Emissions

- Commission decision C(2014) 3677 on the establishment of the criteria for the award of the EU Ecolabel for textile products
- Criteria for green public procurement (GPP) on textiles^{17 18}

In 2018 the circular economy package¹⁹ legislation was adopted, for the first time requiring member states to ensure that textiles and clothing are collected separately.

The new waste directive requires member states to set up schemes for separate collection by 2025. By the end of 2024, European Commission needs to consider whether targets for textile and clothing waste re-use and recycling should be introduced as well.

The directive also introduces targets for general municipal waste re-use and recycling of 55% by 2025, 60% by 2030 and 65% by 2035.

Although not specifically aimed at textile and clothing, other directives in the circular economy package could also mitigate some of the environmental impacts of textile and clothing.

The Packaging Waste Directive introduces targets for the recycling of 60% of all packaging by 2025 and 70% by 2030.

The Landfill Directive requires Member States to reduce the share of municipal waste landfilled to 10% by 2035.

EU legislation and initiatives focusing directly on textile and clothing can help consumers make more sustainable decisions.

As mentioned above, the EU also lays down European standards relating to textile and clothing. Some of the standards relate to minimum performance requirements for certain types of textile products, and environmental aspects of textile products, so for instance, the European standard CEN/TS 16822:2015 refers to self-declared environmental claims.

In addition, the EU ecolabel for clothing and textile, a voluntary certification programme, establishes ecological criteria guaranteeing limited use of substances harmful to health and the environment and reduction in water and air pollution, as well as criteria for extending the lifetime of clothing (resistance to shrinking during washing and drying and colour resistance to perspiration, washing, wet and dry rubbing and light exposure).

The EU Green Public Procurement (GPP) criteria for textiles facilitates the inclusion of green requirements in public tender documents. It is a voluntary instrument that Member States and public authorities can implement to the extent to which they themselves wish.

4 Circular economy approach

Circular economy as an industrial and economic system is aimed at eliminating waste and the continual use of resources, creating products that are regenerative by design. The aim is a resource-efficient and sustainable use of natural resources, their reuse and recycling within a circulatory system, and the prevention of waste.

The history of the concept goes back several decades, some say even more, but it was in 2012 when a report was released, titled *"Towards the Circular Economy Vol. 1: an economic and business rationale for an accelerated transition"*. The report, commissioned by the Ellen MacArthur Foundation and developed by McKinsey & Company, was the first of its kind to consider the economic and business opportunity for the transition to a restorative, circular model. Using product case studies and an economy-wide analysis, the report details the potential for significant benefits across the EU.

Ellen MacArthur Foundation describes circular economy as:

"The current system is no longer working for businesses, people or the environment. We take resources from the ground to make products, which we use, and, when we no longer want them, throw them away. Take-make-waste. We call this a linear economy.

We are disrupting the system The linear economy has to change. We must transform all the elements of the take-make-waste system: how we manage resources, how we make and use products, and what we do with the materials afterwards. Only then can we create a thriving economy that can benefit everyone within the limits of our planet.

In a circular economy, economic activity builds and rebuilds overall system health. The concept recognises the importance of the economy needing to work effectively at all scales – for large and small businesses, for organisations and individuals, globally and locally.

Transitioning to a circular economy does not only amount to adjustments aimed at reducing the negative impacts of the linear economy. Rather, it represents a systemic shift that builds long-term resilience, generates business and economic opportunities, and provides environmental and societal benefits."²⁰

On the level of new circular economy for textiles and clothing that would mean:

- 1. Phase out substances of concern and microfibre release with aligning of industry efforts and coordinate innovation to create safe material cycles
- 2. Increase clothing utilisation with transforming the way clothes are designed, sold and used to break free from their increasingly disposable nature.
- 3. Radically improve recycling by transforming clothing design, collection and reprocessing
- 4. Make effective use of resources and move to renewable inputs.²¹

The **A new textiles economy: Redesigning fashion's future economy** report by the Ellen MacArthur Foundation envisions an overall and total transformation of the textile and clothing sector in the next period. And it is worth reading. Our task here is to focus more on the part of point 3 connected to used textiles and clothing reuse and recycling.

