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Smith, Tone

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Chapter 6

Rethinking the (Wool) Economy

Tone Smith, Maria Ehrnström-Fuentes, Sophia Hagolani-Albov and Ingun Grimstad Klepp

Abstract

This chapter examines the limits to changing the current economic system through policy measures like green growth and the circular economy. We examine the biophysical aspects of the economy and the huge amounts of materials and energy the global economy consumes to achieve growth. Thus far, governmental responses have been incapable of addressing the underlying structural issues of the global textile industry and the accompanying exploitation of natures and peoples. While the necessary deep structural transformations are difficult to achieve through governmental policy change, we suggest that re-localization of wool production-consumption networks are an expression of how engaged citizens can build more sustainable textile and fibre alternatives in place. Drawing on local food research, this chapter highlights the dangers of conflating local solutions with sustainability. Instead, we argue that assessing these emergent wool ventures based on how they are organized in the living landscape in specific places will enhance the understanding of what kind of socioecological impacts they can achieve. This includes how organizing/connecting the activities and visions of wool entrepreneurs in place is essential if these ventures can overcome the barriers set by the dominant growth-based system of global trade.

Keywords: the global textile industry, wool, degrowth, biophysical economy, social movements

The modern, global growth economy is increasingly called into question due to its many problematic aspects. As described in earlier chapters, the climate crisis and biodiversity loss are only the tip of the iceberg of the myriad problems caused by our current system. There are also problems that are not as obvious, including a proneness to crises, unemployment, alienation in production processes, and the exploitation of labour in the global South. In addition, there are ethical concerns related to the poverty and inequality that accompanies textile and other systems of clothing production and consumption. This book looks more closely at apparel and textile sector, which are both key sectors in the industrialization that has occurred, first in the global North and later the global South. The apparel and textile sectors are currently in the midst of the discussion whether measures of ‘green growth’ and circular economy will remedy the situation or if a more radical paradigm shift is the solution needed to ameliorate the problematic aspects of these sectors. Since this book has already discussed the sad statistics that surround the textile and apparel industry, this chapter jumps right in to addresses a variety of the base issues, beginning with energy and fossil fuels and their role as the base of industrialisation.

Environmental Problems: a Biophysical Economy Perspective

The current level of industrialisation would not have been possible without access to fossil fuels. Hence, they are a foundational element of our current economic system. Ecological economists claim that access to this specific energy source lies behind the enormous increase in material living standards across much of the world in the last two centuries. Such a perspective, however, runs counter to the general understanding that the current living standards are caused by high ‘productivity’. Instead, labour productivity has increased first and foremost because human and animal labour has been substituted with fossil energy and machines, not because of an increase in efficiency or smarter working. Hence, modern living standards and the modern growth economy are possible because of easy access to large amounts of cheap fossil fuels. While the development of the fossil-fuel based economy has provided the opportunity for producing enormous amounts of goods and material wealth, these same processes have led to a rampant degradation of the natural

environment, including excessive amounts of greenhouse gases in the atmosphere (Spash, 2017). This is the main paradox of the modern growth economy.

When moving away from fossil energy, the same level of energy use cannot be maintained. This is because renewable energy production necessitates large inputs of raw materials and energy. When compared to fossil fuels, renewables have a lower energy return per energy unit used in the energy production. In addition, many of the raw materials needed to produce the components accompanying a transition to renewable energy are not abundant, and they are often extracted under problematic social and environmental conditions, mostly in the global South, but increasingly also in the global North (Kröger, 2016a). Another important implication of a shift to renewable energy is that many 'climate solutions' simply shift the problems to other environmental areas, which creates socioecological consequences for communities in those areas. For example, large windmill parks degrade the local natural environment, especially through the construction and road infrastructure needed for maintenance (Dunlap & Correa Acre, 2021). The presence of the windmills might also threaten local species and traditional ways of life (Normann, 2020). Constructing windmills is not carbon free, as large amounts of concrete are needed for the construction. The production of biofuels is another problematic example of renewable energy as the production of the raw materials needed for biofuel often requires the establishment of plantation style agricultural production. In many places, like Brazil, these plantations are carved out of existing forest areas (Kröger, 2021). This deforestation, in addition to reducing the biodiversity in the affected areas, can reduce food security as the producers focus on the production of fuel rather than food (Kröger, 2016b). As these examples demonstrate, industrial renewable energy is often wrongly labelled as 'clean' or 'green' energy. As with all (industrial) production processes, there are serious social and environmental side-effects in the communities where renewable energy projects are located. Thus, the focus should not be on shifting the source of energy, but on reducing the total use of energy and raw materials (Smith, 2020).

The first law of thermodynamics, which is a basic law of physics, is also called the law of conservation of energy and materials and it has serious consequence for Earth's living system. Thermodynamics is the branch of physics that addresses the qualitative transformation of energy and materials. Understanding this law is vital to understanding the energy-related challenges of energy transition. Energy is the capacity to exercise mechanical work. Although energy, like materials, cannot disappear, it can be converted to forms that are unavailable for human use. Fossil energy has a unique density and a high capacity to carry out mechanical work. However, this energy source can only be used once for such purposes, after which it dissipates. Unlike materials, energy cannot be recycled. In this respect, all transformation processes are characterised by irreversibility (Georgescu-Roegen, 1971).

One implication of this law is that an absolute decoupling between economic growth and environmental load is impossible since efficiency cannot increase eternally. There is always a minimum amount of resources and energy inputs that are needed in a production process, and some waste will always be produced. Thus, the environmental load of production processes cannot be completely removed. Another implication of this law is that innovation cannot unilaterally 'save us', as every new production technology comes with its own side-effects, e.g. new waste products. Further, beyond each separate transformation process that is related to producing a good, there are also similar processes related to the energy and material resources used as inputs to the production process. The inputs must also be generated or extracted, which requires the use of energy and material resources, which will create waste products.

Economies, at their most fundamental level, are embedded within the biophysical systems of the earth. One could say that the economy is bounded by the limits of the biophysical because it is biophysical. All economic activities or transformation processes (like the industrial activities described above) require an input of resources and energy to make products. In addition to the manufactured products, the production process generates waste. It should be noted that not all waste products are equally problematic, and some of them can become side-streams and by-products, such as wool, which in many countries is a by-product from meat and/or cheese-production. Whether or not the waste products from an industrial process are problematic depends on the type, amount, and concentration of the waste. In general, biological waste can be more easily assimilated through natural

processes than synthetic waste. However, even biological wastes can be a problem when they are introduced to the environment in high concentrations. An example is the large amount of whey disposed of by most European dairy farmers, which while an effective fertilizer, requires special management in some regions because of its high saline content (Prazeres, 2012).

Wool inputs and outputs

Wool as a waste product has already been described extensively in this book. However, from an environmental perspective, wool waste should be regarded as a wasted resource instead of strictly a pollutant. Unlike other industrial by-products, it needs to be deposited in huge amounts to create an environmental problem. Hence, wool waste is a slightly different kind of waste than the wastes described and problematised within a biophysical economy perspective. It is a biological by-product of meat production, which only becomes wasted when it has low economic value in the global market. However, the viability of utilizing the wool that is a wasted product needs to be assessed based on the energy that is needed to manufacture that wool. Thus, it is not such a straight-forward resource or pollutant. One must assess the total impact of the transformation processes and the required use of resources along the value chain to convert wool to textiles or other types of materials.

Many of the transformation processes associated with the wool value chain (e.g. animal husbandry, shearing, scouring, carding, spinning, knitting or weaving, cutting, sew, and a slew of other processes including dyeing) require high amounts of resource and energy inputs and produce different types of waste. There are many resource intensive processes that must take place before the wool is even ready to be refined. The breeding and rearing of live animals require the use of agricultural machinery and other inputs, regardless of whether the sheep feed from rangelands, fields, and pasture or from imported feed stock. Energy is also used for the transportation of sheep or feed. The scouring of the wool involves many inputs, such as warm water and chemical cleaning agents, resulting in the by-product lanolin which can either go to waste or can be further processed. If the wool is dyed and/or bleached, this involves the addition of further chemical treatments.

Shearing, as an activity, can exemplify in more detail some of the resource uses involved. Shearing can be done with scissors and thus with human energy, or with electricity-driven mechanized shearing-instruments. In both cases, the equipment also needs to be produced, which in turn requires energy and raw materials. In addition, the shearers themselves are often seasonal workers from New Zealand or Australia. They are a specialised labour force, travelling around the world to shear sheep, following the different seasons. This means a lot of air travel, and thus dependency on fossil fuel energy sources is high. Other transportation activities are required to move the people and materials to and from the various production facilities, including for yarn-spinning, knitting, weaving, cutting and sewing, transport to and from the store or storage-unit, and finally of course, the transportation of the consumer to and from the shop (or for the delivery to the consumer).

