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A Word from the Editors

At what point, this issue of Tvergastein asks, did we get entangled in such an intense pattern of consumption? When did we decide we addictively need so many items? Will we ever get out this cycle? If yes, will we do it in good time? Themes touch on cultured meat, bioplastic, composting and outsourcing waste, fast fashion, the polluter-pays-principle, and more. Our underlying aim is to make readers reflect whether we are selling resources from our planet, our home, our sanctuary at outlet discount prices. And whether our consumption habits are, ultimately, consuming us.

Buyers beware.



Developing Consumption

Capitalism, Economic Growth & Everyday Life

With the consumption patterns in rich countries being more unsustainable than ever and the consumption of the ‘emerging middle classes’ increasing rapidly, it is about time ‘consumption and development’ becomes a field of study. Such a field would necessarily be interdisciplinary and combine analyses of everyday life and the structures of capitalist development. A useful starting point could be found at the intersection of theories of practice and systems of provision.

Consuming the world

Humans consume too much of the Earth’s resources, there is little doubt about that. We eat too much of the ‘wrong’ kind of food, drive too many polluting cars, fly too many polluting flights, buy and discard too many clothes, shoes, fridges, TVs, mobile phones... the list goes on. Exactly what drives consumption, however, as well as who is to blame for our overconsumption, has been subject to much debate.

Often, a rather simple picture of the state of the world has been drawn in criti-

cal accounts: Rich consumers are using too much while the poor are consuming too little, and with globalisation the consumers in the North have been increasingly ‘subsidised’ by the exploitation of cheap labour in the South. And while the poor in the South are struggling to survive, the rich consumers in the North are preoccupied with displaying their social status or expressing their identity through the unsustainable consumption of all sorts of unnecessary stuff. There is of course quite some truth to this story, but it ignores the rapidly changing composition of the ‘global consumer class’ and fails to take into account the complexity of consumption.

The new consumers

The ‘rise of the South’ is well-known by now: A range of countries labelled as ‘developing’ have achieved very rapid growth rates and instead become ‘emerging’ (Hansen & Weithal 2015). Alongside these macroeconomic developments, the size and purchasing power of middle classes outside the mature capi-

“I believe it is about time ‘consumption and development’ becomes a field of study.”

talist world have grown very rapidly. Indeed, the vast majority of the global middle class is expected to reside in the ‘South’ by 2030 (Kharas and Gertz 2010; UNDP 2013). This shift should challenge our categorisations of the world. At least it’s clear that the main division between consuming too much and consuming too little does not go between countries but between classes across country borders (Otero et al. 2013).

It is unhelpful to paint a picture of these new consumers as mindless, ecologically blind dupes (see also Lange, 2016), and it is obvious that it is more urgent than ever to better understand the drivers of consumption and how consumption patterns be moved in a more sustainable direction. In a world that is already consuming the planet to excess, and where the mature capitalist countries have not managed to reduce their ecological footprints, the rapid rise in levels of consumption in other parts of the world puts further strain on the environment (see McNeill and Wilhite, 2015). I believe it is about time ‘consumption and development’ becomes a field of study. But, what would such a field look like?

Consumption and development

In consumption research outside mainstream economics, consumption usually includes the acquisition, use and disposal of things. This, by now large body of research has the last decade seen a significant ‘practice turn’. In short, practice theory and practice approaches represent a rejection of individual choice as an appropriate starting point for understanding consumption, but also

a break with previous tendencies to focus on the spectacular and on status-seeking behaviour within consumption research. Practice approaches instead focus on the mundane, on everyday life and its social and material components (for overviews, see Warde, 2005, 2014). This is a welcome shift, but one that unfortunately has not focused much on the role of economic structures in shaping consumption patterns. Understanding the conditions for consumption is crucial for understanding how consumption changes, and even more so in contexts of rapid economic development.

Of course, to some extent, development depends on consumption. The poorest need to consume more to live decent lives, and consumption is good, indeed necessary, for economic development (although it is of course possible to achieve economic growth through foreign consumption). In other words, development, particularly in its capitalist shape, in different ways depends on increased consumption. In development economics this is how consumption usually enters the picture, as demand or as an indicator of poverty.

Consumption is deeply embedded in everyday lives in every society (although how and why consumption of particular goods take place, as well as how resource intensive it is, varies greatly). Research on consumption thus boils down to fundamental questions related to why humans behave as they do. The fact that there seems to be no end-point of escalating ‘desires’ for consumer goods has intrigued social scientists. Even the old modernisation theorists did not expect this development, with Walt Rostow (1991 [1960]) for example assuming that at some point people would become so wealthy that increasing income would lose its charm and the pursuit of material goods would no longer dominate people’s lives (Rostow’s less-



er-known sixth stage of development). Critical cultural readings of consumer society have often explained the tendency to consume more and more through rather mystical psychological-cultural concepts such as ‘consumerism’. Economists, on the other hand, expect people to spend most of their money and save some of it, and increasing income in turn results in increasing aggregate demand. However, economists discussing demand and cultural accounts of ‘consumerism’ have little to tell us about where the propensity to consume particular commodities really emanates from. As Appadurai (1986) has noted, demand is frequently treated as an outcome of some infinite and transcultural desire and fixed needs. However, he points out, demand “emerges as a function of a variety of social practices and classifications, rather than a mysterious emanation of human needs, a mechanical response to social manipulation [...], or the narrowing down of a universal and voracious

desire for objects to whatever happens to be available” (Appadurai 1986, 29). The point that I am trying to make is that these social practices are in turn grounded in material structures and conditions and can indeed change in response to changes in these structures.

Provision and practices

One of the most prominent approaches to analysing political-economic structures while maintaining the overall focus on consumption is found in Ben Fine’s (2002, 2013) ‘systems of provision’ (first developed in Fine and Leopold 1993). Fine (2002, 79) has defined systems of provision (SOP) as “the inclusive chain of activity that attaches consumption to the production that makes it possible”. Following Fine’s approach, we also need to incorporate the whole process before acquisition in order to understand consumption, in other words a consumer object’s backward linkages. The approach

“A development approach (...) has much to contribute to understanding the conditions for consumption”

has however been criticised for focusing too much on economic structures. In the words of Goodman and Dupuis (2002, 7), in SOP the consumer “emerges only to disappear again into a production centered framework”. This raises a theoretical conundrum; if we acknowledge that production processes and systems of provision must be included in a holistic account of consumption, how do they affect everyday practices?

My suggestion boils down to a theoretical framework where consumption is approached through social practices, which in turn are analysed through their bodily, social and material pillars (as in Sahakian and Wilhite 2014). This builds on the re-emergence of practice theories, but suggests that these pillars should be analysed through macro-scale systems of provision and political-economic frames and conditions for practices. This is ambitious, yet necessary in order to capture the complexity of changing consumption in contexts of rapid economic development. A development approach, with its focus on state strategies and policies related to processes of systemic change, as well as on the economic geographies and regional and global contexts of these, has much to contribute to understanding the conditions for consumption. But without an empirical grounding in the actual ‘doings’ of the people consuming, in the everyday practices consumption takes place in, macro-level approaches provide a shallow reading, stripped of the ability to understand the multifaceted meanings and drivers of consumption.

1. This article was first published by Developing Economics: <https://developingeconomics.org/2018/01/11/consuming-development-capitalism-economic-growth-and-everyday-life/>. Reprinted with permission. Parts of this piece draw heavily on the author's PhD Thesis: Hansen, Arve (2016): ‘Capitalist Transition on Wheels: Development, Consumption and Motorised Mobility in Hanoi’.

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Invisible Powers

Solar Panels and the Complexities of Energy Engagement

In our efforts to combat global climate change, renewable energy is given a central role. On the side of large-scale utility projects, more and more electricity production is decentralized. While such microgeneration technologies for wind or hydropower are rarer, the installed power generation capacity of small-scale solar photovoltaic systems has reached significant proportions in some countries, such as Germany (Inderberg, Tews and Turner 2018).

The focus of this article is households that own grid-connected solar panels, or more accurately, solar photovoltaic (PV) systems. To understand PV-owning households as actors in the electricity grid I will outline how the role of households in the electricity grid are usually conceptualized and contrast this to what studies on the matter have revealed. However, since households with PV systems are not only microproducers of energy but also energy consumers – the term ‘prosumers’ (Toffler 1981), denoting their role as producing consumers – the latter sections will address the ways that the house-

holds’ energy producing and energy consuming activities are connected.

While the article discusses the connection between prosuming, electricity consumption and electricity grids broadly, I will also present findings from my own master’s thesis research. The project looked at the ways that Central Mexican prosumer households had adapted to living with a solar PV system. Mexico was an interesting case in 2016 when I did my interviews since after many years of slow growth, the number of small-scale solar PV installations had started picking up in 2014 and 2015 (CRE 2017). I interviewed eleven stakeholders and thirteen prosumer households with a show-and-tell tour around the house whenever possible.

Households in the visions of future electricity grids

Since decentralized power production technologies are used in the visions of ‘smart grids’ of the future, I will first provide an overview on this topic. Smart electricity grids are characterized by the increased use of in-

“Electricity is an invisible good that is easily consumed with little thought and attention being paid to the resource use itself”

formation and communication technologies in the management of the grid (Wolsink 2012). Internet-connected smart electricity meters are an important tool in this, as they enable giving consumers feedback on their electricity use via displays, monitors, apps, emails or websites. This is notable because electricity is an invisible good that is easily consumed with little thought and attention being paid to the resource use itself. We tend to focus most commonly on other aspects of what we are doing: preparing a meal just the way we like it, washing our hair with the hot water or relaxing in our heated house. The hope is that feedback would either make people reduce their electricity use or, looking from grid management perspective, shift it away from the hours of peak demand (Pierce, Schiano and Paulos 2010). Nationwide programs to install smart meters are already being rolled out in some European countries (Buchanan, Russo and Anderson 2015).

However, studies looking at people's interaction with energy feedback tend to reveal that mere access to information might not lead to the desired results (Buchanan, Russo and Anderson 2014). In order for the feedback to make an impact on behavior, it should be up-to-date and understandable (Fischer 2008) and accessible, for example a physical display placed centrally in the home (Winther and Bell 2018) but this is not always the case. Another reason is that householders might use the feedback mostly in the beginning to get a rough idea what their

‘normal’ energy use is but might not pay attention to it afterwards, unless something doesn't fit this pattern (Hargreaves, Nye and Burgess 2013). This points to that behavior adaptations are likely to occur mostly in the beginning, while in the long run people would use the feedback information less.

Another facet of smart grids is the greater involvement of electricity consumers as small-scale power producers. However, when installed PV capacity reaches a significant scale, the unsteady power supply might complicate grid management. To ease this, grid operators would want prosumers to consume more of their own electricity during their production peaks. Batteries could be used as ‘utility technologies’ that do such grid management by smoothening the daily imbalance (Smale, Spaargaren, van Vliet 2018, 9) but prosumers see them as too expensive, preventing widespread adoption among owners of grid-connected PV systems—although this is changing in some countries such as Germany where the government has subsidized the purchases (Kloppenburg and van Vliet 2019, 423).

Like the case with energy feedback technologies, the presence of the micro-generation technology is seen to have the potential of activating people as resource



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managers by making energy more tangible to them (Strengers 2013) and possibly even encouraging better use of energy (Bergman and Eyre 2011). However, since electricity production is by and large invisible, this prosumer activation rests on well-functioning feedback arrangements.

Learnings from Central Mexican prosumers

While visions of prosumers have high hopes for making people more energy-savvy and electricity monitoring studies provide learnings on how this might be achieved, this was not the case in my own research in Querétaro, Mexico. The picture was dominated by rather passive prosumers who mostly only thought of their system when receiving their bimonthly electricity bill. Only two interviewees actively followed up on their power production, although, all but one had access

to such software. While the bill provides power production statistics, many did not even know that the information was there. A few interviewees told how they were interested in the beginning but saw no point in continuing, while the others did not even feel the need to know how the technology works.

A major explanation to this is that people had bought the PV system to solve their problem with large electricity bills. The PV industry identifies the main target market of solar panels in Mexico to be the households that have or are threatened by getting a luxury consumption tariff (Grande, Islas and Rios 2015). This is because electricity tariffs are set progressively by how much electricity the household consumes and therefore, more wealthy households are likely to buy a PV system not only because of their purchasing power but also because they can this




 Burak K.

way get a lower-cost electricity tariff or practically stop paying for electricity if they get a large system.

Another major constraint to engagement with PV systems is the uncertainty of what, concretely, one should do as a prosumer. Solar PV systems do not need much involvement from householders: the only maintenance that correctly installed PV system needs is cleaning the panels every now and then and replacing the inverter after its efficiency declines after 5-10 years – solar panels themselves are usually estimated to be functional for at least 20-25 years or even longer (Sangwongwanich et al. 2018). Therefore, checking the production figures is the only obvious way that a prosumer can engage with their system. However, when detecting problems, the prosumer does not usually have the means to do much about the situation other than contact the professionals.