5 The used textiles and clothing market: collection for reuse and recycling

Disposal of textile and clothing waste around the globe has become an increasing concern. The growth of textile markets not only depends on population growth but also on economic and fashion cycles. The fast fashion cycle in the textile industry has led to a high level of consumption and waste generation and causes a negative environmental impact. Textiles manufacturing is a chemical-intensive process, requires a high volume of water throughout its operations and accounts for significant greenhouse gas emissions. Today's linear system industries are faced with challenges, mostly how to make the lifecycle of textiles and garments less polluting and recyclable, to up-cycle and recycle their waste into useful industrial products. Data shows that for new production 97% of virgin material is needed and that at the end of lifecycle around 73% of textiles and clothing is still landfilled or incinerated.

"Worldwide, clothing utilisation – the average number of times a garment is worn before it ceases to be used – has decreased by 36% compared to 15 years ago. While utilisation
is relatively high in low income countries, elsewhere rates are much lower. For example, in the US clothes are worn around a quarter as long as the global average. The same pattern is emerging in China, where clothing utilisation has decreased by 70% over the last 15 years... Underutilisation of clothing presents a significant opportunity to capture value. Globally, customers miss out on USD 460 billion of value each year by throwing away clothes that they could continue to wear."²²

"The industry also has multiple negative societal implications, driven partly by the increasing pressure on manufacturers to deliver on shorter lead times and lower pricing. High cost and time pressures are often imposed on all parts of the supply chain, which can lead to garment workers suffering poor working conditions with long hours and low pay, with evidence, in some instances, of modern slavery and child labour."²³

"If the industry continues on its current path, by 2050, textiles production would use more than 25% of the carbon budget for a 2°C pathway. Moving away from today's linear and wasteful textiles system is therefore crucial to keeping the current target of a 2°C average global warming limit within reach."²⁴

In a number of mostly Western countries, a large proportion of textiles and clothing discarded is collected through different channels. These include municipal waste collection, neighbourhood collection containers, singled out kerbside collection, home pick up and some types of charity shop drop off or retailer drop off variants.

Collection schemes vary significantly, both nationally and regionally. Some countries have municipal collection schemes, but most don't have any formal collection organised and it is mostly left to open economic activity by private companies, social enterprises and charities.

Globally, around 25% of clothes are currently collected for reuse or recycling.

Data from different sources indicate that around 70% of the clothing and textiles collected in Europe and the US is considered reusable.²⁵

Around 20% of these collected clothes is resold on internal markets, the rest is sold to used (second-hand) clothes merchants. A small part is also donated for charitable reasons. But after collection most of the material is sorted, graded and transported to be sold to low income countries. Global sales of used clothes are estimated to be worth around USD 4 bn in 2018 and has grown significantly in the last decade. From 2006 to 2016 value "has quickly increased from USD 1.8bn in 2006 to USD 3.7bn in 2016, an increase of 106 percent". Data supports the claim we made in the introduction part, stating that global production of clothes approximately has doubled in the last 15 years, effectively producing twice as much used clothing and waste.

Major importers for used clothes are Sub-Saharan Africa (23% share in 2017), Malaysia (6,0%), Ukraine (5,3%), the Russian Federation (5,1%), and Pakistan (4,8%). The biggest exporters are the European Union (35.4% share in 2017), USA (15.1%), South Korea (7.6%), China (7.4%), and Canada (3.3%).²⁶

The Global Reuse model has increased value capture and utilisation of clothing, and it can also be one of the important factors in green transformation.