One of the few LCA studies that has looked at all stages in a clothing-item's life cycle, analyses a lightweight Merino woollen sweater. It showed that the use of fossil fuel energy was dominant in wool processing, with substantial impacts also coming from retail and garment care. (Wiedemann et al., 2020). In terms of greenhouse gas emissions, the highest impacts came from the wool production on sheep farms, followed by contributions from processing and garment care. Impacts on water stress varied less across the supply chain (Wiedemann et al., 2020). Yet, what is most important with this study is that it shows how the most influential factor in determining environmental impacts was the number of times each garment was used and for how long. Similarly, in another study comparing the best and worst-case scenarios for use and care of a wool sweater, Wiedemann et al. (2021) found that garments reused by one or multiple users increased the lifespan of the garment and reduced its impacts by 25–28% across all indicators. The largest effects came from increasing the number of wears from 109 to 400 per garment, which decreased the environmental impacts by up to 68%. In addition, implementing the best care practices for prolonging the usable life of the sweater resulted in a 75% reduction in impacts across all indicators. Unsurprisingly, worst-case scenarios increased impacts dramatically; for example, using the garment only once before disposal increased the greenhouse gas impacts over 100 times (Wiedemann et al., 2021).

These results clearly indicate that any improvements in energy use and material inputs in the production process will not result in actual reductions of environmental impacts unless the growth of consumption is reversed. This study showed that the wearer of the garments (i.e. the consumers) had the largest capacity to reduce the overall impacts to the environment by maximising the active lifespan of their woollen products. This also suggests that to downscale the production processes, producing quality products that last longer, is very important.

In line with this, we see there is a wide variety among producers in the wool industry, which is highlighted in several chapters. There are those who use biodegradable natural dyes that decompose in water, while others use artificial dyes that cause widespread pollution and even hormone disruption, which can lead to disease (Srivastava & Singh, 2019). In this way, the type of inputs in the production plays a role in the waste that is produced and whether it is problematic or not.

What we want to stress with these examples is that environmental problems emerge as effects of both the specific *structure* and the *scale* of the value chains that make up an economy. For example, different energy systems allow for different kinds of consumption patterns, which in turn lead to different environmental effects. A qualitative difference between agricultural or hunter-gatherer societies and today's industrial economies is that in the former, the provisioning systems were largely locally based, and their energy systems were based on *direct biological conversion of solar energy*. This solar energy served to sustain human and non-human life without the need for external inputs. Arguably, this could be framed by industrialists as a less 'productive' way to power society. Modern, industrial economies are made possible only through the access to external energy inputs, which in this era is fossil energy. Fossil minerals are an energy source that was created through accumulated inflow of the sun to the earth over millions of years, yet the industrial economy has managed to consumer almost all of them within the past 200 years.

Resource use in earlier types of societies provide a perspective for today's economies. Estimates show that industrial economies use between 25 and 50 times more material resources per person per year than hunter and gather societies used (Krausmann et al., 2016, p. 67). When looking at energy consumption, the picture becomes even more stark, as this is several orders of magnitude higher (Simmons, 1989). At the same time the world's human population has greatly expanded. This makes it clear that the human economy is taking up and appropriating an increasingly larger share of the 'ecological space' on earth. This has impacts for ecology, biodiversity, and more generally for living nature. The web of life that supports both human and nonhuman life is often severely threatened long before any absolute limits of resources or energy supply are reached. Furthermore, the constant expansion and conversion of land to support this continued industrialization (i.e. through monocultural agriculture, infrastructure, and the spread of buildings) continuously contributes to shrinking the habitats available for other species. Ecologists generally agree that land-use change is now the most important direct cause of biodiversity loss. Even more importantly, there is increasing agreement that the Earth is entering the 6th era of mass extinction of species, which is the first one caused by human activities (Ceballos et al., 2017).

One of the major problems that even moderate economic transitions face, is that the economy is structured around wage labour intimately tied to the industrial mode of production, which depends on a large throughput of energy and materials. This means that simply maintaining the current production level, without any additional growth of economic activity, demands a high level of resources.

However, this is near impossible to change, because economic growth is at the core of many national, corporate, and intergovernmental strategies for future economic development and societal well-being as we see in United Nation's SDGs.

Problematic social aspects of the current globalized economy

Western material living standards are made possible by an economy based on high energy and materials use, which is fuelled by the exploitation of nature. Yet, this is only one aspect, as modern growth economies are not only exploiting nature; they are also socially exploitative (Spash, 2021). This can be observed on many levels, particularly in the global textile industry. Since colonial times, international trade has evolved based on unequal economic exchange between the global North and South. The globalization of production in the textile industry has been known throughout history for

its exploitative and unsafe working conditions in garment factories. This is a structural issue that has caused consumer boycotts and protests, particularly since the Rana Plaza collapse in Bangladesh in 2013 (Korica & Bazin, 2019). While some corporations have sought to tackle these issues with improved ethical standards (Arrigo, 2013) and social auditing of factory compliance, to date such actions have been rather toothless in improving the exploitative conditions in global textile supply chains (Reinecke & Donaghey, 2020). Instead, elite interests continue to override the voices of marginalised victims in negotiations to create fairer systems of global trade (Chowdhury, 2017). An example of is discussed in detail in Chapter 2, as there is the danger that comparing products based on their environmental impacts further contributes to destroying local industries in both the global North and South.

Western living standards have been referred to as a modern ‘imperial mode of living’ (Brand & Wissen, 2021) since they are based on an unproportionally high share of global consumption taking place in the global North. This includes consumption of products and resources, but also of so-called ‘environmental sinks’. Rich countries are importing cheap goods from poorer countries, and they also outsource the pollution caused by production and waste treatment. This situation is made possible due to the underlying structures of colonialism and colonial land relations that continue to this day, which enables the polluters of the global North to outsource their waste including hazardous waste to rural and indigenous communities in the global South (Liboiron, 2021). These injustices are key to many environmental and social conflicts worldwide and are central to the fight(s) of the global environmental justice movement (Temper et al., 2018). Textiles are not an exception, and while this export is seen as ‘gifts’ from the global North and as an important contribution to the idea of the circular economy, the global second-hand textile-market is already beyond capacity. More than 100 000 tons of used textiles are collected yearly from the Nordic countries alone and around three quarters of these end up on the global markets (Watson et al., 2016). Currently there is no technology or recycling industry ready to utilise the textiles not suitable for reuse (Watson et al., 2020).

The prevailing economic growth model in countries throughout the global North is premised on extraction from the global South (and increasing also from the global North, see Kröger [2016a]). Thus, addressing these issues properly goes far beyond national redistribution. Any serious attempt to move the economy towards more sustainable and just production models must include considerations about the fundamental workings of the current globalized economic system. That is an economic system that is built on growth and exploitation, which does not account for its biophysical limits and its direct effects on marginalized communities

It is these interlinked externalized environmental and social costs of the globalized textile industry that has enabled an exploding production of cheap, low-quality products that do not last. Fast Fashion is a prime example of this development. Hence, even the claim that modern, industrial, and global economies have provided the richer segments of society a higher material living standard, can be contested in many respects. It is difficult to claim that we are more well-dressed or more content with our outward appearance than we were 20 years ago (Klepp & Laitala, 2015), but consumption of resources has doubled (Ellen MacArthur Foundation, 2017). In addition, while there is evidence that satisfaction and happiness increase with increased wealth, but only to a certain level before the increase flattens (Easterlin, 1995). Change is urgently needed in how we produce, consume, and relate to our clothes and other textiles, but this change must be accompanied by the right actions, insights, and strategies to avoid replicating past mistakes.

The Inadequacy of Political Responses

Addressing the problems related to the current globalized economic system, which is built on growth and exploitation, is far from the agenda of today’s politicians. Instead, the dominant political position is to prop up the growth economy at all costs. As the unavoidable environmental problems are becoming increasingly clear, the prevailing idea of how to tackle these issues is to provide ‘green growth’. The dream of green growth is that by a combination of innovation and more efficient technologies, we will be able to decouple the level of production from the amount pressure and load placed on the environment. This is not really a new idea as it was already presented during the establishment of sustainable development in the late 1980s. In 1987, the Brundtland Report

(Brundtland et al., 1987), proposed that old ideas about economic growth, which is growth that came at the cost of the environment, should be left behind. Instead, the new idea was to ‘change’ the content and type of growth. Ideally, this would mean aiming for immaterial growth, through a structural change in the economy, from industrial production to more services. However, what actually happened, was that richest countries did not procure fewer industrial products, but instead outsourced these sectors to poorer countries, and simultaneously added more procurement of services (i.e. restaurant visits, tourism and yoga classes) on top of the previous procurement.