Social aspects or the lack thereof can be another factor leading to disengagement. While in some European countries prosum-

er communities and online platforms have been a way for PV users, especially early adopters, to exchange knowledge (Turner 2016), my industry informants were not aware of any such communities in Mexico, online or otherwise. The prosumers' contact with other prosumers was limited or non-existent. However, my interviewees were not left alone with problems as in the few occasions when problems emerged, they relied heavily on the PV vendor's services.

Limited contact with other prosumers might be partly explained by the panels installed out of sight. While it is common that the devices accompanying the solar panels are placed in spaces where people rarely go (Smale, Spaargaren and van Vliet 2018), in Mexico also the panels are often hidden as they are installed on flat roofs. Therefore, people visiting the house might not find out about the existence of the solar panels.

Prosumers as electricity consumers

To get the full picture of prosumers' energy engagement, now it is necessary to explore

their role also as electricity consumers. First of all, studies show that prosumers have modified some of their behaviors by ‘load shifting’, timing certain practices so that they can utilize solar electricity. Prosumers have been found to do this by rescheduling their washing or tumble drying (what they often call ‘sun laundry’) or charging personal electronics (Turner 2016) or, in some cases, electric cars (Winther, Westskog and Sæle 2018). While the question of self-consumption is a focus of European studies on prosumers, it was rather irrelevant in the Mexican context because of PV power generation policies.

In Mexico, the electricity that the prosumer households inject into the grid is not sold but credited, meaning that the households get to use one kWh from the grid for free for every kWh that they inject. Therefore, Mexican prosumers neither have a financial incentive to increase self-consumption of their solar electricity nor to time their electricity use according to fluctuating prices.

While timing of electricity use was rather irrelevant in my study, several of my interviewees had taken advantage of the lower electricity price by replacing some gas ap-

pliances with electric ones, especially when the electric appliance serves exactly the same function as the gas equivalent. Gas appliances are common in urban Mexican homes, including gas stoves, ovens, water heaters and, somewhat less commonly, tumble driers. Some interviewees had switched their ovens and tumble driers to electric ones. While they were seen to be as good as gas equivalents, electric stoves were seen to yield an inferior outcome and only the two most energy engaged households had replaced their gas stoves with electric ones. Electric water heaters are neither common in Mexico nor would be a relevant acquisition to these households as many of them had acquired a solar water heater as well.

While the purchases of these appliances were mostly thought of after installing the system, heating and cooling technologies had had a central role already at the time of purchasing the panels. Some of my interviewees mentioned electric heating or A/C as the problem that the panels were solving as the energy used in heating and cooling had made them get the high-consumption tariff. Some said that they had bought the panels because they wanted to start using more energy-intensive heating or cooling technologies.

This is significant as in Central Mexico, the climate is rather pleasant year-round: summers are not hot to the extreme levels experienced especially in Northern and Northwestern Mexico, and the winter cold lasts only for a few weeks and the extremes tend to be felt on just a few days. While air conditioning was taken into use decades ago in the northwest, its uptake in Querétaro homes has really picked up only more recently. Interestingly, many of the interviewees, including people who owned one of these technologies, talked of these technologies as luxuries that are necessary on very few



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days of the year and explained that they only bought them because they wanted to have more comfort in their homes.

While switching to electric ovens or tumble driers changed little in the practices that those devices are used for, the new heating and cooling practices fulfilled ‘wants’ that were not met previously. However, we should remember that the availability of the energy itself does not create the demand for heating or cooling (Shove and Walker 2014). The much more interesting question, one that was outside the scope of my study, is how cultural changes decrease the tolerance for thermal discomfort, which, as in the words of several of my interviewees, was experienced on only a few days of the year and previously was dealt with just by putting a sweater on.

What can we expect of prosumers?

The previous discussion shows why we should not assume that prosuming in and on itself leads to the desired kind of energy engagement. The context matters: in Central Mexico, PV systems are no longer exclusively adopted by technology-engaged

frontrunners but as a measure to obtain savings. This shapes prosumers’ relationship to the technology: Since the prosumer role is understood to be similar to management of an investment, learning about the technology itself is seen as more or less irrelevant. Bulkeley, Powells and Bell (2016) described the disengagement of PV system owners in the UK as the “Fit and forget” approach as they understood prosuming mainly as an investment and after getting the panels installed, were not interested in monitoring the power generation.

We should not be sold on the widespread idea that economic incentives are enough to convert households to active smart grid participants. We should, in Throndsen’s words, understand that “[s]tating the case for empowerment without addressing the ways in which it will come about is only getting half the job done” (2017, 295). Both country context and technology adoption stage matters as front-runners might have a very different set of drivers of behavior; behavior models based on their experiences are not necessarily applicable to adopters that come after (Pantzar 1997).

Prosuming and feedback initiatives need to engage people also with other methods than monetary incentives and feedback provision by paying attention to social and material aspects. Although placed in people's homes, the devices can be removed from prosumers' everyday life. Studies on energy monitoring and prosuming also point to the difficulty in achieving learning benefits beyond the member of the household who most actively engages with the feedback (Hargreaves, Nye and Burgess 2010). Achieving this can be tricky if the monitoring information is tied to personal handheld devices or email accounts, as was the case in my study. With this design of feedback, it is unlikely that the learning effects extend beyond the one household member, most often a man (Karjalainen and Ahvenniemi 2019).

So what do the studies tell us about whether the adoption of PV systems make people 'better' energy users? While studies from Europe indicate that prosumers might be able to schedule at least those activities that are not strictly time-bound to the sunny hours of the day (Hansen and Hauge 2017), there is less reason to believe that a technology producing energy would make people more careful with energy use. If people perceive the resource, solar electricity, as 'free' (Baborska-Narozny, Stevenson and Ziyad 2016), there are numerous ways to increase its use.

Moreover, prosumers can match any increase in their electricity consumption by buying more panels to their system as far as space and system properties allow this. Prosumers interviewed in my study, as well as other prosumer studies (Karjalainen and Ahvenniemi 2019) have told about their plans on increasing their system capacity. This could be problematic if prosumers are acting as 'solar consumers' (Janda 2007) who

“We should not be sold on the widespread idea that economic incentives are enough to convert households to active smart grid participants.”

always solve consumption needs with more solar and give little thought to wise use of energy.

We should also be aware of issues of equity. Cases such as the one in my study where solar panels are a way for the largest electricity consumers to stop being penalized with a high-consumption tariff, raise the question of to what extent prosumers should get exceptional treatment. On the other hand, pointing fingers at the threats of solar panels encouraging new energy-consuming practices in Mexican households would be ill-advised as my upper and upper middle class interviewees' energy services were by no means more extensive than those of a typical middle-class home in the Nordic countries.

Prosuming and climate change mitigation?

Decentralized solar panels have many positive sides to them. When installing solar panels to people's roofs one avoids clearing a lot of land as can happen with utility-scale projects. Creating engagement is a complicated matter due to the near invisibility of electricity. It is not inconceivable that solar PV could be a part of achieving this as prosumers in both my study and other studies have expressed great satisfaction at the thought of being a provider in the community.

Nevertheless, when examining solar panels with a long-term perspective and looking

at their adoption in different contexts, the idea of them as a universally applicable solution to households' carbon footprint seems questionable. What gets less attention is the fact that renewable energy is not the only way to reach national greenhouse gas reduction targets: reduced energy consumption has the same outcome or at least its slower growth would reduce the pressure of building more and more energy infrastructure every year. This applies especially to Western countries and other elite groups with high consumption levels because their reduction potential is greater than that of small energy consumers.

This does not mean that we need to stop supporting solar panels, but we should make sure that they are accompanied by reflection on what to do about our high and increasing levels of energy consumption. While discussions on reduced energy consumption often focus on energy efficiency, much more attention should be paid on the cultural changes that cause our energy demand to escalate, such as our lessening tolerance for discomfort and inconvenience (Shove 2003). But to come closer to solutions on such big questions, we should stop shying away from bringing up energy consumption in our societal debate.

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Consumption & Waste

Exporting Trash to PDCs

Behind consumption lies heaps of junk and a dirty secret. As global consumption continues to rise and the trash starts piling up, many countries face the question of what to do with the excess garbage? Lower consumption, recycle, create more landfills, or transfer the problem elsewhere?



The Economics of Wasteful Consumption

From an economics standpoint, consumption is a source of development and growth, creating job opportunities from more production. Consequently, material consumption also increases business revenue, giving people more money to spend, buy and consume, leading to an increase in GDP. In this era where capitalism reigns, the negative impacts of consumption are often overlooked or ignored. Each day, individuals across the globe consume products and services. But what happens to these goods after they have fulfilled their intended use?

Consumption can be detrimental to the environment. Developed countries, such as the U.S., consume the most, whereas industrializing nations like China, pollute the most. This is because most developed countries outsource their production and its resulting pollution. Additionally, cheap products are often inefficiently made, and

contain hazardous materials that hurt human and environmental health. Generally, producer countries offer and make more products than are actually demanded ($O > D$). Furthermore, planned obsolescence encourages consumers to buy more by purposely making products break prematurely or as soon as the warranty expires. This is partly due to greed and capitalist desire to grow profits by expanding sales. Companies must also manufacture more to keep up with the latest technology and consumer demand. Unfortunately, most products are not, or can not, be completely recycled.

Importing Waste

With so much garbage, landfills overflow, and recycling centers get overburdened by extra rubbish. In 2015, 75% of plastic was landfilled, 9.1% recycled, and 15.9% combusted for energy recovery in the U.S. (EPA 2015). Even with the low recycling percentage (Fig-

Plastics Waste Management: 1960-2015

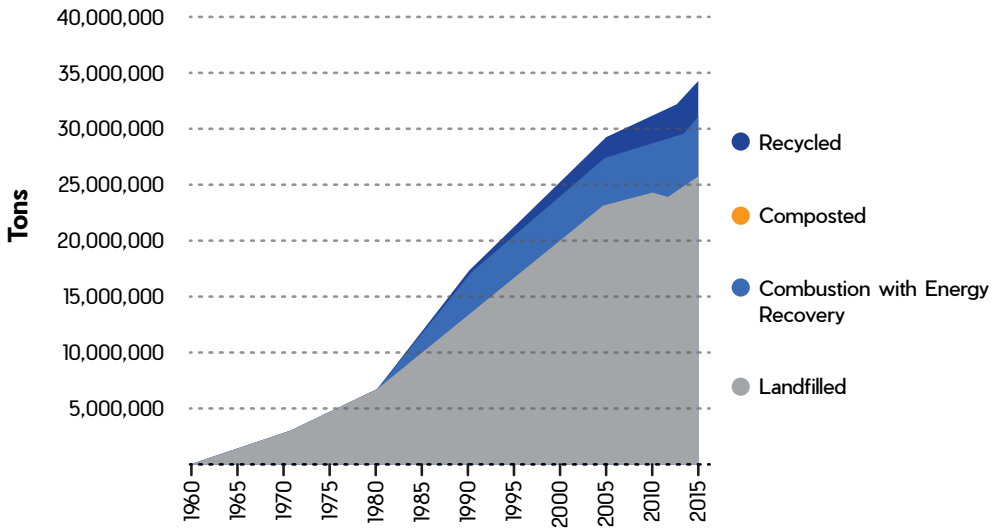


Figure 1. US Environmental Protection Agency

ure 1), reclamation is typically done abroad rather than within the country of origin. For instance, during the first half of 2017, 172 million kilograms of American plastic was sent to China to be recycled (Pauben and Staub 2018). However, following China's new tariffs to restrict plastic imports, only 13.6 million kilograms of plastic was sent there from the U.S. in 2018 (Pauben and Staub 2018). With China backing away from importing waste, the U.S. must find other countries willing to deal with its trash or landfill more.

“Rather than solving domestic pollution problems, Morocco imported 2,500 tons of Italian garbage in 2016”

Poor and developing countries (PDCs) often consume the leftover (low-cost products) of a rich countries' overconsumption, such as the heavy polluting old French car models commonly found on Moroccan streets, and other discarded goods. Additionally, developing countries lack adequate garbage services and recycling infrastructure, so importing e-waste and other junk further compounds the problem. Nevertheless, many PDCs are paid to import extra garbage from industrialized countries, thereby accepting to hurt and destroy their local environment.