On the other hand, there are some well-grounded arguments against global sales of used clothing and textiles. One claims the global reuse trade is not a long-term solution since it will lead to saturated markets in recipient countries... and *"While such reuse schemes increase the utilisation of the material significantly, residual value is still ultimately lost from the system."* Other arguments against mainly comes from importing countries, claiming that the used clothing markets stifle the textile and clothing industries.²⁷

These arguments point mostly towards competing developmental and economic models and they are correct. Countries in development need to grow and create jobs. For low income countries, textile and clothing fabrication is one of the developmental industries to raise populations out of poverty and increase industry output, but it needs to be connected to overall infrastructure build-up for the industries to be cost effective and globally competitive. Currently they are mostly not.

Looking at the issue from a global perspective, it is also in the interest of developed countries that they support and finance development in developing and low income countries, not just because pollution has become a global problem and the circular economy model envisions it, but also because an appropriate infrastructure for waste collection and technological innovation improves the economics and quality of recycling in developing countries. Global sales and reuse of clothing needs to be supported by development initiatives to catch clothing and textile material at the end of the lifecycle and introduce efficient recycling methods and technological solutions where they appear and that is not just in developed countries of the global north but also in the global south. Connecting development cooperation with technological innovation is a way forward.



Share of Personnel Cost in Eu Apparel Production

Data source: Ellen MacArthur Foundation, A new textiles economy: Redesigning fashion's future, 2017 (p 37)

A way forward is to give reuse a priority and build a path towards circular economy where:

"Realising this vision of a new global textiles system relies on four core ambitions:

- phasing out substances of concern and microfibre release;
- transforming the way clothes are designed, sold and used to break free from their increasingly disposable nature;
- radically improving recycling by transforming clothing design, collection, and reprocessing;
- and making effective use of resources and moving to renewable input."

6 Reuse first and later recycle: associate social economy with circular economy

Basically, there are four possibilities after used textiles and clothing are discharged. Reuse, recycle or disposal to landfill or incineration.

In 2018 Gustav Sandin and Greg M. Peters published a review of 41 studies on the environmental impact of textile reuse and recycling. Their core findings are the following:

"The reviewed publications and texts provide strong support for the claims that textile reuse and recycling in general reduce environmental impact compared to incineration and landfilling, and that reuse is more beneficial than recycling. The studies do, however, expose scenarios under which reuse and recycling are not beneficial for certain environmental impacts. For example, as benefits mainly arise due to the avoided production of new products, benefits may not occur in cases with low replacement rates or if the avoided production processes are relatively clean. Also, for reuse, induced customer transport may cause environmental impact that exceeds the benefits of avoided production, unless the use phase is sufficiently extended."²⁸

Textile and clothing reuse refers to various means for prolonging the practical service life of textile and clothing products by transferring them to new owners, with or without prior modification. This can, for example, be done through renting , trading, swapping, borrowing and inheriting, facilitated by, for example, second hand shops, flea markets, garage sales, online marketplaces, charities and clothing libraries. Reuse and resale can reach its mature potential only if the production processes return to high quality and durability items and make resale attractive to a wide range of customers.

We have already mentioned that currently around 20% of collected textiles and clothing are reused and resold on internal markets. This percentage should and could become higher with boosting clothing care and textile and clothing industry commitments to increase durability.

Textile and clothes recycling, on the other hand, most often refers to the reprocessing of pre- or post-consumer textile waste for use in new textile or non-textile products. It also includes the recycling of non-textile materials and products (such as polyethylene terephthalate (PET) bottles) into textile products.

If the fabric of a product is recovered and reused in new products, we refer to this as fabric recycling or material reuse³⁰. If the fabric is dissembled, but the original fibres are preserved, this is fibre recycling³¹. If the fibres are dissembled, but the polymers or oligomers are preserved, this is polymer/oligomer recycling³². And if the polymers/oligomers are dissembled, but the monomers are preserved, this is monomer recycling.³³ There are various means of achieving these types of recycling routes, often by combining various mechanical, chemical and thermal processes.