These changes can also be seen in the textile industry, which quickly out-sourced from the global North to the global South, as a result of the introduction of both free trade for fibres (Scheffer, 2021), and increased requirements for environmental control of textiles produced in many places in the global North. However, these same strict requirements did not apply to imported goods. In Chapter 3 we showed how this impacted Polish wool. A similar description for Norway is found in the article *Nisseluelandet* (Klepp & Laitala, 2018), which describes why parts of the wool industry could not be outsourced and managed to survive the onslaught of cheap imports. Both family-owned businesses steeped in tradition and the distinctive market in Norway for knitting-yarns and woven woollen fabrics for the Norwegian national costume, the ‘bunad’, contributed to this situation, as described in Chapter 1.

There are no signs of people in richer countries reducing their basic material consumption, rather the opposite. They are simply buying more services in addition, with higher income and cheaper prices for items like those that broadly constitute Fast Fashion. Hence, empirically, there is no sign of either ‘changing the content of growth’ or of global decoupling (Haberl et al. 2020). Based on the previous explanation about the basics of the biophysical economy, this is not surprising. Production needs raw materials and energy inputs and produces waste, no matter how innovative or efficient the industrial processes become. In Chapter 2 we pointed to the report by the Biomimicry Institute which underlines that the side-streams and waste from any industry are either a pollutant, a nutrient, or both; alongside the fact that so many of the many finishing processes in the textile industry, even for natural fibres, result in toxic chemical outputs.

In recent years, governments and interstate systems of cooperation have created several policies to find ways of addressing the dire consequences for the environment through strategies of green growth. First, to tackle the issue of climate change, there has been a push for new innovations and subsidies that enable the transition from fossil to renewable energy sources. The underlying assumption of this strategy is that if industry and society could manage this transition, then economy could continue as before. However, as argued above, renewable energy production is not without its own set of problems.

Another addition to the green growth agenda is the idea of creating a circular economy that seeks to address the challenge of the current and expected future shortage of a range of material resources. The main argument for implementation of a circular economy is that current rates of recycling are very low. What needs to happen is a shift to reusing products to a larger extent (through e.g. repair), coupled with a push to recycle much more material. Various proposals already exist in many countries for recycling a larger amount of the material resources circulating in the economy, while ideas for reusing and reducing material input to the production phase is explored by companies and researchers.

While, for most people, it is intuitive that there cannot be endless growth in a finite material world, the concept of a circular economy is thornier. The notion itself hints at system based on biological cyclical processes that endlessly renew themselves. It also suggests that products and by-products from manufacturing processes, which would otherwise be ‘wasted’, can serve as a source of economic growth by reusing, remaking, and recycling. In practice, industrial or other human-led production is much more energy intensive than nature’s own production (Giampietro, 2019). Given that materials in small amounts are hard to recover from products, recycling requires a lot of energy, and materials eventually lose their properties, thus, reduced energy and materials use is the only way forward. Intensive industrial energy production and the continued growth of economies are not challenged within this paradigm. Instead, the circular economy serves to legitimate the growth economy by suggesting that all ‘waste’ can be eternally circulated as materials for production (Valenzuela &

Böhm, 2017). This way of thinking about sustainability does not question the amount of materials and energy that circulate in the system, nor does it account for the environmental impact caused by the extraction of these resources.

Related to the circular economy is the notion of the ‘bioeconomy’, which has been presented as the solution to replace non-renewable fossil materials with renewables sources (e.g. a move from synthetics to cellulose fibres in clothes). A key aspect with the bioeconomy is whether the production is based on non-renewable, and hence exhaustible, rather than what are presented as renewable sources of energy and materials. In this respect any fossil-based supply chain (e.g. plastics) by definition has a more detrimental starting point than a biologically based supply chain (e.g. wool). However, while the move towards a bio-based economy can appear to present a solution to the concurrent crises of the 21st century, on deeper inspection it is apparent that for example viscose sourced from monoculture industrial tree plantations will require a high amount of water, chemicals and energy input in order to be converted into textiles (Ehrnström-Fuentes, 2019). That said, while both the circular economy and the bioeconomy have the potential to be part of the solution, neither should be blindly implemented without embedding the solutions on the ground. Although, the basic raw material of the value chain is biologically based, the rest of the supply-chain might be just as resource intensive as synthetic production, if based on e.g. long transportation, heavy machinery, or high energy use. In addition, the prospect that we would substitute our current consumption of plastic products with an equal consumption of products made from natural materials like wood, fundamentally misses the point, which is a reduction in overall consumption. To simply change our current plastic consumption to wood as a ‘green’ solution, obscures the reality that deforestation would increase, or large tracts of land would need to be dedicated to plantations to support the increased wood production.

The latest ideas within this mode of thinking have been the various proposals for a Green New Deal (GND), which aims to address simultaneously concerns of climate change, economic stagnation, and unemployment (Smith, 2021), by promoting a combination of state intervention and investment to accelerate the sustainable transition while also creating jobs (note in the policy documents this transition is sometimes referred to as a green transition). The discussion surrounding EUs Product Environmental Footprint (PEF), discussed in Chapter 2, is a component in this type of policy-work.

A problem with all these new paradigms or ‘solutions’ to the environmental impacts of the current economic system, is the lack of realism in addressing the current environmental crisis and a lack of respect for the basic laws of physics (i.e. the thermodynamics elaborated earlier) and biology. Understanding energy is important to understanding both the key enabling factor and the deep challenges of modern, industrial economies. A transformation of our energy system needs to take into account the extent to which our modern, industrial economies are enabled by easy access to cheap fossil energy. While at its core the production of wool is based on solar-fuelled biological processes, the actual manufacturing processes that convert wool to textiles will still need to detach itself from much of its industrialised input and globalised ancillary services to reduce its dependency on fossil fuels and to become more aligned with the biophysical reality of Earth’s living system. Taking the biophysical aspects of the economy seriously will also make it clear that an economic system is completely unsustainable if it promotes limitless economic growth via unlimited raw material extraction, material consumption, and waste releases (Ergene et al. 2020). Hence, there is a need for a deep transformation of the whole economic system. However, how to enable deep transformation described above is still a highly debated topic.

The Need for a Deep Economic Transformation

The implications of the biophysical understanding of the economy as outlined above, is the need for a radically transformed economy, one that sets limits to growth. One of the difficulties is initiating this type of change is that it must be done from within the system that is in need of change. That is, capitalist societies depend on economic growth to avoid recession and the associated problems (e.g. increased unemployment, social unrest). While this problem seems intrinsic to capitalist dynamics, socialist economies might be more flexible as there is often not as direct a need for return or profit on

all investments, although historically socialist countries have also pursued growth and wealth accumulation. Socialism which has been considered the main alternative to capitalism for the last century or so, has also not fared well in terms of environment or justice. A question that remains is to what extent true sustainability, which respects the biophysical limits of Earth, is possible within either of these systems, or even within economic systems that rely on a mix of elements from these two systems (e.g. the Nordic Welfare State). To make things even more difficult, the globalization process itself has transferred a lot of decision-making power to global corporations and stripped national governments of their capacity to regulate business conducted beyond their own jurisdiction (Scherer & Palazzo, 2011). These factors and many more, suggest that traditional politics between the left and right within the nation state system may not provide answers on how to enable the kind of deep transformations needed to change the rules of the game.

In recent years, a range of social movements and scholars have urged for the transition to new, alternative economic systems that give primacy to social, ecological, and subsistence concerns over the primacy of profit maximization and growth (e.g. degrowth, commoning, *buen vivir*, and post development). Anthropologists, like David Graeber (in Sahlins, 2017 [1972]), have argued for learning from historical systems (e.g. tribal economies, primitive communism, or medieval peasant economies), and combining the positive elements in an attempt to develop something new, appropriate for the challenges and values of modern times. Already in 1944, Karl Polanyi (2001) explained in his landmark book, *The Great Transformation*, how market culture in the seventeenth through nineteenth centuries gradually replaced kinship, custom, religion, morality, and community to become the primary ordering principle of society. He pointed out how all economies prior to market capitalism were socially embedded in their context and “organized either on the principles of reciprocity or redistribution, or householding, or some combination of the three” (Polanyi, 2001 [1944], p. 57). It is this transformation that must be reversed to align the economy with Earth’s living system. There is also a well-explored body of knowledge on alternatives that draws on ecofeminist (see e.g. Salleh, 2009) and indigenous (Kuokkanen, 2011) perspectives of economies as an integrated part of the socioecological life in the community.