Morocco is a perfect illustration of this. Recently, the nation built a large solar farm in Ouarzazate (Dieseldorff 2015) and banned plastic bags (Alami 2016) to help lower its own environmental footprint. Yet, despite these positive changes, many challenges remain. The nation's largest urban center, Casablanca, is the world's sixth most polluted city, with high levels of litter and air pollution (Figure 2) (MWN 2016). Rather

Pollution in Casablanca, Morocco

Air Pollution	75.91	High
Dirty & Untidy	71.08	High
Noise & Light Pollution	58.82	Moderate
Water Pollution	58.33	Moderate
Dissatisfaction to Spend Time in the City	70.67	High

Figure 2. Credit: Numbeo

than solving domestic pollution problems, Morocco imported 2,500 tons of Italian garbage in 2016 (Miller 2016).

Most of the imported garbage was rubber and plastic from Italy's Campania region (Miller 2016). Historically, Campania incinerated its waste, but stopped the practice

due to the environmental and health impacts, leading to the accumulation of almost 5 million tons of trash (Miller 2016). To deal with the growing garbage problem, Italy's Prime Minister set aside 118 million Euros to address the rubbish (Miller 2016). So, how did Campania tackle its trash problem? Reduce consumption, create more landfills, or recycle? No, it chose to transfer the problem elsewhere.

Even though officials claim the trash is not toxic, becoming a garbage bin for over-consuming rich countries is widely unpopular. Many Moroccans protest government agreements to take in trash, arguing that the disposal would degrade soil, and release toxins linked to birth defects and chronic illness (Miller 2016). Furthermore, the Moroccan government has been criticized for assaulting the nation's dignity and exploiting the local environment (Miller 2016a). Despite the ill effects of importing waste, the government continues to enter



A trash-line street in Casablanca, Morocco

“As long as someone else is willing to take the waste, industrialized countries will continue consuming and outsourcing their pollution.”

into such deals. Shortly after the arrival of the Italian garbage, Casablanca received a shipment of 3,300 tons from France (Miller 2016a). In total, Morocco’s Minister of the Environment estimates that over 450,000 tons of waste is annually imported from foreign countries (Miller 2016a).

Conclusion

International trade grows year by year, requiring more energy and natural resources to keep up with increasing production. As production expands so does the negative environmental consequences surrounding pollution and waste. We cannot stop consumption, but we can change the way we consume, and enterprises can change the way they produce, by offering sustainable recycled products manufactured for long term use.

Morocco is just one of many countries that imports foreign trash. As long as someone else is willing to take the waste, industrialized countries will continue consuming and outsourcing their pollution. Despite not necessarily wanting to accept such imports, PDCs have financial needs and sacrifice the wellbeing of their people and landscape to bring in extra money. Therefore, the case of PDCs importing garbage can be summed up in one sentence: “When you are hungry you will do anything to eat”.

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**“The clothes we wear
may reveal more about
our globalized world
than we realize.”**

Threadbare

Stitching Together the Ethical Dilemmas and the 'Glocal' Impacts of Fast Fashion

In a world frenzied by religious radicalism and refugee crises, economic downfalls and epic elections, little time remains to worry about such 'trivial' matters as clothing. Yet the clothes we wear may reveal more about our globalized world than we realize. From the cancer-producing cotton fields of the Midwestern U.S. to the bloody collapse of clothing factories in Bangladesh, this article analyzes the good, the bad, and the ugly sides of the fashion and textile industries, the ethical questions they pose, and the 'glocal' (global-local) impacts they have on the world's ecosystems and humans. The article frames a proposal for a more holistic, sustainable, and circular approach to the future of fashion: "eco-nomical fashion."

Trends from the past: the history of the clothing industry

For most of human history, clothing was made by hand and built to last. A major shift happened during the industrial revolution with the mass-production of textiles. During the late eighteenth century and into the early nineteenth century, new innovations and technologies made this production shift possible. In 1785, the power loom was invented, followed by the cotton gin in 1793, which removed the seed from the cotton (Reamy & Arrington 2013). The following year, the spinning wheel, also called 'Spinning Jenny,' was invented by James Hargreaves

in England, and the first functional sewing machine was built in 1830 by Barthelemy Thimonnier. It became widely available for home use after Isaac Singer added the foot treadle later on. In 1870, synthetic dyes were discovered, which were less expensive, easily accessible, and more colorfast than their natural counterparts. All of these new developments aided in the mass production of ready-to-wear clothing in factories with standardized sizes, which homogenized fashion and style within societies (Reamy & Arrington, 2013).

For most of history, styles tended to remain fairly constant with some fashion pe-

“With increasing globalization, the fashion and textile industries were not exempt from the trend of international expansion and offshoring.”

riods even lasting half a century or more. In the 1900s, each decade became distinctly different as designers with fresh ideas rose to prominence and production mechanisms sped up. Throughout the years, fashion has mirrored its sociocultural and political context. The tight corsets and frilly skirts from the turn of the twentieth century quickly gave way to practical WWI fashions, later morphing into the glamorous flapper era outfits. The rise of Coco Chanel and WWII fashions dominated the 1930s and 1940s, and the new look by Dior took over in the

1950s. The revolutionary 1960s and 1970s reflected the styles of Jackie Kennedy and hippies alike. The 1980s rocked a punk style, and the 1990s came dressed in denim. As fashion progressed over time, not only the styles changed, but so did the how, what, and where of production. With increasing globalization, the fashion and textile industries were not exempt from the trend of international expansion and offshoring. All these developments eventually paved the path for today's individualistic, disposable fast-fashion world (Reamy & Arrington 2013).

Made in China: shifts in global clothing production

In the 1960s, 95% of clothing in the United States was made domestically; today only 3% is made there (Ross & Morgan 2015). From the 1960s through the 1980s, the manufacturing process snowballed into more and more outsourcing of labor for the production of cheap goods, shifting mainly to Taiwan, the Republic of Korea, and



📷 Jacqueline Macou

Hong Kong. This was partly due to Cold-War competition. Western trade liberalization was originally used as a means to build strong relations with other countries, thus gaining advantage in the global community and stopping the spread of communism (Timmerman 2012). However, aside from political agendas, the economic benefits of producing goods in cheap-labor countries also played a major role. In the 1990s, China became the top destination for outsourcing. Other countries that became notable suppliers of clothing included India, Malaysia, the Philippines, Indonesia, and Sri Lanka (Morris & Barnes 2008). Remarkably, while being one of the biggest producers of textile goods, the Asian-Pacific region is also the largest retail market in the world (Reamy & Arrington 2013). China in particular acts as a major driver of the supply-and-demand chain, further catalyzing production, environmental degradation, and waste.

Today, “the fashion industry employs more people worldwide than any other industry” (Reamy & Arrington 2013, 40). Design houses, manufacturers, marketers and retailers create new jobs, new markets, and new collaborations around the globe in a worldwide fashion network. However, not everyone will shine on this global runway - millions of people stand in the shadows of the fashion industry. To maximize profitability and sidestep costly regulations regarding workers and the environment, manufacturers increasingly shift their production to developing countries with more lax regulations. In addition, free market competition drives prices of goods further down, feeding the growing worldwide appetite for material consumption. The following sections examine the impact this gluttonous consumption has on the natural and social ‘glocal’ environments.

Bursting at the seams: health and safety issues

On April 24, 2013, the Rana Plaza factory building in Bangladesh collapsed, killing 1,134 people and injuring thousands more. This was the most devastating accident in the history of the garment industry (Clean Clothes Campaign 2013). Widespread attention from the media sparked outrage among people all over the world, leading to increased political pressure to change the conditions of garment workers. In response, the Accord on Fire and Building Safety was established in Bangladesh, with the hope of preventing a repeat of such a disaster. Additionally, the Rana Plaza Arrangement created a trust fund in which the twenty-nine clothing companies that had current or recent orders from factories in the Rana Plaza building could contribute a total of 30 million USD in compensation money for the families of the victims. Some companies were reluctant to pay, and it took two years and much campaigning to finally reach the targeted amount (Clean Clothes Campaign 2013).

Some less-visible, ongoing tragedies in the fashion industry receive very little media attention but pose risks to human health and safety nonetheless. The world’s single largest pesticide-consuming crop is cotton, accounting for 24% of all insecticides and 11% of all pesticides used globally (Conca 2015). When the World Health Organization’s International Agency for Research on Cancer declared glyphosate (the principal ingredient in Roundup-Ready herbicide) as a “probable human carcinogen” in early 2015, the corporate giant Monsanto threatened to cut off their funding (Gillam 2016). Monsanto holds the monopoly on GMO (genetically modified organism) seeds, the Roundup-Ready herbicide spray they are doused with, as well as a range of pharma-

ceuticals. As Ross and Morgan (2015) point out, Monsanto (and other chemical corporate giants) create a seed and pesticide dependence for farmers, and if they become ill from these products, the company profits again through a dependency on medication.

In India the patents on seeds and dependence on pesticides have led to a cycle of “environmental narcotics” in which the more you use, the more you need (Ross & Morgan 2015). In Punjab, India, unnatural numbers of children in the farming communities are born with severe mental retardation and physical handicaps. There has also been a staggering wave of suicides among farmers - on average one every 30 minutes - linked to the loss of independence, health, money, and hope from engaging in deals with Monsanto (Ross & Morgan 2015). There are numerous health and safety risks related to all sectors of the garment industry, including air and water pollution from the factories, and toxins from dyes and other chemicals used during production. Employees, which sometimes include underage children, also face psychological tolls from overwhelming work hours in hot, dirty, and structurally unsafe factories for minimum pay. The next two sections will further illustrate some of the environmental and ethical issues of the industry.



 Digital Buggu

“Will our fast fashion world be able to outrun climate change? Or will the damages we have done to the environment and humanity be too big to patch up?”

Dye me a river: environmental issues in the fashion industry

The environmental impact of the fashion industry can be traced through every single step of the process, from the pesticide-filled fields that grow the fibers, to the chemical dyeing of the textiles, the polluting manufacturing houses, international transport and distribution chains, and finally to the landfills where discarded clothes end up. The apparel industry is the second most polluting industry in the world, behind only the oil industry: accounting for 10% of global carbon emissions and using 25% of the chemicals produced worldwide (Conca 2015). Seventy billion barrels of oil are used annually to produce the world's polyester, and seventy million trees are logged to make rayon, viscose, modal, and lyocell fabrics (Conca 2015). The impact of clothing production on air, land, and water is immense, disrupting entire ecosystems through freshwater pollution, smog, and soil erosion.

Aside from weighing heavily on the environment in its production phase, clothing also strains the environment after its disposal. While our grandparents probably had a separate wardrobe for summer and winter, today's fast fashion industry effectuates the notion of 'disposability' by filling store racks not just with winter and summer clothes, but with styles for over fifty fashion 'seasons' each year (Ross & Morgan 2015). In the past two decades, our consumption of cloth-



Nick de Partee

ing has increased by 400%, culminating in eighty billion new pieces of clothing every year (Untold Creative 2015a). To make room in the closet for these new items, the average American throws out between thirty-one and thirty-seven kilograms of textiles, which adds up to more than eleven million tons of annual textile waste in just one country (Untold Creative 2015a).

Even though 95% of worn, torn, and stained textiles could be reused or recycled, 85% of the discharged items end up in landfills (Secondary Materials and Recycled Textiles 2016). Cheap, readily available clothing has made garments less of a long-term commodity and more of a disposable, short-term possession. According to a Forbes article by geochemist and energy expert James Conca (2015), “[f]ast fashion garments, which we wear less than 5 times and keep for 35 days, produce over 400% more carbon emissions per item per year than garments worn 50 times and kept for a full year.” Polyester is the most widely used fiber in our clothing, but it takes two hundred years to break

down - a very slow demise for fast fashion. Cheap, synthetic fibers can also leach gasses such as N_2O , which is three hundred times as potent as CO_2 (Conca 2015).

Just like other major global industries, the fashion industry is simultaneously a driver of human-induced climate change and is increasingly vulnerable to its effects, such as sea level rise, drought, unpredictable agricultural outputs, and extreme weather conditions (IPCC 2014). Will our fast fashion world be able to outrun climate change? Or will the damages we have done to the environment and humanity be too big to patch up?



Public Domain Pictures

Sweaters from sweatshops: human rights issues

There are forty million garment workers in the world today, 85% of whom are women. They are some of the lowest-paid workers, consistently facing exploitation, lack of protection and rights (Untold Creative 2015b). Even though the apparel industry generates USD 3 trillion/year, many workers live on less than USD 3/day (Ross & Morgan 2015). Children are often forced to work in the industry to help feed their family. The inclusion of minors in the workforce effectively cuts their chance for further education, perpetuating a cycle of poverty and dependence. Some may argue that the children need the money to survive and that working in the garment factories is safer than many other jobs they might pursue instead. As Timmerman points out in the case of Bangladesh, “[n]ot having children make our

clothes does not eliminate the reality that many children in Bangladesh must work, but it eliminates our guilt in the matter. It clears our conscience and helps us forget that we live in such a world” (Timmerman 2012, 53).