"Other classifications of recycling routes also deserve mentioning. For example, if the recycled material is of lower value (or quality) than the original product, this is termed down-cycling. Today, existing textile recycling routes are in most cases down-cycling. Clothing and home textiles are down-cycled into, for example, industrial rags, low-grade blankets, insulation materials and upholstery. In contrast, if a product from recycled material is of higher value (or quality) than the original product, it is termed upcycling.... In contrast, a cascade approach could be optimal, in which the textile waste first enters fabric or fibre recycling, and once the fibre length has been reduced to a level at which the material is not fit for fabric or fibre recycling, it enters polymer, oligomer or monomer recycling."

To mention two models out of many:

Circular fashion. Like the circular economy in general, circular fashion seeks to reduce waste to a minimum and keep the materials within the consumption and production loop as long as possible. When clothes are no longer used, they should be either sold as second-hand clothes or recycled. For this to be possible, products should be designed to have multiple lifecycles, with recyclable materials that are tailored to the intended use, timeless styles and design suitable for disassembly (modular design).

Extended producer responsibility (EPR). Producers and importers can be made legally responsible for ensuring that used clothes are reused or recycled, with companies either organising their own programmes or contributing financially to an accredited collectively responsible organisation.³⁵

7 Social economy actors and reuse and recycling of textiles and clothes

The social economy, with its many actors and diversity of enterprises and organisations—cooperatives, mutuals, associations, foundations, social enterprises, and some of the institutions of social care—goes further from profit-making itself as the one and only measure of success of an organisation. They are, in their value core, trying to address and solve some particular social and ecological problems and challenges, to do it locally, and in the context of a self-organisational capacity as democratically as possible, taking into consideration the participation of employees and the wider community. Therefore, they put primacy of the individual and the social objective over capital, promote democratic governance, and the reinvestment of most of the profits/surpluses to carry out sustainable development objectives, and services of interest to members or the general public. Social economy actors operate in all the economic sectors such as: industry, education, healthcare and social services of general interest, agri-food, ethical and cooperative banking, insurance, renewable energy, reuse and recycling, retail and consumption; housing, tourism, culture and leisure, construction, professional services, the digital economy, etc...

According to the European Economic and Social Committee's study *Recent evolutions of the Social Economy in the European Union*, there are 2.8 million social economy enterprises and organisations in the European Union, that employ 13.6 million people and represent 8% of the EU's GDP. Even more, social economy has emerged from the economic and financial crisis largely unscathed. Today, the sector provides paid employment to 6.3% of the working population in the EU-28, compared to 6.5% in 2012.³⁶

These are some important facts.

Together with its values, social economy constitutes an important pillar in terms of employment and social cohesion across Europe and is one of the key actors towards the achievement of the United Nation's 2030 Agenda for Sustainable Development.

In this sense, social economy and social enterprises are already the real changemakers in Europe.

A significant part of social economy actors work in the reuse and recycling of different consumer good. From collection, sorting and redistribution of used textiles

and clothing, electrical and electronic waste (WEEE), furniture and other bulky waste, collection and recycling of paper, cardboard, wood, plastics, paints, metals, books and toys...³⁷

Based on RREUSE, a Brussels-based network representing social enterprises active in reuse, repair and recycling, its member organisations across Europe collected around 260,000 tonnes of textiles and clothing in 2018 out of which 95,000 tonnes were reused.

Some RREUSE member organisations already operate services from collecting used clothing and textiles through multiple channels, running centres where clothing and textiles are sorted, graded—also repaired or redesigned—and later, donated, sold in second-hand shops or shipped overseas.³⁸

Most of the rest is down-cycled into cleaning rags and insulation material so that overall discharge to landfill is as low as possible.

The circular economy approach foresees a large-scale collection of used textiles and clothing across the European Union, with priority given to reuse – a number of utilisations if possible, before the material is too run down to be recycled in either lower grades of fabric yarn, fibre, polymers or monomers.