Yet, while these more philosophical debates are valuable in that they may be able to help birth new imaginaries and explain alternative economic thinking, they still provide limited understandings of how change that take us in this direction can occur. More grounded examples of community economics from across the world show how civil society actors through ‘grassroots innovations’ (Seyfang & Smith, 2007) have skilfully organized themselves to intervene in globalized production and consumption patterns, in order to localize and ‘take back’ (at least part of) the economy from global capitalist markets (e.g. Gibson-Graham et al., 2013). Such examples provide valuable insights to how at least some degree of change (if not system change) can happen from the grassroots level, when people with common interests or concerns come together to enact change ‘from below’ (Misoczky et al., 2017). Chapter 5 provides some relevant examples, and in the rest of the chapter, we will discuss how to understand the emerging wool economy, its sustainability and limits, from such a grounded perspective, where grassroots actors come together to initiate change. We start by re-focusing our attention on the potentialities in place.

The Integral Part of Place in Creating an Alternative System

In the creation of local alternative systems of production and consumption, everything starts with and in place (Ehrnström-Fuentes & Leipämaa-Leskinen, 2019). The available technologies and infrastructures as well as place-based normative frameworks and inherited or acquired competences will influence the ways through which people interact and create alternative solutions to the global system of trade (Ibid.). Thus, all local initiatives that emerge from specific places are imbued with specific socio-ecological and socio-technological meanings and relations, which makes them ‘place-based’ (Vanclay, 2008). However, theories on entrepreneurial ventures do not often account for how place plays an intrinsic role in the sustainability performance of an organization (Shrivastava & Kennelly, 2013). In fact, social theories overall do not usually integrate the crucial role of place, as an agentic force that shapes the creation of economic systems, cultures, environments, and the daily lives

of the people (Escobar, 2008). Thus, we need to pay attention to place in order to understand how local wool economies emerge.

Burgess and White (2019, p. 49) write on the power of place in the making of California's Fibershed:

From my hands-on learning journey. . . I learned about textile making that was, for the most part, not reflected in today's industrial economy. Instead I found geographic pockets of time-tested indigenous practices and approaches towards textile making that existed symbiotically with ecosystem health and function. In Northern California, for example there is a thirteen-thousands-year-old (some say longer) history of weaving with plant species such as willow, hazel, deer grass, sedge, and many others. Baskets in this region are created for all types of function—watertight vessels for food, cradle boards to carry babies, and burden baskets for harvest. . . With their intricately woven design and sturdy structure the Californian baskets embody an ecological code of conduct.

Kuokkanen (2011) has noted how these inherited and symbiotic relations between people and place are the cornerstone of Indigenous economies and an entirely different economic system that is not centred on exchange for profit and competition, but on the sustenance of individuals, families, and the community. As Kuokkanen (2011, p. 219) explains:

The key principles of indigenous economies—sustainability and reciprocity—reflect land-based worldviews founded on active recognition of kinship relations that extend beyond the human domain. Sustainability is premised on an ethos of reciprocity in which people reciprocate not only with one another but also with the land and the spirit world. Indigenous economies are thus contingent upon a stable and continuous relationship between the human and natural worlds. Individuals and communities acquire special knowledge, skills, and a complex understanding of. . . the local environment through their various subsistence activities.

Yet, many of these local knowledges are either on the brink of going extinct or can only be found, with some luck, in museums and history books covering local artisanal practices. As Burgess and White (2019) point out, these traditional ways of weaving and producing textiles through such a symbiotic relation with place exist only as small pockets in today's modern consumer societies, often mixed with capitalist markets. Kuokkanen (2011) also notes how these economic activities at present exist side by side with the market economy as "mixed economies" characterized by a mix of subsistence, commodity production, wage labour and entrepreneurial activities. Thus, the industrialization and globalization of the textile industry has left most local communities across the world without the crucial infrastructures and competences needed for a well-functioning and flourishing local economy. In fact, if the whole circle of infrastructures associated with the soil-to-soil processes of the material flows that circulate in the wool economies (Burgess & White, 2019) is to work smoothly, there are many parts of the puzzle that will need to literally be put back in place. Hence, what is needed is a directed effort to localize all the different processes that go into the making of wool fibres, yarns, textiles, and garments through the whole chain from production, to process, to consumption. This kind of re-localization effort of production-consumption is a well-known phenomenon in the agri-food sector, which can serve as a proxy to understand the processes involved.

Localizing Economies—Experiences from Alternative Food Networks

Within the debate on the sustainability promise of local food systems, the general perception is that by re-embedding food production in the local sphere and by reconnecting producers with consumers, it is possible to improve a host of problems associated with long supply chains and the corporate-driven conventional food system. For example, it is suggested that such local systems can increase farmer incomes, build communities, provide healthier foods to consumers, increase the sustainability of farms, and reduce carbon dioxide emissions and energy used (Forsell & Lankoski, 2016). Yet, as many critics have warned such simplifications risk conflating spatial relations with desired outcomes, rather than examining the actual consequences of localization (Born & Purcell, 2006). Some have even pointed at the dangers of solutions that practice a type of 'defensive localism' in which the local

economy is driven purely by the self-interests of local elites rather than by some socially just and sustainable ideals (Hinrichs, 2000; Winters, 2003).

Recent debates have increasingly acknowledged how pre-existing infrastructures and structural inequalities prohibits the development of systems that would include the concerns of disadvantaged and marginalized groups (DuPuis & Goodman, 2004). They also point at the challenges of assessing the ecological impact and energy use in localized systems of production, transportation, and consumption, as these are “as reliant on fossil fuels as are long distance foods” (Mariola, 2008, p. 193). Others have pointed at the dangers of equalizing local with some simplified definitions (e.g. distance travelled, see Trivette [2015]), or representations of a particular place, (see Bowen and De Master [2014]) as it does not give room for “a deeper holistic description of local processes, voices, and landscapes (natural, cultural and political)” (Delind 2011, p. 280). There is also a danger of juxtaposing local and global as dichotomies when most systems are hybrid and include components and influences from both sides (Mount, 2012). For example, many producers sell to both local and conventional markets, just as most consumers purchase from both (Mount, 2012). The material conditions (e.g. machinery) for local solutions are also shaped by global markets. In essence, what these debates show is that the outcomes of localization involve many different actors with various interests, and they are shaped by the existing (infra)structures and inequalities of the globalized and industrialized systems of trade

What is also noteworthy is how the research on local food systems often evaluates their success and failures based the triple bottom line (TBL) of social, environmental, and economic sustainability (Maxey, 2006; Galt, 2013). The TBL framework originally developed for global corporations’ sustainability reporting with the base function of communicating how their environmental and social impacts could be integrated to the bottom-line, based on a win-win logic (Elkington, 1994). While it is true that most local market-based systems will have to sustain a certain degree of profits to stay in business, it is worth keeping in mind that the TBL framing does not describe deeper processes of change that seek to alter the mal-practices of the current system. In comparison to the conventional industrialised system, which seemingly has everything rigged in its favour (e.g. competitive advantages, ready-made efficient logistical solutions, cheap labour, regulations that favour large scale solutions), these alternatives may appear as unsustainable when assessed based on metrics designed for the global system. Such framings do not account for the nuances of what is taking place, on the ground, or when people engage in setting up alternative systems respectful of Earth’s living system.

This is also true for local wool economies. Many new local wool ventures emerge from a different logic than that of the industrial corporations for whom the sustainability framework of TBL was designed to serve. Their very *raison d’être* has to do with finding ways to reverse the destructive features of the global textile industry, which is a continuous process of change. Through collaborative and place-based practices grassroots initiatives seek to find alternatives that can heal and regenerate healthy ecosystems and communities (Burgess & White, 2019). Also, many small or micro sized enterprises are managed by entrepreneurs whose primary motive is not about maximizing profits, but their passion for local breeds of sheep, wool fibre traditions, and craftsmanship (Vičiūnaitė, 2020), and their desire to sustain the heritage of the family’s farm despite economic difficulties to make ends meet (see Chapter 1). Thus, to truly understand the localizing efforts of these actors we need to find ways of describing the economy that they are engaged in building in ways that reflect their locally situated reality accordingly.

Hence, what is going on in the emerging wool economies, and the directions they are taking cannot be addressed through conventional economic and sustainability frameworks as they encapsulate not just novel, but also pre-industrial ways of producing and consuming goods. Through their doings, these wool ventures connect that what we wear next to our skin with the living landscape where sheep graze and regenerate grasslands. This means that many of the nuances of what it means to be sustainable needs to be adjusted to the biophysical realities of the living landscape in place. Rather than trying to relate to abstract and inadequate concepts borrowed from the corporate-driven growth-based global economy, we suggest redirecting our attention towards how the living landscape plays an important role in how these alternatives are made.