Women are overrepresented in the apparel production sector, facing dire working conditions every day. However, there is some hopeful news: overall, women who work tend to have fewer children. In poor communities where large families are the norm and feeding them is a daily struggle, this is indeed a positive outlook. The fewer children one has, the more money there is to keep the others fed, healthy, and clothed. Education and employment of women generally leads to a decrease in a country's total fertility rate, thus acting as “one of the best ways to lift a society from poverty” (Timmerman 2012, 56). Several studies cited in



“The children need the money to survive and working in the garment factories is safer than many other jobs they might pursue instead.”

Stitches to Riches? support this finding by adding that at the macroeconomic level, gender gaps in the labor market, and low female labor force participation immensely impact the GDP of a country (Lopez-Acevedo & Roberson 2016). Projections from 2012 estimated that if the labor force participation rates for women were equalized to those of men around the world, the GDP of the United States would rise by 5%, Japan's GDP would rise by 9%, the United Arab Emirates would gain 12%, and the GDP of Egypt would go up by 34% (Lopez-Acevedo & Roberson 2016). At the microeconomic level, female employment has been proven to be beneficial for children's health and education, as well as women's autonomy regarding marriage and fertility opportunities (Lopez-Acevedo & Roberson 2016).

In 2006, author Kelsey Timmerman first set out on an adventure to track down the exact people and factories that produced the clothes he wore. His journey was later captured in his book *Where Am I Wearing?* Before his departure, Timmerman describes his friends and family all having the same general reaction when he declared his mission: “Oh you're going to visit sweatshops” (Timmerman 2012, 5). It seemed that people in the developed world were all mildly aware of the fact that clothing was likely made in sweatshops, but they also accepted that there was nothing that could be done about it; that was just the way things were in this world. Dazed by this widespread, automatic assumption that all clothing was made under terrible conditions in the Global South, Timmerman set out to find real

answers. Instead of clear answers, all he found was even more complex ethical questions. After his extensive travels to seek the truth about the gar-

ment industry, Timmerman infers that “[a]ctivists tend to damn the industry, but it isn't that simple. Some economists refer to it as a ladder helping people out of poverty, empowering women, but it isn't that simple” (Timmerman 2012, 7). It makes sense for well-intending people to condemn child labor, to reject sweatshops, and to boycott products made under terrible conditions. The unfortunate truth is, however, that the livelihoods of thousands of people depend on these disturbing realities - thus boycotting guilty companies only hurts those workers more. What they want, instead, is better pay and better working conditions (Timmerman 2012, 7).

Never out of style: eco-nomical fashion

Today, most companies employ certain codes of conduct concerning their outsourced products. It is a delicate balance between morality and profitability, and some companies are more transparent about their process than others. Some corporations try to hide their dirty production chain behind sparkly marketing campaigns meant to blind the consumer, while other companies actively seek out ethical treatment of workers and fair conditions (Timmerman, 2012). There are many environmental, health, and safety regulations in place in the garment industry around the world. Nonetheless, some countries still have looser regulations or weaker compliance mechanisms than others. Thankfully, the international community has become more alert towards human rights issues in recent decades. International organizations such as the United Nations, as

well as many non-profit organizations, have made it their mission to fight against poor working conditions and the environmental degradation caused by corporate industries, including the fashion industry.

Consumers are also waking up to the plight of the planet and demanding more ethical products, which pushes companies to become more transparent about their production and sourcing, or even to adopt more ethical behaviors and standards. Brands that are already reinventing the fashion world to be more transparent and sustainable include: People Tree, Zady, Patagonia, Stella McCartney, Eileen Fisher, and Shop Ethica (Untold Creative 2015c). We must accept that ethical and sustainable clothing will inevitably come at a higher price than the cheap fast fashions we have become accustomed to. Kelsey Timmerman, the author who went on a world trip to hunt down the makers of his clothing, points out the reality of the matter in that “[t]he people who make our clothes are poor. We are rich. It’s natural to feel guilty, but guilt or apathy or rejection of the system does nothing to help the workers. Workers don’t need pity. They need rights, and they need to be educated about those rights... They need opportunities and choices. They need consumers who care about all of the above” (Timmerman 2012, 10).

It is clear that there are many problems in the global fashion regime that must be addressed at a systemic level to improve conditions for people and the planet. As individuals, the best thing we can do is to become “engaged consumers” (Timmerman 2012, 9). This means making better, more ‘circular’ choices about clothing along the principles of ‘reduce, reuse, and recycle.’ In terms of reducing our consumption, we can shop less to avoid temptation, purchase only high-quality items that are practical, long-lasting and versatile, and buy fairtrade,

ethical, and sustainably-sourced items (like organic cottons and other natural fabrics) whenever possible. To reuse and recycle, we can buy second-hand, donate or recycle unwanted clothing, upcycle old clothing into new looks, and host clothing-swaps with friends. Adopting eco-conscious habits such as washing clothes less frequently, using cold water and eco-friendly detergent, and hanging our garments up to dry can also make a huge environmental difference. Furthermore, we can become an advocate for garment workers and raise our voices and our votes for better social and environmental regulations in the fashion industry. These are just the beginning steps of a long journey towards a holistic and sustainable collaboration between workers, consumers, designers, retailers, ecosystems, and the economy in a notion I term “eco-nomical fashion.”



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Indigenius

We might refer to indigenous lifestyles that differ from the West's as “rudimental”, “primitive”, or even “rustic”. Equivalently, we may consider Western ways to be more “advanced”, “developed”, “modern”, and so forth. At the risk of sounding romantic, what if there are values to appreciate from indigenous world views, which we are totally oblivious of? For the sake of learning from other cultures, this article briefly reviews the world visions of the Hawaiian, Inuit, Mayan, Inca and Australian indigenous peoples.



📷 Willian Justen de Vasconcellos

Western Ways

Ask the business magnate from Manhattan what he is needing or lacking from this world; ask a lawyer in London what she is chasing after. The answer to these questions may be quite subjective, yet I can think of only one word that generalizes the same yearning: abundance. To be more specific: abundance of material commodities. Although this may be an exaggerated generalization and many people do not fall under this umbrella, it is, at least, not unheard of.

The Western World is running smoothly towards economic growth, towards urbanization, towards individual freedom, towards comfort, towards scientific progress, towards technological advance, towards unshackled consumption— and towards a spiritual pit hole, if you ask me. Our Western values may be twisted towards an artificial sunlight. Let us ask the oracle (Google): what is the root of these tangible cravings? But first, a short introduction of the West.

Western countries have a common heritage beginning with Greco-Roman thought and philosophy, which focused strongly on the individual, reason and logic. It then moved on to Judeo-Christian influence, which emphasized monotheism (i.e. the “In God we trust” phrase inscribed on US dollar bills) and traditional family values. Add the Enlightenment’s rationalism, top it off with Adam Smith’s economics such as free trade and the Invisible Hand theory, and you have the basic recipe for Western civilization (Sullivan 2003). It’s complicated, I know. Yet, having an idea of this list of historical elements common to Western countries, one can deduce where the material cravings stem from.

The West’s lone-wolf, utilitarian and satisfaction-maximizing *modus operandi* may be catalyzing Western people’s thirst for consuming physical commodities. Material longings are only natural, yet in accumulation, they pose an environmental threat.

On that same note, the American Dream can be considered dangerous for its effects. This very attractive ethos is telling people (in Shakespearean accent): “Thou shall work hard, rich and fame shall followeth”. Each individual following this dream will want to obtain richness, fame, and fortune. Where, however, did concern for the collective go? Did the importance of harmony with nature disappear into thin air?

To answer this last question: perhaps not yet. Perhaps this is an obvious, pessimistic portrayal of the West. Yet, the aim behind this depiction is two-fold: to highlight the noxious features the West has acquired and to contrast them with other life systems. But enough about the West. The following are the refreshing worldviews, values and attitudes towards nature of different indigenous peoples.

The Inuit

The territory of the Inuit people comprises the Arctic regions of Alaska, Canada, Greenland and Siberia; there’s an ongoing debate whether one should call a member of this group “Inuit”, “Kalaallit”, “Inupiat”, or “Eskimo” (New World Encyclopedia 2018).

Outsiders to this group of peoples should know that Inuit gold does not lie buried somewhere in the snow, but rather, in their religion. Inuit traditional belief systems have something Westerners might lack: respect for other souls. The Inuit believe that “all things, including animals, have souls like those of humans; any hunt that failed to show appropriate respect and customary

supplication would only give the liberated spirits cause to avenge themselves. To offend a spirit was to risk its interference with an already marginal existence” (Ibid.). The Inuit live in harsh environments and therefore, according to themselves, to keep the forces of nature “under control” they ought not kindle the spirits; they ought to treat other souls with respect and consideration. In a way, then, the Inuit defy any superiority complex towards other beings. For an Inuit, a human has the same soul as the seal; there is something inherently beautiful with that thought.

The Incas and the Mayas

Both of these ancient civilizations flourished in the bowels of Latin America. Both of them left lasting legacies long after the Spanish conquest. Let’s examine the Incas first.

What really startles me the most about the Incas was their ability to achieve social harmony without a single penny. Literally. “The Incas did not use money, in fact they did not need it. Their economy was so efficiently planned that every citizen had their basic needs met” (Discover Peru 2005). The nuclei of their economy, called “ayllus”, were units of people working together that were differentiated by region: some “ayllus” would specialize in agriculture, some in building bridges, other in textiles, and so on. After all the needs were met, the government would collect the surplus and distribute it wherever else it was needed; citizens would obtain free clothing, health, food and education for their work (Ibid.). A society that thrived without money? Something to ponder on.

Then to the Mayas. Maya life revolved around the sky, the planets and the stars. In the Mesoamerican epoch, the practice of astronomy was highly important. “To the Maya, this ancient science reflected order in the universe and the gods’ place in it. This

“Inuit gold does not lie buried somewhere in the snow, but rather, in their religion”

order, in turn, translated into an inherent harmony present in their general theological view of the universe” (Starteach 2019). One of the most tangible

and practical benefits of their astronomical observations was found in their agricultural practices. “The appearance of certain constellations or planets in the sky heralded the planting season. The more they understood the sky, the more assurance there was that the people would not starve” (Ibid.). The Maya understood the world through cycles that were fixed by astronomical phenomena: nature, life, death, and rebirth cycles; all of which were essential to agricultural and nomadic people (Shuttleworth 2019). The success of the Mayan civilization, then, laid in their knowledge about the stars. They had a great reverence for the cosmos. When was the last time we looked at the starry sky with those same eyes of wonder, I wonder?

The Aboriginal Australians

These creators of the boomerang and the first human settlers of the Australian continent, now referred to as Aboriginal people, inhabit parts of mainland Australia, Tasmania and the Torres-Strait Islands (New Encyclopedia 2017). They make up about 2.5% of the Australian population and less than 200 of their languages are now in use, most of them being endangered (Ibid.). Although their languages and population numbers are few, their views about themselves, others and the world are fierce.

As explained in the New World Encyclopedia (2017), these peoples’ oral traditions and values rest upon a reverence for the collective; a belief in The Dreaming; and ancestral spirits which include the Rainbow

“This principle of connectedness that underpins Aboriginal life drives people towards a community sense and towards the responsibility of taking care of each other”

Serpent, Baiame, Bunjil and Yowie. The Dreaming refers to the remote epoch back in history in which the First Peoples or ancestors travelled across the land of “Bandaian” (Australia) creating and naming things (Ibid.). Distinct and derived from these main beliefs of the sacred, is the idea of “ours-ness” instead of “me-ness”. This principle of connectedness that underpins Aboriginal life drives people towards a community sense and towards the responsibility of taking care of each other (Korf 2019). Instead of an aboriginal asking another “Who are you?”, most likely he/she will ask “Who do you belong to?” (SNAICC 2019). “White people”, says an aboriginal elder, “separate things out, even the relationship between their minds and their bodies, but especially between themselves, other people, nature and spirit” (Korff 2019). This sense of belonging, this sense of forming part of something collective, something stronger than the individual, something greater than the self, called “Kanyini”, is a cultural forte.

The Native Hawaiians

This Polynesian culture is installed in the volcanic island of Hawaii and it is infused with the concept and belief of “mana”, or “spiritual energy that flows among people, things and words” (Segysis 2004). Pitifully, it is mostly stereotyped for its hula-hoops, colorful lei necklaces, coconut cups and string skirts.