Experience with used clothes operators show that in an area covering a circle of approximately 150 km there should be a clothing and textiles sorting facility, preparing for a reuse and recycling centre, operating multiple channel collecting methods. That would enable the capture of most of the clothing and textiles from citizens and still allow relatively short collection logistic chains. If organised as social enterprises, organisations can provide jobs and training opportunities in the re-use sector for disadvantaged workers, giving thousands of people a fresh start on the labour market.

Data from the USA and RREUSE members suggests that for every 10,000 tonnes of waste material collected for refurbishment and re-use, anywhere from 296 to 800 jobs can be created.³⁹

Currently, these activities enable the 850 social enterprises federated by RREUSE's wider network to fulfil their social missions, which for the most part is the provision

of work opportunities, training and support services for disadvantaged individuals. There are approximately 95,000 employees, volunteers and trainees engaging in the activities of RREUSE's members.

8 Policy suggestions

The growth potential of the social economy sector is being hampered due to a lack of policy support in Europe. The EU legal framework for boosting recycling has come at the expense of re-use with millions of tonnes of re-usable textiles and clothing sent for recycling, incineration or landfill every year rather than being given a second life by re-use and refurbishment organisations.

Some policy suggestions include:

- Create an Action Plan for Textiles which includes clear points concerning textile waste prevention and its financing by producers with specific measures to boost re-use primarily in cooperation with social enterprises and municipalities, such as: support of the separate collection, financing cost of non-reusable textiles, innovation for local re-use, increased consumer participation in maintenance and creativity, labelling for clothing durability (e.g. number of wash cycles), management of textile over-stock & customer returns.⁴⁰
- Create an Expert Working Group on the Textile Chain, potentially by extending the scope of the existing European Commission's Expert Group on Textile Names and Labelling. The group should involve all actors of the value chain and focus on both product design and end-of-life solutions for textiles. Similar groups should be installed at national level.⁴¹
- Continue work on Social and Green Public Procurement with regards to procurement of textile collection and management services, in particular to promote the use of social clauses and reserved contracts to social enterprises in public tenders.^{42 43}
- Insist on the importance of transparency in the textile chain, from production through to re-use and recycling, so clarity is given to the consumer about where their products have come from, under what conditions, and where their donated unwanted clothes and profit created as a result will go to.⁴⁴

- Launch and further promote collaborative initiatives to improve the environmental performance of textiles across the supply chain (sustainable design, fibres and fabrics, maximise reuse/recycling/end-of-life-management, sustainable cleaning)
- Examine the use of economic instruments for promoting sustainable consumption of textiles/clothing.
- Support, fund and implement research and development (R&D) projects of new industrial scale methods for recycle textile material from mechanical to chemical recycling and support uptake of these industrial methods by public and private actors in the EU, together with developmental programmes to build up recycling of textile waste in the low-income countries.

Le Relais (France)

Le Relais, a social enterprise, collects, sorts, resells or recycles second-hand textiles, employing socially excluded people. The company has created 1,500 jobs in France and Africa.

Starting as a small door-to-door collection activity in the north of France, it has become a major industry, treating more than 60,000 tons of textiles and clothes each year. The textiles collected are used for different purposes: top-quality material is resold in Ding-Bring boutiques, an integrated network of second-hand shops; approximately 40% is exported to Africa where it is sorted again and resold on local markets; and textiles that cannot be resold are recycled into industrial rags. Le Relais is also committed to recycling textile and paper waste, reusing more than 85% of the 60,000 tons of textiles collected every year. To remain viable and create value from the textiles collected, Le Relais has developed innovative products from this raw material. For example, the company has developed Metisse, a heat- and sound-insulating material based on recycled textile fibres from jeans and cotton. This licensed eco-material has had great success in environmentally friendly construction projects.⁴⁵

Some upcycling projects

Frau Wagner is a German brand located in Berlin, that produces both couture and ready-to-wear pieces using vintage and quality second-hand clothing. The ambition is to create unique designs with contrasting elements, by mixing clothes of different styles and social codes, such as sportswear, uniforms and men's shirts.⁴⁶