Living Economies in Living Landscapes

Local wool economies are neither static nor homogeneous, rather they embody a living economy situated in a living landscape composed of myriad interactions of human and nonhuman beings. The story of wool begins long before the fibre is traded and put in the hands of craftspeople to make garments or other objects for sale. In fact, it stems from the domestication of sheep as they learned to live alongside their shepherds, spreading together across the microclimates of the ancient world, adjusting together to different temperatures, precipitation patterns, and terrain (Burgess & White, 2019). Heritage breeds of sheep, for example, are the result of sheep's interactions with humans and the land. These different breeds of sheep produce different varieties of wool that offer different use values according to the properties that they possess (Ibid.). In Chapter 1 we have described some of the challenges with pigmented or indigenous breeds that do not fit the large-scale, industrialized needs of uniformity, but in small-scale production result in gourmet yarns that have found an enthusiastic following among knitters. That the yarns are 'different' has become their forte (Klepp & Tobiasson, 2017).

The quality of the wool itself is influenced by how the sheep are cared for and where and how they have grazed and in what kind of climate and systems of mutual influence between the area in which they have lived, human culture, and animal genetics over millennia. Thus, how humans care for sheep will impact both the living landscape they graze and the fibres in textile products. Examples of this can be found in the intricate relationship between the Old Norse sheep breed and the protection and management of the Heathland areas along the coast of Norway. This vulnerable, resilient, and interdependent system between humans, animals, and place is practiced by most Indigenous people, though for a long time in many places, this has been illegal or impossible. The return of this practice in Australia and California (by Fibershed), and other places, offers hope.

Seeing the emerging wool economy as the result of the living landscape in which it resides allows for adopting an economic view that takes into account these complex and dynamic relations between humans and other living beings. Thus, under the conceptualization of a living economy, the resources of the earth do not exist solely to serve the purpose (and whims) of humanity at any cost. Instead, a living economy is organized in ways that integrate the biophysical aspects and the laws of thermodynamics through the living relations that sustains the whole production process. This is a complete turn from the logics of the growth economy, which as discussed above do not account for these dynamics, rather it treats nature as a reserve of raw materials, or natural resources, that can be extracted for value and returned as waste.

This living aspect of the economy is clearly visible at many sheep farms across the world where wool-producing growers follow principles of holistic planned or Adaptive-Multi-Paddock (AMP) grazing (Teague & Barnes 2017). Also, traditional ways of keeping sheep are respectful of the living landscape in the way that the animals are moved around to graze in different places according to seasons, often called transhumance. Many old and well-developed grazing systems in mountain areas in for example Norway and Poland are organized in a way that animals are taken to the mountains where they can graze on new grass during the summer before the same route is followed back as the high mountains become inhospitable in the fall. These systems depend on common-lands, without fences and where the seasons dictate where the animals graze. Similar practices still exist in the archipelago areas of Finland and Norway, where sheep are taken out to islands to graze during the summer.

Research suggests that such grazing principles, where the farmers or rangers follow nature's own principles can quickly restore the health of ecosystem functions, by enhancing soil health, improving water cycles above and below the ground, while also creating more biodiverse landscapes that sequester a large amount of carbon in the soil (Fenster et al., 2021; Gosnell et al., 2020; Teague & Kreuter, 2020). These regenerative practices point toward a growing trend of acknowledging how particular human-nonhuman relations and the biophysical dynamics of the Earth itself have implications for the material output of the economy (Krzywoszynska & Marchesi, 2020). How people organize together with the living landscape plays a role in reducing the need of external inputs of raw materials and energy. How and what is "cared for" (Puig de la Bellacasa, 2017) in specific ecologies

and human-nonhuman entanglements (e.g. human-sheep relations) will have material (and potentially regenerative) effects on the living landscape

Yet, equating the local wool economy with regenerative practices, risks being led into the trap of assuming that just because something is local, it possesses certain desired qualities (Born & Purcell, 2006). As Burgess and White write, the standard management scheme on most of the world's ranches and farms is still continuous grazing, where "livestock are allowed to disperse uncontrolled across the same pastures day in and day out year after year, eating their favourite plants down to the ground ignoring less well-liked ones, which cause severe damage to the land" (p. 88). Such short-sighted land management practices leave behind "the degradation of soils, long term declines in plant productivity, decreased biological diversity, a negative impact on farmer income and an overall reduction in the resilience of the system" (Ibid., p. 89). Thus, there is also a danger that instead of bringing about deeper transformative changes to the economic realm, localization initiatives that are not premised in regenerative practices could transform 'nature' into labour that serves to sustain the growth economy without questioning the exploitative relations it upholds (Krzywoszynska, 2020). Such accounts of local wool risk painting an idealized perspective of a living economy, and do not actually describe the deeper transformative processes involved in the creation of a healthy regenerative system that nurtures diversity and complexity (Wahl, 2016).

An essential question is how to match what is locally consumed with the potentialities and limits of the living landscape in a way that does not push for more growth. One major difference between the local food economy and textile fibres, is the community's need for food may be easier to pair with the seasonality of available products. However, this view is ignoring the fact that natural fibre production is very much tied to seasons: The wool is sheared in the fall, when flax was also harvested. In pre-industrial Norway the weaving loom was set up after Christmas, and the finished textiles bleached and laundered in the spring. The major difference is that the timespan for making the textiles from natural raw materials are much longer and could last more than a year. Food is also perishable and does not have the long and complicated use and after use phase (Fletcher & Vittersø, 2018).

Local food traditions and household cooking are still, at least to some degree, embedded in the ecology of place. This also creates an understanding or guidance about what kind of food products can be consumed within the biophysical limits of the community. In addition, the energy from solar fuelled 'overproduction' at the farm can easily be returned to the soil as compost. Such, farm-level overproduction does not increase the use of fossil energy and does not worsen the biophysical load of the economic activity. This means that alternative food researchers have not always been outspoken about the need to also 'degrow' the economy and its associated activities, as what is produced is converted into food for people or the microbes in the soil, and as such is not 'wasted' energy. Thus, instead of debating how to reduce the overall level of consumption, the food debate has been more concerned about the issues of accessibility and justice when trying to get people to eat 'real' or 'good' food instead of industrially processed 'junk' (for a critical view see Guthman, [2008]). And while food-waste has been increasingly targeted, the 'wasting' of textiles has received little policy attention.

The above-described differences in the situation for fibre production are fuelled by designer houses and the fashion industry's luring temptations of short-sighted whims. The whole textile industry is built on a system wherein people seem to have lost touch with how their clothing relates to the living landscape, the enormous distances their garments have travelled, and all the hands that have dedicated their time to fashion them. Thus, if we are to transition away from the whims of Fast Fashion and re-embed all aspects of the production in the place-based biophysical economy, the central question is how to shift production so that it prolongs the lifetime of each garment and meets the real needs of the community. Without a clear vision on what and how much should be produced, the risk is that localization worsens the effects on the biophysical economy. This will be further explored in Chapter 7. In fact, under localization, energy use might actually increase per single unit produced, due to the need to break with the optimization of production and economies of scales. Furthermore, local wool entrepreneurs have been tied to specialized and luxury products for global markets (Amarilla et al., 2020). While such production of wool luxury products may sustain traditional practices, it does create problems associated with social justice and accessibility and does not necessarily replace Fast Fashion

items in a typical wardrobe. So how then are we to understand sustainable change in these place-based living economies?

Creating Sustainable Change Through Collaborative Efforts

In the sustainable transitions literature, new green solutions are assumed to emerge as a result of (state-subsidized) new technological innovations (Schot & Geels, 2008), the market-forces, or by consumers demanding greener products (Stolle & Micheletti, 2013). However, such assumptions should be handled with caution. There is the problematic issue of technological fixes that require more material extraction from Earth and a greater use of energy. Furthermore, to date, technological innovations that would contribute to the re-localization of the textile industry and wool production have not been supported by state subsidies, rather the contrary as wool from local sheep farms within the EU are categorized as by-products and end up as waste, and thus may become ineligible for agricultural subsidies.

Furthermore, due to the undervalued status of local wool, it is common that many wool ventures are not (at least initially) motivated by hopes of an increase in demand and profits. Although it is clear consumers are becoming increasingly aware of and concerned about the socio-ecological footprint of their clothing habits (Pookulangara & Shephard, 2013), such awareness is not necessarily translated into action (Carrington et al., 2010). Thus, to state that change in consumption habits act as the driving force of the (re)localization processes is probably quite far from the truth in most places. Just as with the pockets of local wool knowledges that remain stored in the deposits of local memories in specific communities, so too can local wardrobes be found in small circles of very engaged citizens (see Burgess & White, 2019) or in the few Indigenous communities whose self-sustained land-to-clothing practices remain intact despite the forces of globalization.