More important than a hula-hoop or a Hawaiian “luau” party, however, is the native

“To understand the concept of totality with land is to understand the heart of Hawaiian native peoples”

Hawaiians’ concept of land. To understand the concept of totality with land is to understand the heart of Hawaiian native peoples (Fischer 2019). For native Hawaiians, “stewardship of the land and its resources was formalized through the “kapu” system. The “kapu”, administered and enforced by “konohiki” and “kahuna”, or priests, placed restrictions on fishing certain species during specific seasons, on gathering and replacing certain plants, and on many aspects of social interaction as well. In this way, the community maintained a sustainable lifestyle (Hukilau Network 2019). In other words, through the Hawaiian worldview one does not extract the land or exploit it, one takes care of it. John Locke, a prominent Western philosopher of the 17th century (Robbins et al 2014), would probably be rolling in his grave with disbelief. His theory of property in his “Second Treatise of Government”, claims that land, animals and nature become a person’s property once it’s mixed with that person’s labour. A belief that is certainly at odds with that of the Hawaiians.

Rewinding

This article is not defending indigenous world views against Western or idealizing them as perfect, although it may conspicuously seem so. This article is here to remind us that we can benefit from having an eclectic mindset that incorporates the sustainable beliefs from other life systems and from being critical of our own. What if these cultures hold gems of knowledge we should

unbury? What if, in our process of learning and advancing towards an ever-consuming, modern society, we are unlearning ancient secrets? Just some food for thought.

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Muslim Consumption Habits and Emerging Islamic Environmentalism

Many have argued that the urgent need to address the environmental challenges of modern time will require challenging dominating concepts and epistemologies that are deeply embedded within the structures of our societies. The need to address the human-ecological relationship and our growing consumption habits is urgent. This article explores some elements within Islamic environmental ethics informing Islamic environmentalism today, especially related to consumption. It also draws on selected case-studies to further examine and emphasize the gap between environmental ethics drawn from the Islamic tradition and actual Muslim consumer practices.

Over the past two decades scholars from religious studies, history of religions, philosophy and theology have created the field of Religion and Ecology, with implications for policy and practice (Grim and Tucker 2014). They argue that world religions have a key role in facing modern environmental challenges, with the potential of adding a spiritual and ethical dimension to the environmental movement. This study will briefly highlight some of the key sources and concepts informing eco-theology in Islam and Islamic environmentalism with an emphasis on views relating to consumption. The relationship between Islamic conceptions of consumption and the actual consumption

habits of Muslims across the world will be highlighted. Drawing on some selected case studies examining how Islamic principles inform Muslim consumers, I call for further and more comprehensive studies, in light of the emerging research in the field of consumption.

This paper defines eco-theology as a theoretical framework drawing on Islamic environmental ethics to deal with modern environmental challenges. Islamic environmentalism refers to Muslim groups or individuals taking environmental action which is founded in religious teachings (Härmälä 2014). The environmental ethics are mainly drawn from the Qur'an, which is believed

by Muslims to be the words of God revealed to the Prophet Muhammad, over a period of 23 years ending with Muhammad's death in 632 A.D. Hadiths are reported sayings and/or actions by the Prophet Muhammad, which help form the basis for moral and religious law. The various positions and approaches scholars take towards the Hadith literature contributes to the different Islamic schools of law and overall diversity within the Islamic tradition (Brown 2014). Though the Quranic verses and prophetic sayings informing the eco-theological discourse are generally well known, the discourse cannot claim to be widespread across Muslim countries. According to World Bank numbers from 2014, Muslims spend around US\$2.3 trillion on halal food, and lifestyle sectors such as fashion, cosmetics, entertainment, tourism and education. In 2010, six of the top ten countries with the highest greenhouse gas emissions per capita, were Muslim majority countries. Qatar in the lead, followed by Kuwait, Brunei, Oman, UAE, and Bahrain.

“Profound environmental ethics are deeply embedded in the Qur’an, Hadith-literature and the Islamic tradition.”

Corporations have acknowledged the power that Muslim consumers hold, turning them towards Islamic marketing in order to profit on Muslim identity (Härmälä 2014).

Scholars have underscored this gap between theory and practice and recognize a disjunction of religious scriptures and modern environmental issues, noting the historical and cultural divide between texts written in earlier periods (Grim and Tucker 2014). This may also be a possible explanation as to why eco-theological discourse is not more embedded in Muslim consumption habits. The notion of anchoring a modern environmental ethics in Islamic spirituality has existed in academia since the nineties and appears in the writings of many Muslim scholars (Nasr 1997; Ramadan 2008; Quis 1998; Aboul-Enein 2018; Islam 2015; Mohamed 2014; Härmälä 2014; Fagan 2016).



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The sources I have come across all argue that profound environmental ethics are deeply embedded in the Qur'an, Hadith-literature and the Islamic tradition. Quis (1998, 177) argues that Islam represents a normative foundation for an ecological view on nature, the cosmos and all living creatures. The number of verses in the Qur'an claiming to deal with environmental issues varies quite significantly between scholars, however, the choice of methodology and search words utilized in the different studies might be an explanation. Aboul-Enein claims there are 88 verses in the Qur'an dealing with environmental issues. He notes there is a considerable emphasis on water resource management and conservation, environmental justice, plant conservation, biodiversity, sustainability, and environmental stewardship (Aboul-Enein 2018). Fagan writes that there are approximately 500 verses in the Qur'an that give guidance on environmental matters (Fagan 2016, 67). Though it might prove difficult pinpointing the exact number of verses in the Qur'an dealing with environmental issues, there is grounds to conclude that the Qur'an does contain environmental concerns.

What can the verses in the Qur'an tell us about the human-nature relationship? Many of the informants in Härmälä's study claim to have strengthened their connection to God and developed a more profound understanding of the vast diversity of creation through contemplation and by personally engaging with nature. The informants also saw a parallel between how they study the Qur'an and how they study the creation as signs from God. The Arabic word *aya* (ayat plural) means both a verse in the Qur'an and a natural phenomenon to be viewed as a sign from God to contemplate. Studying nature also helped the informants to see creation as being set out within the fragile



balance which humanity should try to understand, maintain and facilitate (Härmälä 2014). Also related to the human-nature relationship is the concept of *iktisad*, the Islamic concept of frugality, which Fagan argues promotes more sustainable forms of consumption. Due to the dimensions of spiritual and personal development embedded in *iktisad*, she chooses not to use the English translation (Fagan 2016, 68). Overall there are a number of teachings attributed to the Prophet, verses in the Qur'an and interpretations within the Islamic tradition that attest to a modest and balanced relationship to nature and consumption (Fagan 2016).

Though the eco-theological discourse is not yet widespread, Muslim environmental initiatives have begun emerging all across the world, crossing the bridge from theoretical eco-theology to Islamic environmental action. Schwencke (2012) explores the landscape of Islamic environmentalism by using a bird's eye view and presents a number of

examples ranging from Islamic eco-philosophies, environmental law, green jihadi activism, halal eco-certified foods, eco-villages, local currencies, 'green' sheikhs and scholars, and declarations relating to nature, climate and the environment. Schwencke also explores examples of concrete environmental actions made by various organizations, NGOs, and religious congregations. In Schwencke's survey I find the book *Green Deen – What Islam Teaches About Protecting the Planet* by Abdul-Matin particularly interesting, as it provides a practical framework for environmentally conscious Muslims around the world, while giving examples of Islamic environmentalism to serve as inspiration to change (Schwencke 2012). Additionally, Härmälä (2014) points to the fact that addressing Muslim's excessive consumption habits is one of the Islamic environmental movement's overall aims.

As already noted, the eco-theological discourse today, is not influencing the majority of Muslim consumers. However, as illustrated by the size of the Muslim halal market, it must be assumed that Islamic teachings somehow do inform Muslim consumption habits. This article does not aim to be conclusive, on the contrary, it argues that further research on Muslim consumption habits is needed. Such research may contribute towards achieving more sustainable consumer habits. This argument is drawn from a number of publications relating to the emerging interdisciplinary field in the study of consumption (Ackerman 1997; Hansen 2018; Shove 2014; Warde 2005; Wilhite

2008). While critiquing conventional understandings of consumption that claim consumers make autonomous and rational decisions, it has been argued that consumers are neither autonomous nor rational. Consumption patterns are influenced by a number of contributing factors such as social and cultural norms, geographical location, systems of provision, income, class, gender and religious views.



Islamic fashion, consumer jihad, 'Mipster' and Cool Islam

The various case-studies presented in this article have a few common features. They all relate Muslim consumption patterns to Islamic principles on consumption and emphasize the role modern society plays in forming new consumer cultures. They also highlight some of the various implications specific historical and political developments have had on constructing modern consumption patterns.

Sandikci (2018) explores the relationship between religion, neoliberalism and the expansion of the market logic, and identifies three phases relating to views on Muslim consumers: exclusion, identification and

“The eco-theological discourse today, is not influencing the majority of Muslim consumers”


 Ilham Akbar Fauzi

stylization. He notes that while Muslims have engaged in trade and consumption for centuries, Muslim consumers and businesses have remained almost invisible in mainstream Western marketing theory. Sandikci identifies many possible reasons why, such as the failed secularization theory, which predicted that religion would eventually fade away. Another possible reason was what Sandikci refers to in phase one as exclusion, meaning that the marketing industry tended to stereotype the Muslim consumer as poor and uncivilized, holding anti-market, anti-capitalist and anti-Western sentiments.

In the 1980s and 1990s the emergence of mass-produced objects drawing on Islamic references became increasingly visible, signaling a change in the nature of the relationship between Islam, the market and consumption. Access to satellite television, transnational images of advertising, and new spaces for shopping and leisure, further fu-

eled the development of a globally oriented consumer culture. One global management consulting firm analyzed the Muslim market in 2007, claiming that “at a time when many other large consumer segments are reaching a saturation point, Muslims are a new outlet from which to build a base for future growth” (Sandikci 2018, 461). This marks the next phase, which Sandikci calls identification. The market analysts began to claim that Muslims are a unique segment that requires products and services specially tailored for them. This encouraged Western companies to better understand Islamic principles and values to design commodities that meet religious requirements. A market report published in 2013 supports this argument with a quantitative study of 300 Iranian university students. They suggest that companies should employ communication strategies that signify modesty, as opposed to sophistication, snobbery or sex appeals

which may be controversial (O’Cass, Lee and Siahtiri 2013). However, Sandikci importantly notes that these analyses tend to treat religion as a homogenizing force governing consumer behavior. This leads to the third phase, stylization, referring to a shift in focus of marketing professionals’ attention to subgroups. This is in keeping with the general marketing strategies that relates consumption to the stylization of everyday life, with an emphasis on individualization and using products to communicate identity, sensations and experiences. This phase also includes a growing number of Muslim entrepreneurs, bloggers and lifestyle magazines often referred to as ‘Mipsters’ (Muslim hipsters), ‘GUMmies’ (global urban Muslim consumers), and ‘Generation M’. These Muslim consumers embrace brands and pursue a lifestyle that seamlessly blends faith and modesty with fashion and mass consumption (Sandikci 2018).

American ethnologist Carla Jones (2010) examines how Muslim women in Indonesia negotiate the borders of materiality and piety. The growing number of modest Islamic fashion brands and magazines promoting a ‘modest’ style in line with Islamic clothing conduct, and the increased use of Islamic cultural symbols as fashion accessories, such as the hijab (veil), reveal a new type of discourse on consumption, framing modesty with concepts of beauty and cleanliness. Some religious discourses accuse these women of vanity and not really practicing Islam, while other feminist critiques worry about the increased use and ‘beautification’ of the veil. Jones also points to the growth of the ‘pious consumer’ in general, entailing goods and services ranging from CD recordings of sermons, halal fast food and hajj packages (pilgrimage to Mecca), to religious ring-tones, halal nail polish and make-up (Jones 2010). It might be significant, however, to

mention that Schwencke (2012) devotes an entire chapter to ‘green’ Indonesia, claiming they are taking the lead in the ‘greening Islam’ process. This is not something that Carla Jones addresses in her study. Though references to Islamic ideas and notions related to consumption are presented and discussed, they are mostly framed within concepts of modesty and piety. It therefore would be interesting to examine how the ‘green’ discourse contributes to these discussions.

Another example is Iméne Ajala’s study using terms such as Pop-Islam and Cool Islam to describe young Muslims abiding by conservative Islamic clothing conduct, while adopting typical youth references to pop-culture and urban street wear (Ajala 2018). Elif Izberk-Bilgin (2012) provides another interesting case study from the Turkish context, where she investigates how the ideology of Islamism informs brand meanings among low-income Turkish consumers. Her informants frame market societies as devoid of social equality, morality and justice, and



“A debate about consumption habits grounded in Islamic environmental teachings might prove fruitful in informing the discourse and providing eco-aware Muslims with the practical tools to implement sustainable consumption habits in their daily lives”

call for a consumer jihad to boycott global brands which in they believe invest in the wars conducted around the world which kill Muslims. Furthermore, they are highly critical of Western and secular influences promoting consumerism, and of the objectification and sexualization of women. However, such motives are not environmental, but political (Izberk-Bilgin 2012).