Reet Aus is a ready-to-wear Estonian brand founded in 2004, which since 2013 is able to "mass-produce" upcycled clothing in collaboration with Beximco, the biggest fabric and garment producer in Bangladesh, by using textile spill from Beximco's garment production.⁴⁷

As for children's wear, the Swedish brand **Stormie Poodle** creates high-quality garments with timeless design using discarded linen and terry cloth from Swedish hotels, with production in Latvia.⁴⁸

RESYNTEX is a European Union Horizon 2020 research project which aims to create a new circular economy concept for the textile and chemical industries. This project refers to the chemical polymer recycling mentioned above. It is not a social economy project per se, but it is an important part of an overall approach towards recycling of worn-out textiles and clothing. The project has already developed a demo scale pilot plant and is considering a full-scale reprocessing plant with one of the EU's bigger commercial used textile and clothing sorters and global merchants. By using an industrial symbiosis process, it aims to produce secondary raw materials from nonwearable textiles. The procedure being developed must be suitable for a mechanical production line, sorting multicomponent waste and preparing material for recycling and to demonstrate a complete reprocessing line for basic textile components, including liquid and solid waste treatment.⁴⁹

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there is already a re-use rate of 5 kg of re-used material / capita being achieved by a network of approved re-use centres from the social economy, supported by a separate re-use target. The re-use centres collect around 64,000 tonnes of material annually, of which half is re-used. This activity employs 5,000 people as a result, and is equivalent to re-using around 1% of Municipal Solid Waste (MSW) generated in the Flemish region. There is now a discussion in Flanders to increase this target to 7 kg by 2022. (http://www.rreuse.org/wp-content/uploads/Final-briefing-on-reuse-jobs-website-2.pdf)

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Authors' Biographies

Tej Gonza finished his master's programme at the Institute for Philosophy and Economics, Erasmus University Rotterdam, and is currently a PhD candidate at the Faculty of Social Sciences, University of Ljubljana. Gonza co-founded and is an editor-in-chief of a scientific publication Review of Economics and Economic Methodology, which publishes contributions on heterodox economic theory and methodology. He is a co-founder and currently the president of the Institute for Economic Democracy in Ljubljana.

David Ellerman has written about the theory and practice of worker co-operatives and other forms of democratic worker ownership for over 40 years. Now retired and living mostly in Ljubljana, Slovenia, he is a co-founder of the Institute for Economic Democracy. His writings can be found on his website: www.ellerman.org.

Anastasia Costantini

Anastasia joined DIESIS in 2016. She contributes to research on social economy and social economy enterprises and their role in the implementation of sustainable development goals, focusing on sustainable food, green transition and digitalisation. She is responsible for Diesis' communication strategy (integrating internal and external communication). Anastasia holds an MA in in Food Science and Human Nutrition and focused her interest and research on sustainable development in the field of alternative food systems.

Urša Zgojznik is the president of a Slovenian environmental NGO–the Ecologists Without Borders Association, which is dedicated to improving the environmental situation focusing on waste management. She is an expert in the NGO sector, especially for civil initiatives and environmental questions and works mostly on projects and campaigns for reducing and reusing waste, Zero Waste and concrete circular economy solutions.

Felicita Medved is a human geographer with research interests in political geography, migration and citizenship, and in the policies and politics of the European Union. She served as a member and president of the Board of Directors of the European Liberal Forum from 2010–2016. Currently, she is the president of the Novum Institute.

Sebastjan Pikl is a co-founder and present director of the NOVUM Institute, an institute for strategic and applicable research, active in the fields of policy analysis, political communications, and visual media. He is a co-founder of the "Dobrote" cooperative, a social enterprise. Dobrote is developing a pilot project on collecting, preparing for reuse and recycling old clothes and textile in Slovenia. In recent years he has also served as an advisor in various communications projects, including the campaign for the former president of Republic of Slovenia Dr Danilo Türk.



Autors:

Sebastjan Pikl (editor) Tej Gonza David Ellerman Anastasia Costantini Urša Zgojznik Felicita Medved