Perhaps the clearest picture of what is going on is in the geographic pockets where local wool economies are already emerging. Traditionally, the organizations that are suggested to shape the economy are those with clear boundaries between the inside and the outside, and these boundaries are established through legal certificates that give them the legal status of being, for example an entrepreneur, small business, or a corporation (Czarniawska, 2018). The driving force of change and innovation in these types of economic organizations is profit and competition as firms seek to appropriate the benefits of innovation to move ahead of competitors to capture market rents (Schumpeter, 1961).

Yet, the emerging wool economy is nothing of the sort. The wool entrepreneurs typically start their business with other base motivations. Such motivations may include making use of wool that otherwise would be wasted, reducing reliance on large scale global supply chains with dubious certification schemes, recovering lost traditions of craftsmanship, and rescuing heritage breeds from becoming extinct (this is described in more depth in Chapter 1 and 2). No matter the primary motivations of the individual entrepreneurs, the economic logics that underlie the market-based system still create difficult trade-offs that entrepreneurs make to stay in business within the dominant system. To overcome these trade offs, many of the activities within this sector are based on self-organized collaboration among a disparate set of both formal and informal organizations (e.g. entrepreneurs, activists, knitters, and persons who have this as a side job or a hobby).

The products are also likely to be more expensive to cover higher costs (as these producers are not participating in the globalized system of trade built on cheap labour), which can make it difficult to provide goods at a 'fair' price that is accessible to the consumers. Thus, for these processes to be both just and sustainable, they will also need to include some form of planned strategic direction that breaks with the injustices of the current system of trade, while creating a wardrobe that is aligned with the living landscape in place, its natural seasonal processes, weather-patterns, and the socioecological and climate impacts. A 'reflexive' (re)localising process (Dupuis & Goodman, 2005) should start from the fundamental question of how the local wool economy can contribute to a good life for all members of the community. Thereby, the question that emerges is how the relationship between the price and lifespan of the product, as well as the additional socioecological benefits that are produced,

can be communicated to the consumer. Another central question to be asked in these discussions is how to design products with local materials that are durable and adjusted to the climate, while also attractive to wear. These are questions that we will return to in Chapter 7.

The key to overcoming the barriers to a just transition might go through the development of ‘co-creative spaces’ and other systems that are built around already produced apparel. An example of an apparel system that is produced and maintained in cooperation between producers and consumers is discussed in Chapter 5. We see an increased interest in repair among artists, activists and consumers (Klepp & Tobiasson, 2021). Even the industry itself has discovered that their customers are something more than just sources of potential profit. These changes in practice include new meeting-places (e.g. community Fab Labs for clothing) and internet spaces in which shared learning takes place, but also new business models with an emphasis on repair and maintenance (Ibid.). There is a lot of enthusiasm and new ideas about these topics. Yet, as these practices that are not considered ‘economic’ because they do not contribute to the growth of GDP have not garnered support from policy makers (e.g. handicrafts produced for households, or the praxis of repair in households with or without help from the producers) (Klepp & Haugrønning, 2021). Despite their current non-economic status, these practices have very tangible impacts on locally produced wardrobes.

In Chapter 5, we have described many such local initiatives, such as the ‘*Tingvoll*’ sweater, a communal endeavour based on a ‘*dugnad*’¹ among local enthusiasts with a common wish to showcase locally anchored clothes and better use of wool from local Old Norse sheep. The aim is that the production will garner a surplus for the local sheep farmers and local producers, but there is also value in the communal cooperation for developing beautiful products. The very close cooperation between the farmers, mill, and knitters is the very basis for the local anchoring such an initiative can garner.

Finally, a note on the role of online communities that act in support of these place-based collaborative efforts. Escobar (2004, p. 4) points out how anti-globalization movements are “strengthened by the self-organizing dynamics of the new information and communication technologies (ICTs)”. This is also relevant for the emerging local wool economies, as their activities are not just rooted in place, there is also a lot of shared learning that occurs through global communities on social media (e.g. Fibershed, online-community groups, the Ravelry discussion forum), paradoxically underpinned by the corporate, digital economy. Some even suggest that the Internet fuels many of the activities associated with local wool economies (Hudson, 2010). The shared knowledges in these online communities help local actors become inspired and find solutions to the problems that arise as they seek to put everyday wardrobes back in place.

Conclusions

In conclusion, there are three main points that come out of this reflection on the urgent need for deep transformations of the globalized textile industry dominated by Fast Fashion and growth logic, and the emergence of a local wool economy.

First, the local wool economy does not by itself challenge the global Fast Fashion industrial complex built on economic growth. To truly dismantle the structural problems of the growth economy, there needs to be much more structural support from society at large. This includes the development and adoption of governmental policies, which are aimed at a true attempt at degrowing the economy by supporting small scale local solutions wherein materials circulate from soil to soil mostly via solar energy. A wide-spread social movement is also needed to push for change in consumer’s fast-fashion addiction (e.g. similar to the flight-shaming campaign in Sweden that has had a notable influence on travel-behaviour in the population).

Second, the inherited injustices between the global North and global South will not ‘go away’ just because the global North relocates its production/consumption and its environmental impact to its own backyard. The question remains of how to support the workers attached to the global industry for

¹ Norwegian expression about community work

wool, so that they can also sustain their lives in place-based economies. Social injustice and the divide between rich and poor will only grow greater if their income is stripped away. It is clear that also in these communities, there is a need to take back the economy to build local economies around locally sourced solar-fuelled materials. To tackle these injustices requires a much broader approach to social change than just changing consumption/production behaviours and policies. There is a need for an environmentalism that builds alliances between the global North and South and truly challenges the colonial legacies and land-grabbing that the global economy relies on. Presently such debates are not given much attention in the debates on the need to re-localize wool production, but there is a need to build such networks or connect to already existing ones (e.g. the global Food Justice Movement organized through La Vía Campesina).

The third conclusion comes back to the promise of the agency that resides in place and self-organized collaboration. New economies that break with the current logics of the growth economy do not emerge 'from below' by chance. They require hard work, strategic planning and visions, collaborative efforts at multiple levels and scale. Therefore, in order for these types of collaborative efforts to move towards a common goal in the long term, they also need the support of meta-organizations such as for example Fibershed. Also, other enterprises that manage to engage and create networks can play such a role, for example Selbu Spinning Mill's engagement with the local community (Lennon, 2017) and Tingvoll Wool, mentioned above. These networks connect disparate actors and create an overarching narrative of an alternative logic which enable the actors to work beyond the market logic. It is through such connections that alternative forms of organizing can overcome the barriers to change by replacing self-interest and competitive mind-sets with shared learning and collaboration.

Although it is clear that these new ventures need to be assessed based on their biophysical and social impact, we also must be mindful that trying to break with old systems does not happen overnight, but is work that is 'under construction', delinking from the old economy happens gradually. Thus, we as researchers and educators that write books about these emerging initiatives have a responsibility in how we assess what is going on in the emergent alternatives and what sustainability means in economic ventures that follow a different logic than that of maximization of profits prevalent in global markets of trade. Focusing on all the nonmonetary benefits and values that these ventures produce can lend visibility and (political and economic) support to all the people who against all odds are doing the hard work of reconfiguring the textile systems from within the place and living landscapes they are part of. We need to care more for the land and each other, which is also manifested as caring for the socio-environmental impacts of our clothes.

References

- Amarilla, R., Gardetti, M.A., & Gabriel, M. (2020). Sustainable Luxury, Craftsmanship and Vicuna Poncho. In M.A. Gardetti and I. Coste-Manière (Eds.), *Sustainable Luxury and Craftsmanship*. (pp. 25-43). Singapore: Springer.
- Arrigo, E. (2013). Corporate responsibility management in fast fashion companies: the Gap Inc. case. *Journal of Fashion Marketing and Management*, 17(2), 175-189.
- Born, B., & Purcell, M. (2006). Avoiding the local trap: Scale and food systems in planning research. *Journal of Planning Education and Research* 26(2), 195-207.
- Bowen, S., & De Master, K. (2011). New rural livelihoods or museums of production? Quality food initiatives in practice. *Journal of Rural Studies*, 27(1), 73-82.
- Brand, U., & Wissen, M. (2021). *The Imperial Mode of Living. Everyday Life and the Ecological Crisis of Capitalism*. London: Verso.