Concluding remarks

The various case studies informing this article shows that religion is a significant factor in shaping consumption habits in Muslim societies. Though expressed in a myriad of ways, Muslim consumption habits are firmly grounded in Islamic teachings. The case studies also point to the complex number of other factors influencing consumption habits. A striking feature among most of these cases, is that they do not include an environmental perspective. Another interesting observation is that the majority of the studies tend to focus on conspicuous consumption or the visible status-seeking consumption. Equally, or maybe more important, is the inconspicuous consumption that every human being partake in, including energy, water, food and general household consumption. Looking at everyday consumption is important, because these are the main areas that need to be targeted in order to achieve the desired goals of reducing CO₂ emissions, toxic pollution and waste (Hansen 2018; Wilhite 2008;

Shove 2014; Warde 2005). The studies I have come across in my research, has led me to conclude that a comprehensive study of consumption is not prevalent in the eco-Islamic discourse. However, a debate about consumption habits grounded in Islamic environmental teachings might prove fruitful in informing the discourse and providing eco-aware Muslims with the practical tools to implement sustainable consumption habits in their daily lives. Additionally, keeping in mind the spiritual and ethical dimensions of Islam's environmental teachings, may be a powerful tool to institute Islamic environmental action across the globe.

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Why I'm Not A Vegetarian

An Environmentally-minded Defense of Consuming Animal Products

The industry that breeds animals for food causes great ecological harm and animal suffering – yet there is an argument to be made for a sustainable diet that includes animal products. In most cultures, animal products are an essential part of traditional diets that are based on what is available, local and seasonal. Animals are also a part of resilient and diversified food systems. While we may avoid animal products from an industrial food system, we may consume according to principles that seek to bolster healthier, more life-supportive alternative food systems that include animals. We can thereby reclaim our sense of ourselves as active participants in the ecological (agricultural) systems that sustain our own lives as well as those of the animals we consume.


 Engin Akyurt

At every step of the way – from the synthetic fertilizers used on soy and grain monocrops grown for livestock feed, to soil degradation caused by over-grazing, to methane emissions caused by cow farts – the impact of the meat industry is devastation. It contributes to approximately one third of global emissions (Schäfer 2013). What’s more, cruelty is rampant in factory farms, which are designed to maximize profit with little regard for animal welfare. I have faced these facts, questioned my habits, and even experimented with vegetarianism in periods of my life. Yet I still eat meat, eggs, and dairy products. How can that be? I’ve chosen my habits based on ecological principles, in spite of the aforementioned evidence.

I have just survived my first Norwegian winter (thank you very much). Subsisting on a vegan diet through the Norwegian winter strikes me as an aspiration that seems reasonable and even laudatory only because we are

extremely alienated from the source of our food. Example: I was well into adulthood when I first learned that baby carrots (popular in U.S. supermarkets) are just shaved-up normal-sized carrots – I never even stopped to consider how a carrot might have grown into such a perfectly smooth, finger-sized snack. It has become normal to have little idea of where our food comes from, or even what exactly is in it (Pollan 2006). So, let’s consider the ancestors of my current home, and how they could have possibly survived the winter without fish, dairy, cheese, and ham? It would have been unthinkable. A year-round vegan diet here is really only possible because of the importation of food products over incredibly long distances, and processing of food that changes its form beyond recognition. From production to packaging to transportation, these processes involve intensive resource use, large amounts of plastics, and high emissions. A more ade-



quate response to the real harms of industrial meat production would involve not doctrinaire vegetarianism, but dietary practices that tend towards what is local, sustainable, and seasonal – wherever we are.¹

In addition to being a facet of a seasonal diet in many if not most places around the world, animals are a necessary part of a healthy and productive, diversified agricultural system. In 2017, I participated in a permaculture design certificate course in Guatemala. Shad Qudsi, the farmer-founder of Atitlán Organics, proved an astute guide in orienting us to the practical how-to of killing and gutting a chicken, while imbuing the ceremony with a sense of reverence and gratitude – not for neglect of the profound moral and philosophical implications of killing an animal so that we can eat. On Shad's farm, chickens serve a key function – their pecking for worms in deep bedding chick-

en coops yields the richest organic fertilizer you might imagine. Shad has goats too, because in addition to providing milk, grazing animals (when properly managed) can help maintain healthy soil that supports a robust agricultural system while sequestering larger amounts of carbon. Indeed, Cows are really not the problem – the modern meat industry is. In fact, silvopasture, a form of agriculture that incorporates trees into animal grazing land, has been hailed as a technique with vast potential for drawing carbon from the atmosphere as a strategy for mitigating climate change (Hawken 2017, as cited in Nargi 2018).

I make food decisions according to certain principles, while making room for nuance and occasional overwhelm. While we cannot live in our current system and forego negative impact, I seek to avoid the worst and cruelest manifestations of our agricultural system. Since meat that I can feel good about purchasing is expensive, I eat meat infrequently. I also willingly pay a little more for the best eggs, cheese, and milk I can find. In addition to trying to avoid harm, I seek

1. In Pollan's later book, *In Defense of Food* (2008), he demonstrates how traditional food cultures the world over – despite their vast diversity – have historically provided humans with a much stronger starting point for choosing a diet that is healthier both for our bodies and ecosystems, as compared to the Western food culture created by the industrialized food system.

to create positive impact by supporting local agriculture and food systems that are fair trade and environmentally-conscious. While our food choices may currently feel riddled with impos-

sible choices, we might find a way forward through the complexity, decrying the worst abuses of our modern system while seeking to support farms and companies promoting more conscious alternatives. Recognizing that a future that supports life likely includes a diversity of approaches, we may cultivate food systems that integrate contemporary knowledge and technology, traditional local agricultural practices, and principles of natural ecosystems.

In our horror at the widespread cruelty and ecological devastation wrought by our industrialized food system, veganism or vegetarianism may seem like the responsible, conscientious choice. However, if, out of concern for non-human life, we reject the consumption of animal products altogether, domestic animals are ironically left with no place in our world – as they have evolved to thrive exclusively in ecosystems in which human management is central. A scenario without a place for domestic animals would

“If, out of concern for non-human life, we reject the consumption of animal products altogether, domestic animals are ironically left with no place in our world – as they have evolved to thrive exclusively in ecosystems in which human management is central”

not only be bad for these species – it would be bad for ours, too. These animals don’t only give their flesh, their milk, and their eggs. Their participation is crucial in resilient ecosystems that enrich life in ways we likely have only begun to understand. Furthermore, although we can avoid consuming meat, we cannot step out of earth’s life systems – from every bite of food we consume, to every breath we take, the non-human world sustains us. If we back away from eating meat without actually restoring a sense that we are embedded in the ecosystems which sustain our lives, we are implicitly accepting that humans are doomed to be voracious and parasitic consumers of Earth’s life-giving resources. We have indeed played this role, but we are not prescribed to it. We have the capacity to back away and minimize our footprint, but also to step in, maximizing our pro-environmental handprint. We have the capacity to participate in regenerative food systems of which animals are as necessary a part as we are.





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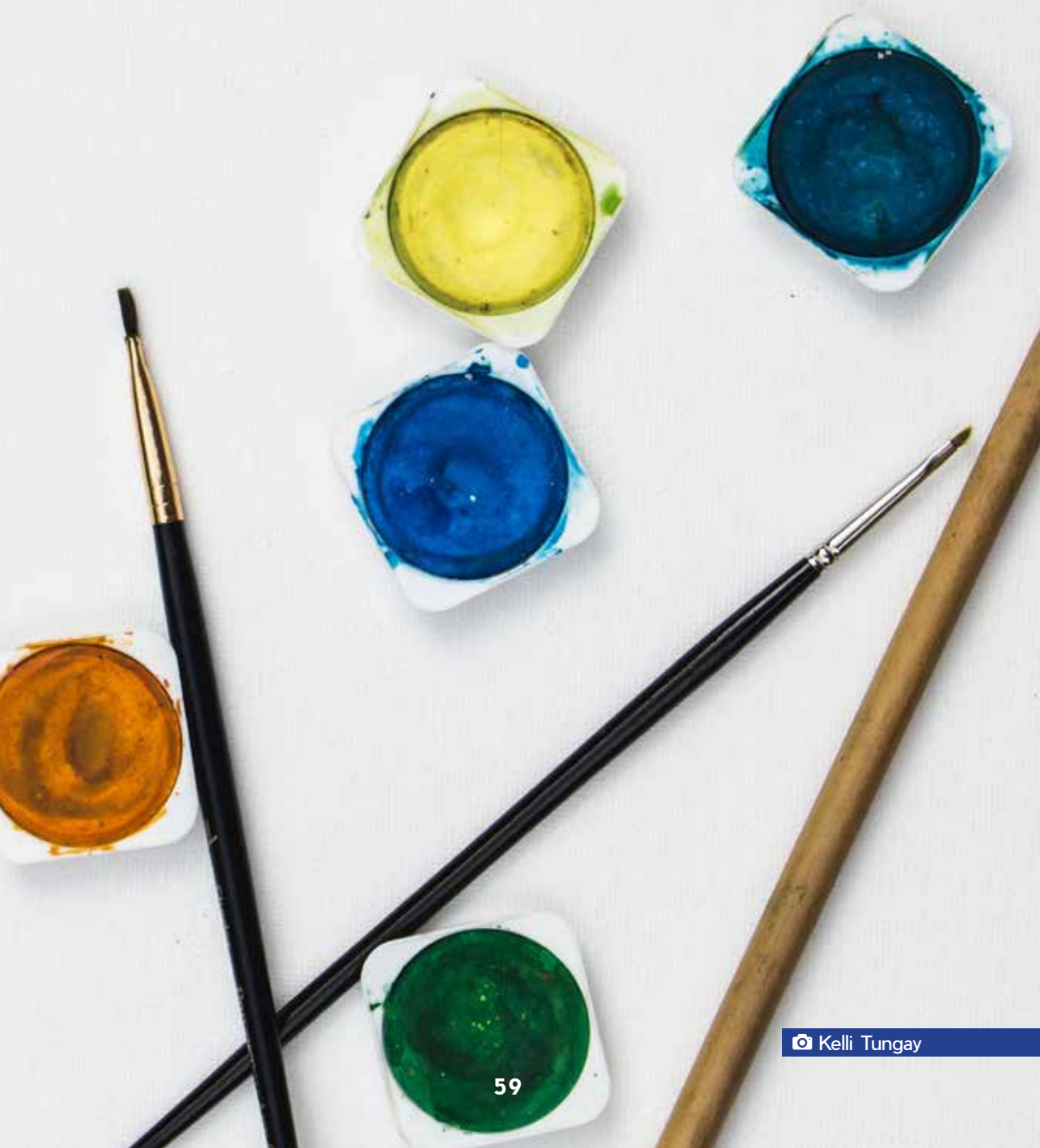
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Doesn't matter if you wrote a poem about overpopulation;
Or if it was a song about environmental movements in your nation.
Perhaps you made a sculpture out of recycled plastic;
Or maybe you painted a mural of endangered species, which is fantastic.

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Cultured Meat Meets Meat Culture

Making the Case for In Vitro Meat Production

Contemporary industrial meat production is wreaking havoc on the climate, killing billions of suffering animals every year, and threatening the health of consumers. Despite this, global meat consumption keeps increasing. What if we could eat meat without killing any animals?

“The abuse of animals won’t stop until we stop eating meat”, moral ethicist Peter Singer (2015) wrote, 40 years after he first published *Animal Liberation*. While Singer was primarily concerned with the treatment of animals as an ethical issue, others have focused on the vast negative impacts that industrial agriculture has on the environment and on public health. Even if we accept Singer’s reasoning overall, we might find fault with some of his premises. This essay explores another potential solution to the challenges of contemporary meat consumption, namely cultured meat – in vitro muscle tissue produced without killing any animals. While acknowledging the challenges transitioning to cultured meat will pose, the essay suggests that the current proliferation of in vitro meat production holds promise for a more sustainable future.

Confronting the meatification of society

Humans consume more meat now than ever (Ritchie and Roser 2019). Indeed, following the industrialisation and economic growth of the 20th century, meat has become increasingly central in the human diet. Weis (2013) refers to this process of intensified meat consumption as a meatification of contemporary society. While levelling out in some places, meat consumption is expected to keep rising dramatically in most developing economies (Steinfeld et al. 2006, Hansen 2018).