- Brundtland, G.H., Khalid, M., Agnelli, S., Al-Athel, S., & Chidzero, B.J.N.Y. (1987). *Our common future*. New York: Oxford University Press.
- Burgess, R., & White, C. (2019). *Fibershed: Growing a Movement of Farmers, Fashion Activists, and Makers for a New Textile Economy*. White River Junction, VT: Chelsea Green Publishing.
- Carrington, M., Neville, B., & Whitwell, G. (2010). Why Ethical Consumers Don't Walk Their Talk: Towards a Framework for Understanding the Gap Between the Ethical Purchase Intentions and Actual Buying Behaviour of Ethically Minded Consumers. *Journal of Business Ethics*, 97(1), 139-158. <https://doi.org/10.1007/s10551-010-0501-6>.
- Ceballos, G., Ehrlich, P.E., & Dirzo, R. (2017). Biological annihilation via the ongoing sixth mass extinction signaled by vertebrate population losses and declines. In *PNAS*, online 10 July 2017. www.pnas.org/cgi/doi/10.1073/pnas.1704949114
- Chowdhury, R. (2017). The Rana Plaza disaster and the complicit behavior of elite NGOs. *Organization*, 24(6), 938-949.
- Czarniawska, B. (2018). On Meshworks and Other Complications of Portraying Contemporary Organizing. In L. Gårseth-Nesbakk & F. Mellemvik (Eds.), *Dealing with Expectations and Traditions in Research* (pp. 109-127). Oslo: Cappelen Damm Akademisk. <https://doi.org/10.23865/noasp.42.ch7>
- DeLind, L. (2011). Are local food and the local food movement taking us where we want to go? Or are we hitching our wagons to the wrong stars? *Agriculture and Human Values*, 28, 273-283.
- Dunlap, A., & Correa Arce, M. (2021) 'Murderous energy' in Oaxaca, Mexico: wind factories, territorial struggle and social warfare, *The Journal of Peasant Studies*, <https://doi.org/10.1080/03066150.2020.1862090>
- DuPuis, E.M., & Goodman, D., 2005. "Should we go "home" to eat?: toward a reflexive politics of localism." *Journal of Rural Studies*, 21(3): 359-371. <https://doi.org/10.1007/s10460-010-9263-0>
- Easterlin, R.A. (1995). Will raising the income for all increase the happiness for all? *Journal of Economic Behavior & Organization*, 27(1), 35-47.
- Ehrnström-Fuentes, M. (2019). Confronting extractivism—the role of local struggles in the (un) making of place. *Critical Perspectives on International Business*.
- Ehrnström-Fuentes, M., & Leipämaa-Leskinen, H., (2019). Boundary Negotiations in a Self-Organized Grassroots-Led Food Network: The Case of REKO in Finland. *Sustainability*, 11(15), 4137. <https://doi.org/10.3390/su11154137>
- Ellen MacArthur Foundation. (2017). A new textiles economy: Redesigning fashion's future.
- Elkington, J. (1994). Towards the sustainable corporation: Win-win- win strategies for sustainable development. *California Management Review*, 36(2), 90-100.
- Escobar, A. (2004). Beyond the Third World: imperial globality, global coloniality and anti-globalisation social movements. *Third World Quarterly*, 25(1), 207-230. <https://www.jstor.org/stable/3993785>
- Escobar, A. (2008). Territories of difference: place, movements, life, redes. Durham, NC: Duke University Press. <https://doi.org/10.1215/9780822389439>
- Ergene, S., Subhabrata B. B., & Hoffman, A.J. (2020). (Un)Sustainability and Organization Studies: Towards a Radical Engagement. *Organization Studies*, 0170840620937892.
- Fenster, T.L., LaCanne, C.E., Pecenka, J.R., Schmid, R.B., Bredeson, M.M., Busenitz, K.M., Michels, A.M., Welch, K.D. & Lundgren, J.G. (2021). Defining and validating regenerative farm systems using a composite of ranked agricultural practices. *F1000Research*, 10, 115. <https://doi.org/10.12688/f1000research.28450.1>

- Fletcher, K., & Vittersø, G. (2018). Local food initiatives and fashion change: Comparing food and clothes to better understand fashion localism. *Fashion Practice*, 10(2), 60-170.
<https://doi.org/10.1080/17569370.2018.1458496>
- Forssell, S., & Lankoski, L. (2015). The sustainability promise of alternative food networks: an examination through “alternative” characteristics. *Agriculture and Human Values*, 32(1), 63–75.
<https://doi.org/10.1007/s10460-014-9516-4>
- Galt, R. (2013). The Moral Economy Is a Double-edged Sword: Explaining Farmers’ Earnings and Self-exploitation in Community-Supported Agriculture. *Economic Geography*, 89(4), 341-365.
<https://doi.org/10.1111/ecge.12015>
- Georgescu-Roegen, N. (1971). *The Entropy Law and the Economic Process*. Cambridge, MA: Harvard University Press.
- Giampietro, M. (2019). On the Circular Bioeconomy and Decoupling: Implications for Sustainable Growth. *Ecological Economics* 162, 143-56. <https://doi.org/10.1016/j.ecolecon.2019.05.001>
- Gibson-Graham, J.K., Cameron, J., & Healy, S. (2013). *Take Back the Economy: An Ethical Guide to Transforming Our Communities*. Minneapolis: University of Minnesota Press.
- Gosnell H., Charnley S., & Stanley P. (2020). Climate change mitigation as a co-benefit of regenerative ranching: insights from Australia and the United States. *Interface Focus*, 10(5), 20200027. <http://dx.doi.org/10.1098/rsfs.2020.0027>
- Guthman, J. (2008). If They Only Knew”: Color Blindness and Universalism in California Alternative Food Institutions. *The Professional Geographer*, 60(3), 387-397.
DOI: [10.1080/00330120802013679](https://doi.org/10.1080/00330120802013679)
- Haberl, H., Wiedenhofer, D., Virág, D., Kalt, G., Plank, B., Brockway, P., Fishman, T., et al. (2020). A Systematic Review of the Evidence on Decoupling of GDP, Resource Use and GHG Emissions, Part II: Synthesizing the Insights. *Environ. Research Letters*, 15(6), 1-42.
- Hinrichs, C.C. (2000). Embeddedness and local food systems: notes on two types of direct agricultural market. *Journal of Rural Studies*, 16(3), 295-303. [https://doi.org/10.1016/S0743-0167\(99\)00063-7](https://doi.org/10.1016/S0743-0167(99)00063-7)
- Hudson, T. P. (2010). Spin Artists, and How the Internet Fuels the Art Yarn Movement. Paper presented at Textiles and Settlement: From Plains Space to Cyber Space, Textile Society of America 12th Biennial Symposium, October 6–9, 2010, Lincoln, NE.
- Klepp, I. G., & Laitala, K. (2015). His mother’s dress - Growth in the number of clothes. In P. Strandbakken & J. Gronow (Eds.), *The Consumer in Society* (pp. 311-334). Oslo: Abstrakt forlag.
- Klepp, I.G., & Laitala, K. (2018). Nisseluelandet—The Impact of Local Clothes for the Survival of a Textile Industry in Norway. *Fashion Practice*, 10(2), 171-195.
<https://doi.org/10.1080/17569370.2018.1458497>
- Klepp, I. G., & Haugrønning, V. (2021). *Naturgarvet skinn i et miljøperspektiv*.
- Klepp, I. G., & Tobiasson, T. S. (2017). *Strikk med norsk ull [Knit with Norwegian wool]*. Hjemlås, Norway: Vormedal.
- Klepp, I. G., & Tobiasson, T. (2021). *Lettfixs. Klær med ni liv*: Bokvennen Forlag.
- Korica, M., & Bazin, Y. (2019). Fashion and Organization Studies: Exploring conceptual paradoxes and empirical opportunities. *Organization Studies*, 40(10), 1481-1497.
doi:[10.1177/0170840619831059](https://doi.org/10.1177/0170840619831059)
- Krausmann, F., Weisz, H., & Eisenmenger, N. (2016). Transitions in sociometabolic regimes throughout human history. In Haberl H., Fischer-Kowalski M., Krausmann F., Winiwarter V. (Eds.) *Social Ecology Human-Environment Interactions*, vol 5. (pp. 63-92). New York: Springer, Cham.