As meat consumption has increased, we have become farther (physically as well as cognitively) removed from the animals we consume (Weis 2016, 8). This rather paradoxical disconnect is best explained by the nature of meat production and consumption, which has also changed a lot. On the

“Industrial animal agriculture – or factory farming – strips animals of their agency and transforms them into commodities as livestock rather than individual beings”

side of production, industrial animal agriculture – or factory farming – strips animals of their agency and transforms them into commodities as livestock rather than individual beings (Joy 2010). On the side of consumption, pre-packaged meat is bought in supermarkets. This industrialisation of production coupled with the supermarketisation (McMichael 2009) of consumption arguably makes meat consumption “one of the disconnects of modern society”, as animal beings are reduced to “neat and nicely wrapped packages under bright lighting in the supermarket; fresh, clean and detached from its source” (Hopkins and Dacey 2008, 580). In addition to these structural underpinnings of meatification, Western societies have also seen the flourishing of a meat culture, theorised by Joy (2010) as carnism. This concept refers to the system of norms, beliefs, and practices governing contemporary meat production and consumption, which forms a carnist “matrix” through which we view the world (Ibid.). Entrenched in a carnist ideology which involves the objectification, deindividualisation, and dichotomisation of animals, she argues, we have lost sight of the atrocities involved in meat provision. Harari (2015) has even argued that industrial animal agriculture constitutes the “worst crime in history”.

The question is what changes we can make to mitigate these harms. While there has been some reduction in the “moral credibility” tied to meat consumption in affluent countries (Van der Weele and Driessen 2013, 648), deeply rooted cognitive disso-

nances allow consumers to be concerned, yet unwilling, to make personal changes (Bryant and Barnett 2017). Moreover, the structural embeddedness of meat provision in contemporary society as a “transnational animal protein complex” (McMichael 2009, 141) means that profound systemic, structural, economic, and political changes will be needed to mitigate the environmental, ethical, and health-related ramifications of industrial agriculture practices. What if we could bypass animal agriculture altogether?



In vitro meat – from sci-fi to solution

In the early 1900s, a French doctor succeeded in keeping animal cells alive outside the body, terming them immortal cells (Witkowski 1980). In his 1931 essay *Fifty years hence*, Winston Churchill predicted the ad-

vent of “synthetic foods”, writing that “We shall escape the absurdity of growing a whole chicken in order to eat the breast or wing, by growing these parts separately under a suitable medium” (Churchill and Spurrier 1931). Although it took more than 50 years to bring any such process into fruition, the advancements in in vitro meat production in the last decade – since the first symposium on cultural meat was held in Norway in 2008 (Kadim et al. 2015) – have been huge. When the world’s first cultured hamburger was presented in 2013, that burger

leather, and Just is aiming to create the best foie gras in the world without harming any geese (Shapiro 2018). In Norway, Nofima’s GrowPro project works on culturing animal protein to be incorporated into other hybrid meat products (Nofima 2019). Alongside cultured meat, there are companies creating increasingly meat-like, plant-based products, currently pioneered by Beyond Meat and Impossible Foods. While both cultured and plant-based meat products offer “meat without the animal”, only the former can be claimed to be “the real deal”.

“Growing – and commercialising – cultured meat is no longer science fiction, but a very real possibility”

alone cost \$325,000 to produce; today, this cost has been brought down to only eleven dollars (Kauffman 2017). Growing – and commercialising – cultured meat is no longer science fiction, but a very real possibility.

The process of culturing in vitro meat cells is relatively straightforward: After cells have been collected from an animal (or in some cases a plant), they are nourished into growth in a bioreactor until the protein is formed (Kadim et al. 2015, 223). The process is comparable to that of beer brewing or cheese fermentation. Although the “feed” used for cell growth has generally been based on animal blood, plant-based alternatives are being developed (Reynolds 2018). What is most profound about the culturing process, is that just a few animal cells can – quite literally – yield tonnes of meat. While several start-up companies – such as Memphis Meats, MosaMeat, Future Meat and Super-Meat – are working on scaling up cultured meat, some companies are tackling other areas: Finless Foods is creating cultured seafood, Modern Meadow is growing animal

Cultured animal products might be the solution to the biggest challenges contemporary meat production poses. Despite the inevitable uncertainties in-

involved, cultured meat production has been found to emit far less greenhouse gas emissions and requires very little land and water compared to conventional meat production (Tuomisto and de Mattos 2011; Tuomisto and Roy 2012; Welin and Van der Weele 2012; Tuimisto et al. 2014). The amount of energy required for commercial up-scaling, however, remains unclear (Mattick et al. 2015). The massive amounts of land used to produce conventional meat, Tuomisto and Roy (2012) suggest, could instead be used to provide environmental services. Cultured meat could also “lead to health gains”, in that “control for bacteria and viruses may be more reliable in cell cultures than in animals” and “cultured meat might be enriched with healthy components” (Van der Weele and Driessen 2013, 648). Finally, cultured meat

“Just a few animal cells can – quite literally – yield tonnes of meat”

requires very few animals (and arguably no animal suffering) compared to conventional meat production – and with further technological progress, it is likely that no animals will be needed whatsoever (Marks 2018).

Meat without the animal? The problem of naturalness

However, although cultured meat has an edge over conventional meat production in terms of ethics, health, and the environment, its development will still face obstacles, likely in the forms of potentially lacking consumer interest as well as industry retaliation. Indeed, the research predicts that the primary obstacle for the development of cultured meat will be consumer acceptance as opposed to technological advancement (Siegrist and Sütterlin 2017). Some studies have charted out potential consumer objections to cultured meat – and largely refuted them (for an overview, see e.g. Hopkins and Dacey 2008; Welin and Van der Weele 2012; Verbeke et al. 2015; Bryant and Barnett 2017).

Perhaps the most cited of these consumer objections is that of perceived “naturalness” – or rather unnaturalness. Proposing that cultured meat is less natural than conventional meat, however, is not necessarily a valid reason to reject it. The boundaries between the natural and the unnatural are not clear-cut; nature is not always good, and human intelligence also exists within nature (Hopkins and Dacey 2008: 587). As Welin and Van der Weele (2012, 348) rhetorically ask, is a baby borne out of in vitro fertilization not natural? Moreover, as Shapiro (2018) reminds us, the human insulin injected by – and keeping alive – diabetics is produced by a biotech-process very similar to that of cultured meat production.

The issue of naturalness can be turned on its head if we ask instead: What is natural about conventional meat production? Welin and Van der Weele (2012, 349) entertain the idea that cultured meat might even be more natural than conventional meat. They argue that industrial animal agriculture maintains very unnatural conditions for the animals in-



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volved (including breeding practices). It also involves the production of very unnatural (and meat-heavy) diets for consumers, which in turn lead to very unnatural health conditions and lifestyle illnesses such as obesity, diabetes, and hypertension. Critically, they

also argue that tissue engineering – which forms the foundation for in vitro meat production – does not involve an unnatural process per se, but rather a speeding up of the very natural process of cell formation. Hopkins and Dacey (2008, 587) reject the nature-bias altogether, suggesting instead that we ought to celebrate the unnaturalness of cultured meat, in that it can allow humans to “live out their natural propensity to eat meat while also sparing animals from the horrors of that propensity”.

Confronting the risks and dangers of the (un)familiar

In addition to the perceived unnaturalness, and the following concern for risk and danger, Hopkins and Dacey (2008) emphasise what they call the “yuck” factor – a reaction of disgust among consumers. Drawing on Douglas’ (1966) work on the contextual meanings of dirt and impurities, it seems plausible that this notion of disgust is culturally contingent, and therefore changeable. As with perceived naturalness, this “yuck” factor can also be turned on its head. Addressing consumers’ knowledge – or subjective understandings – of the processes involved in cultured versus conventional meat production, the paradoxical locatedness of the disgust becomes evident. As Hopkins and Dacey (2008) point out, when confronted with the industrial meat production process, even those who are generally comfortable

“Our normative eating habits and patterns might seem safer than new and better alternatives due to consumers’ status quo biases – that is, their irrational ‘preference for things as they are, however bad that is’.”

consuming meat feel uncomfortable. Conversely, they predict, those currently disgusted by the thought of cultured meat would “have their yuck reaction diminished” if confronted with its (much gentler) production process (ibid., 588). Health wise, in vitro meat production offers a sterile production environment where contamination is less of an issue, and therefore offers a higher level of food safety. Moreover, once the technology advances it will likely be possible to engineer meats without most health risk tied to conventional meat consumption.

The strangeness of cultured meat, however, does not make it a bad substitute for conventional meat. As a strategy to make sense of something which is unfamiliar (Marcy et al. 2015), consumers rely on simple heuristics (such as fakeness, unnaturalness, etc.) based on symbolic information when evaluating new foods (Siegrist and Sütterlin 2017, 320). In order to revolutionise an essential consumer product such as meat, then, public perception must be directed in the right way. Our normative eating habits and patterns might seem safer than new and better alternatives due to consumers’ status quo biases – that is, their irrational “preference for things as they are, however bad that is” (Wallace-Wells 2019, 159). This is echoed in Siegrist and Sütterlin’s (2017, 320) study of consumers’ risk perception of cultured meat, in which they found that “the risk already associated with meat consumption appeared


 Artem Bali

more ‘acceptable’ with normal compared to cultured meat” (ibid.). In other words, while the risks involved in the familiar was neglected, the perceived risks of the unfamiliar were amplified. Similarly, conducting a hypothetical choice experiment, Slade (2018) found that more consumers would opt for a conventional meat burger than cultured meat burger even if they had the same taste.

Arguably, however, it is the human unwillingness to break with the increasingly unsustainable patterns of the familiar which has put us in the compromised situation we are in today. Achieving a sustainable future

“It is the human unwillingness to break with the increasingly unsustainable patterns of the familiar which has put us in the compromised situation we are in today.”

will require per definition stepping into the unknown of new ideas. Therefore, it is promising that Goodwin and Shoulders (2013) found media coverage to primarily reflect enthusiasm for cultured meat.

A turning point for meat consumption?

As the topic of cultured meat is slowly starting to rise to the public conscious, Forbes Magazine predicts that 2019 could be “a turning point” for cultured (and plant-based) meats (Splitter 2018). Still, there are challenges. The commercialisation of cultured meat will undeniably receive criticism and protest among both consumers and industrial actors. In the US, both consumers and stakeholders in the animal foods industry have sparked a debate around the definition of meat and the consequent labelling of cultured meat products (Simon 2018). However, as Shapiro (2018) notes, some of the industrial food giants, such as Cargill and Tyson Foods, have expressed interest in partaking in the meat revolution. There are also technological challenges tied to upscal-

“Two decades into the 21st century, the “transnational animal protein complex” seems so deeply entrenched into global society that it is difficult to imagine it simply dwindling away in favour of technological alternatives to meat production.”

ing and evolving cultured animal products, but the recent years’ progress suggests that technology is perhaps not the biggest issue.

Singer (2015) admits that he is disappointed that animal suffering has not been reduced since he wrote his book in the 1970s. Two decades into the 21st century, the “transnational animal protein complex” (McMichael 2009, 141) seems so deeply entrenched into global society that it is difficult to imagine it simply dwindling away in favour of technological alternatives to meat production. Still, the evolution of cultured meat might evoke renewed hope for a disruption of conventional meat production. As Shapiro (2018) reminds us, creative destruction has led to large-scale structural overhauls before: In the late 1800s, the whaling industry shrivelled as kerosene replaced whale oil as a primary fuel source; in the early 1900s, the global horse population shrunk dramatically as internal combustion engines replaced horse-and-carriage transport.

“Today, the majority of large animals on planet earth are domesticated farm animals that live and die as cogs in the wheels of industrial agriculture”, writes Harari (2014). But what about tomorrow? “Is it possible that factory farms will one day seem as archaic to us as a whaling ship; a slaughter plant as antiquated as a horse-drawn carriage?” asks Shapiro (2018, 46). Yes, is his rhetorical answer: “One day we will look back and think how archaic our grandparents were in killing animals for food” (Shapiro 2018, 24).

Conclusion: Culturing meat on the path toward sustainability

While it is debatable whether killing animals for food, or indeed the practice of animal farming, is unethical or bad for health or the environment, we know one thing for sure – that our contemporary regime of industrial animal agriculture fails on all three points. Nevertheless, change is difficult to achieve. As Thompson (2018) aptly put it: “There are two big truths about eating meat from animals. First, animal flesh imposes a high moral and ecological price for a tender medallion of food. But here’s the second truth: [We] don’t really care about all that”. Indeed, the continued global demand for meat coupled with the deeply rooted meat culture in contemporary societies makes it unlikely that our current meat provision system will undergo any major transformations in sustainability or animal ethics any time soon. However, cultured meat offers some promise in a sustainable future where we can “have our meat and eat it too”. In order to realise such a scenario, more research and financial investments will need to be directed towards the development of better in vitro animal products. Additionally, both consumers and the industry will need to be mobilised to reject the familiar, conventional meats and embrace this new technology instead. While there are challenges yet to be solved, cultured meat seems to be one of the currently most productive technological paths towards a more sustainable future for humans, animals, and the planet.