- Kröger, M. (2016a). Spatial causalities in resource rushes: notes from the Finnish mining boom. *Journal of Agrarian Change*, 16(4), 543-570. <https://doi.org/10.1111/joac.12113>
- Kröger, M. (2016b). The political economy of 'flex trees': a preliminary analysis. *The Journal of Peasant Studies*, 43(4), 886-909, DOI: [10.1080/03066150.2016.1140646](https://doi.org/10.1080/03066150.2016.1140646)
- Kröger, M. (2021 forthcoming). *Extractivisms, Existences and Extinctions: Monoculture Plantations and Amazon Deforestation*. Oxfordshire, U.K.: Routledge.
- Kuokkanen, R. (2011) Indigenous Economies, Theories of Subsistence and Women: Exploring the Social Economy Model for Indigenous Governance. *American Indian Quarterly*, 35(2), 215-240. <https://doi.org/10.5250/amerindiquar.35.2.0215>
- Krzywoszynska, A. (2020) Nonhuman Labor and the Making of Resources: Making Soils a Resource through Microbial Labor. *Environmental Humanities*, 12(1), 227-249. DOI: <https://doi.org/10.1215/22011919-8142319>
- Krzywoszynska, A., & Marchesi, G. (2020). Toward a Relational Materiality of Soils: Introduction. *Environmental Humanities*, 12(1), 190–204. <https://doi.org/10.1215/22011919-8142297>
- Liboiron, M. (2021). *Pollution is colonialism*. Durham, NC: Duke University Press.
- Mariola, M. (2008). The local industrial complex? Questioning the link between local foods and energy use. *Agriculture and Human Values*, 25(2), 193-196. <https://doi.org/10.1007/s10460-008-9115-3>
- Maxey, L. (2006). Can we sustain sustainable agriculture? Learning from small-scale producer-suppliers in Canada and UK. *The Geographical Journal*, 172(3), 230-244. <https://www.jstor.org/stable/3873966>
- Misoczky, M.C., Dormelas, G.C., & Böhm, S. (2017). Organizational Practices of Social Movements and Popular Struggles: Understanding the Power of Organizing from Below. *Qualitative Research in Organization and Management an International Journal*, 12(4), 250-261. <https://doi.org/10.1108/QROM-09-2017-1567>
- Mount, P. (2012). Growing local food: Scale and local food systems governance. *Agriculture and Human Values*, 29, 107-121. <https://doi.org/10.1007/s10460-011-9331-0>
- Normann, S. (2020). Green colonialism in the Nordic context: Exploring Southern Saami representations of wind energy development. *Journal of Community Psychology*, 49, 77-94.
- Prazeres, A.R., Carvalho, F., & Rivas, J. (2012). Cheese whey management: A review. *Journal of environmental management*, 110, 48-68. <https://doi.org/10.1016/j.jenvman.2012.05.018>
- Polanyi, K. (2001 [1944]). *The Great Transformation*. Boston, MA: Beacon Press.
- Pookulangara, S., & Shephard, A. (2013). Slow fashion movement: Understanding consumer perceptions—An exploratory study. *Journal of Retailing and Consumer Services*, 20(2), 200-206. <https://doi.org/10.1016/j.jretconser.2012.12.002>
- Puig de la Bellacasa, M. (2017). *Matters of Care: Speculative Ethics in More Than Human Worlds*. Minneapolis, MN: University of Minnesota Press.
- Reinecke, J., & Donaghey, J. (2021). Political CSR at the coalface—The roles and contradictions of multinational corporations in developing workplace dialogue. *Journal of Management Studies*, 58(2), 457-486. <https://doi.org/10.1111/joms.12585>
- Sahlins, M. (2017 [1972]). *Stone Age Economics*. New York: Routledge.
- Salleh, A. (Ed.) (2009). *Eco-Sufficiency & Global Justice. Women write political ecology*. London: Pluto.
- Scheffer, M. (2021) Interview with Michiel Scheffer/Interviewer: Fibre2Fashion.

- Scherer, A. and Palazzo, G. (2011). The new political role of business in a globalized world: A review of a new perspective on CSR and its implications for the firm, governance, and democracy. *Journal of Management Studies*, 48, 899–931. <https://doi.org/10.1111/j.1467-6486.2010.00950.x>
- Schumpeter, J.A. (1961) *The Theory of Economic Development*. 3rd Edition, New York: Oxford University Press.
- Seyfang, G.; & Smith, A. (2007). Grassroots innovations for sustainable development: Towards a new research and policy agenda. *Environmental Politics*, 16(4), 584-603. <https://doi.org/10.1080/09644010701419121>
- Shrivastava, P. & Kennelly, JJ. (2013). Sustainability and Place-Based Enterprise. *Organization & Environment*, 26(1), 83-101. doi:[10.1177/1086026612475068](https://doi.org/10.1177/1086026612475068)
- Simmons, I. G. (1989). *Changing the Face of the Earth. Culture, Environment, History*. Oxford: Blackwell.
- Smith, T. (2020). *Klimakrise og systemendring* [Climate crisis and system change], Forfatternes klimaaksjon, 12.1.2020. <https://forfatternesklimaaksjon.no/2020/01/12/klimakrise-og-systemendring-tone-smith/>
- Smith, T. (2021). Wie radikal ist der Green New Deal [How radical is the Green New Deal?] *Prokla*, 202(1), 9-30. <https://doi.org/10.32387/prokla.v51i202.1928>
- Spash, C. (2017). Social ecological economics. In Spash, C. L. (Ed.): *Routledge Handbook of Ecological Economics. Nature and Society*. (pp. 3-16). Abingdon, UK: Routledge.
- Spash, C. (2021). Apologists for growth: Passive revolutionaries in a passive revolution. *Globalizations*. <https://doi.org/10.1080/14747731.2020.1824864>
- Srivastava, R., & Singh, N., (2019). Importance of natural dye over synthetic dye: a critical. *International Journal of Home Science*, 5(2), 148-150.
- Stolle, D., & Michelletti, M. (2013) *Political Consumerism: Global Responsibility in Action*. Cambridge, UK: Cambridge University Press.
- Schot, J., & Geels, F. (2008) Strategic niche management and sustainable innovation journeys: theory, findings, research agenda and policy, *Technology Analysis and Strategic Management*, 20 (5), 537-554. <https://doi.org/10.1080/09537320802292651>
- Teague, R., & Barnes, M. (2017). Grazing management that regenerates ecosystem function and grazingland livelihoods. *African Journal of Range & Forage Science*, 34(2), 77-86. <https://doi.org/10.2989/10220119.2017.1334706>
- Teague, R., & Kreuter, U., (2020). Managing Grazing to Restore Soil Health, Ecosystem Function, and Ecosystem Services. *Frontiers in Sustainable Food Systems* 4: 157. <https://doi.org/10.3389/fsufs.2020.534187>
- Temper, L., Demaria, F., Scheidel, A., Del Bene, D., & Martinez-Alier, J., (2018). The Global Environmental Justice Atlas (EJAtlas): ecological distribution conflicts as forces for sustainability. *Sustainability Science* 13, 573-584. <https://doi.org/10.1007/s11625-018-0563-4>
- Trivette, S.A. (2015). How local is local? Determining the boundaries of local food in practice. *Agriculture and Human Values*, 32(3), 475-490.
- Valenzuela, F., and Böhm, S. (2017). Against wasted politics: A critique of the circular economy, *Ephemera: theory and politics in organization* 17(1): 23-60.
- Vanclay, F. (2008). Place matters. In F. Vanclay, M. Higgins & A. Blackshaw (Eds.), *Making Sense of Place: Exploring the Concepts and Expressions of Place Through Different Senses and Lenses* (pp. 3-11). Canberra: National Museum of Australia Press.
- Vičiūnaitė, V. (2020). Moving towards sustainability: business models and entrepreneurship in the Norwegian wool industry. PhD diss. Norwegian University of Life Sciences.

- Wahl, D.C. (2016). *Designing Regenerative Cultures*. Dorset, UK: Triarchy Press.
- Watson, D., Palm, D., Syversen, F., Skogesal, O., & Pedersen, J. (2016). Fate and Impact of Used Textiles Exports. Phase One Report. Retrieved from Copenhagen: <http://norden.diva-portal.org/smash/get/diva2:919621/FULLTEXT01.pdf>
- Watson, D., Trzepacz, S., Rubach, S., & Johnsen, F. M. (2020). Kartlegging av brukte tekstiler og tekstilavfall i Norge (OR.11.20). Retrieved from <https://www.ostfoldforskning.no/media/2260/or1120-kartlegging-av-brukte-tekstiler-og-tekstilavfall-i-norge.pdf>
- Wiedemann, S. G., Biggs, L., Nebel, B., Bauch, K., Laitala, K., Klepp, I. G., Swan, P. G., Watson, K. (2020). Environmental impacts associated with the production, use, and end-of-life of a woollen garment. *The International Journal of Life Cycle Assessment*, 25, 1486–1499. <https://doi.org/10.1007/s11367-020-01766-0>
- Wiedemann, S.G., Biggs, L., Nguyen, Q.V., Clarke, S.J., Laitala, K., & Klepp, I.G. (2021). Reducing environmental impacts from garments through best practice garment use and care, using the example of a Merino wool sweater. *International Journal of Life Cycle Assessment* <https://doi.org/10.1007/s11367-021-01909-x>
- Winters, M. (2003). Embeddedness, the new food economy and defensive localism. *Journal of Rural Studies*, 19(1), 23-32. [https://doi.org/10.1016/S0743-0167\(02\)00053-0](https://doi.org/10.1016/S0743-0167(02)00053-0)