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Tintaya Mine, Espinar, Cusco, Perú.



Waste and Economic Growth in Peru

The Myth that Economic Growth Will Reduce Contamination

This article analyses, from the ecological economy perspective, the effect of Peru's economic growth on nature between 1970-2015. This allows us to discuss the economic structure of Peru, the role of the government, development lines and technological dilemmas.

Pollution, contamination and economy

Human-made climate change is a fact (IPCC 2014). Since the mid-twentieth century, the average annual temperature of the planet has increased (UNDP 2013). This phenomenon is a consequence of air pollution (IASS 2019). Different human activities not only pollute through atmospheric emissions, but through economic activity which also produces waste and liquid effluents that contaminate soil and water. From the ecological economy perspective, the economy is analysed from its metabolic profile, in which the economic system transforms natural resources and energy into goods and services that we consume. The system also accounts for waste product. This way, both goods and waste will eventually be

counted as environmental waste (Martínez Alier and Roca 2013). Therefore, the greater the use of natural resources and energy by the economy, the greater the nature of degradation. The Environmental Kuznets Curve (EKC) establishes a contradicting point of view; this contradiction is the reason for this article. In the following article, I showcase Peru's evidence analysing the relationship between economic growth and environmental degradation. This evidence aims to focus on how economic activities effect nature and that even with economic growth, contamination goes up.

“Therefore, the greater the use of natural resources and energy by the economy, the greater the nature of degradation.”



Piuray's Lagoon, location for construction of Cusco's Airport and Cusco city's main source of water.

Consumption of domestic material and economic growth

There is empirical evidence of the Environmental Kuznets Curve, which hypothesizes that as income increases, there will be a certain turning point in which environmental degradation will fall (Grossman and Krueger 1991). Therefore, the relationship between these two variables would have an inverted U shape like the illustration below. This could happen due to two dynamics. Before the turning point, the effects of the economy's scale and structure lead to increased pollution. After the turning point, the effects of technology could reduce the environmental impact (Panayotou 2003).

EKC studies usually use the accumulation of greenhouse gas emissions as a pollution indicator. However, as stated at the beginning, land and water have been contaminated in several different ways. Some studies developed within the ecological economy perspective used domestic materi-

al consumption (DMC) as an indicator of environmental pressure (Bruyn y Opschoor 1997; Gonzales et al. 2010). The DMC indicator approximates the amount of waste measured in tonnes produced by each sector of the economy at country level.

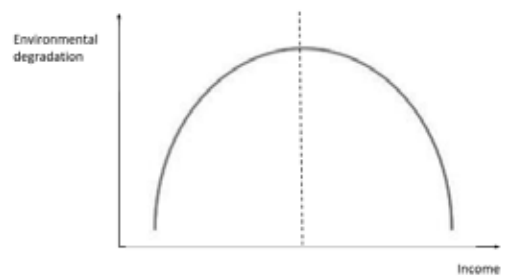


Figure 1. Environmental Kuznets Curve (Paraskevopoulos 2009).

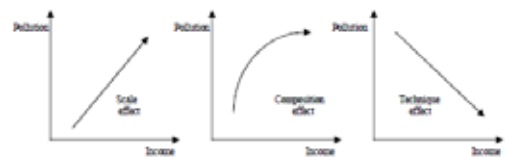


Figure 2. Effects over the income-pollution relationship (Paraskevopoulos 2009).

Economic growth and its waste in Peru

An estimation of the EKC with the DMC was made to analyse the relationship between the economy and the waste of materials in Peru (Minaya 2017). The results show that Peru, inspite of the 3.3% annual rate in economic growth (1970-2015), increased its waste at a higher rate (3.5%). This means that, for each percentile point of economic growth, the contamination measured in DMC grew by 1.7 percentile points. As such, there has been no Peruvian EKC in the last 45 years, due to the structure and scale of the Peruvian economy (Panayotuo 2003; Paraskevopoulos 2009). Most of Peruvian waste comes from the mining sector. In 1993, due to neoliberal institutional changes following the Washington Consensus, the mining sector in Peru underwent a decomposition leading to an increase in metallic and construction/industrial mining by 4.2% and 5.2% respectively. In contrast,

the sector for agriculture and livestock experienced a growth rate of 0.7% between 1970 and 2015 (Minaya 2017).

The EKC analysis can be done by using the DMC indicator since its decomposition contributes to the study of environmental impacts of large-scale economic sectors. The conclusions to this type of analysis represent arguments that contribute to the discussion of the development model of this country.

Development models in Peru

In Peru, there are two mainstream views on how the economy should be organized. On the one hand, there are authors who are in favour of growth “no matter what” and, on the other hand, there are authors who criticize and suggest strategies to change that.

Pro-growth authors suggest that the implementation of this Consensus in the Peruvian economy could mean that the country finally reaches the levels of developed



Moray terraces, Maras, Perú

countries (Wade 2016). Their argument is that the neoliberal model is the only form of rational organization of a modern economy. Therefore, it is important for the economy to increase the flow of foreign investments and the expansion of free-trade (De Soto 2000). They maintain that the economic growth generated since 1993 integrated other sectors of the population into the economy (Althaus 2007). In particular, in the proposal for the bicentennial, Kuszczynski (2010) aims to make the current neoliberal economic model more efficient and identifies the role of the government as a facilitator of private sector investment.

The most critical authors state that the Washington Consensus caused the specialization of Peru's extractive sectors, such as mining, and also generated great dependence on the external sector (Schuldt 1994). In the economic history of the 1930s and onwards, all economic recessions in Peru coincide with the collapse of raw materials prices around the world (Dancourt, Mendoza and Vilcapoma 1997). The neoliberal model has not accomplished an expansion and modernization of the production capacity of the country (Jiménez 2010). Private

“The neoliberal model has not accomplished an expansion and modernization of the production capacity of the country.”

investments are, however, mainly allocated to mining and infrastructure, and not to the acquisition of physical capital for the agricultural, livestock and manufacturing sectors. Other authors, such as Iguíñiz and Francke (2006), show evidence regarding employment in Peru. Their results show that the extractive activities oriented to the ex-



Alpaca wool from livestock sector in Espinar, Cusco, Perú.

ternal market absorb, in general, a reduced labour force due to high productivity.

However, many people carry out their activities in less productive sectors (such as the services, agricultural and livestock sectors). They propose an economic conceptual model that contributes to the reduction of inequality (pro-poor growth). In this approach, all the revenues generated from the extractive sectors could be reallocated to the least productive sectors.

Peru's government and development

On the government's side, there is poor motivation to promote a model of integral development in Peru. In fact, the Sustainable Development Goals (SDGs) became part of the agenda of the Government of Peru mainly due to international pressure (Dargent and Urteaga 2016). In practical terms, the concept of sustainable development evidences several difficulties for its implementation. On the side of the Executive Branch, only the Ministry of Environment (MINAM) (equivalent to the Department of Environment), created in 2008, promotes this concept throughout its public policies. However, MINAM is still a weak institution vulnerable to the interventions of other economic powers (Orihuela and Paredes 2014).

“At the local level, few municipalities adopt the perspective of sustainable development.”

At the local level, few municipalities adopt the perspective of sustainable development. In Lima, the only districts that implemented sustainability management were San Isidro, Miraflores and Magdalena. Similarly, the Municipalities of Tahuamanu and Tambopata in Madre de Dios carried out sustainable forest management policies in the region (WWF 2018).

The United Nations warns that, if countries do not make structural changes to their economic systems, the SDGs will not be reached (El País 2018). We must have in mind that the eighth goal of sustainable de-

velopment is growth on the scale of economic activity. However, while the economy's scale increases the level of contamination increases and only technological effect could change this (Panayotou 2003). The OECD suggest that energetic matrix change could help us to move a green economy; this will only be possible with a technological change (OECD 2011).

The dilemma of technology

Many theorists have proposed that technological development could be the solution to pollution. Technology could provide efficiency in the use of natural resources and, therefore, the problem of sustainability would be solved. However, Jevons (1865) argues that the more efficient a resource is, the more it will be used. For example, technological change in the production of cars



Textile and dance

– from fossil fuel cars to electric cars – generates a rebound effect (Butler, 2011). On the one hand, pollution generated by greenhouse gases is reduced by reducing the use of fossil energy. Yet, on the other hand, demand for electric cars will increase and more natural resources would be used in order to produce them, which also produces pollution in other ways.

Conclusion

The economic growth-nature degradation relationship is complex; the EKC-DMC estimation has proven useful to analyse it. Peru has an intensive economy imbedded in the extraction of natural resources because of global demand (Fairlie, 2015). So, part of the efforts to reduce the waste generated of its economy and reduce the environmental impacts depends on the global market. The other part depends on the government that could lead a change on the economy's structure.

At a global level, a great change in the consumption habits of people and companies could have a considerable effect on the pressure on the environment. This could create changes in the scale and the composition of the world's economy. In history, there have been societies that could live in harmony with nature (with both flora and fauna). The initiatives to solve the environmental degradation problem and its consequences

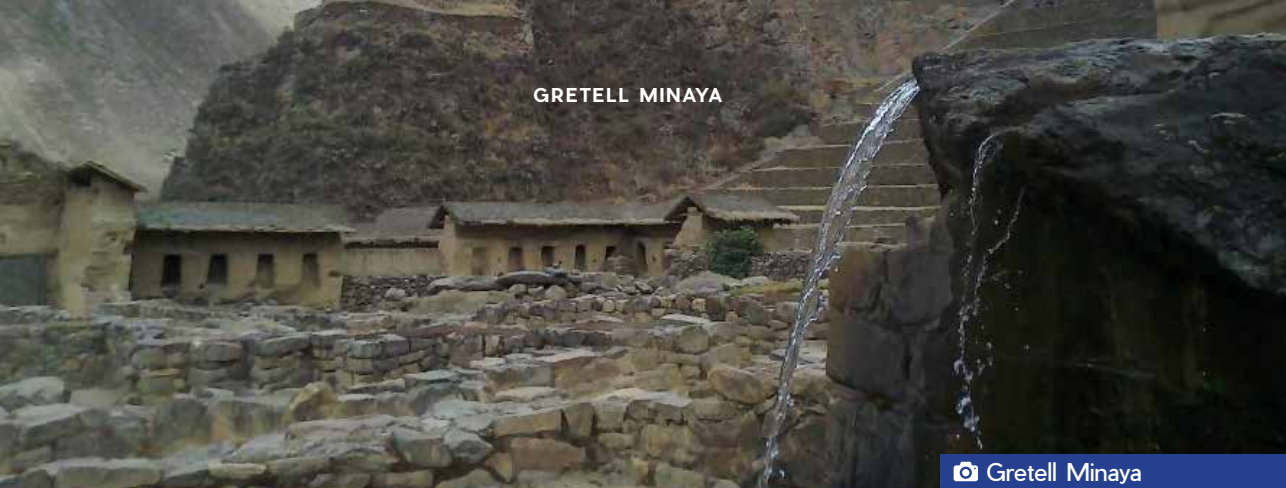
require different perspectives, for example: a change in the rhythm of production and consumption. Other authors suggest the research and adaptation of the antique societies' best practices (Varese, 2013), changing the contemporary vision of seeing nature as only raw material (Comas, 1998), and how modern green technology could work to mitigate, and even solve, these problems. However, in order to achieve this, global priorities must be re-evaluated.

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Fail.



Water in Ollantaytambo. Cusco, Perú

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Mangelsykdom

Følelsen av å mangle gjør oss nærsynte og korttenkte. I møte med klimakrisa og biomangfoldkrisa trenger vi det motsatte. Vi trenger å se utover oss selv, og lenger fram i tid enn i morgen eller neste sommer.

 Kirsten Marthinsen

For et år siden gikk jeg betydelig ned i lønn. Jeg har aldri vært særlig opptatt av å ha mye penger eller å kjøpe mange ting, så jeg trodde at det skulle gå greit. Jeg ville tross alt fortsatt ha råd til det viktigste. Likevel ble jeg overrasket over min egen reaksjon. Jeg hadde fått en mangelsykdom. Ikke en ernæringsmessig mangelsykdom, men en psykisk en. Det opplevdes som at jeg manglet noe.

En mangementalitet, enten vi (opplever at vi) mangler tid, penger, mat, status eller kjærlighet, gjør at vi hovedsakelig fokuserer på her og nå (Heshmat 2015). Vi retter oppmerksomheten mot mangelen og prøver å fylle behovet. Og det kan være bra. Vi blir mer effektive, vi får ting gjort. Vi opplever at noe er viktigere enn andre ting, og prioriterer kanskje bedre. Heshmat skriver at følelsen av å mangle noe dempes når tilgangen på det vi mangler blir større. Men i vår del av verden, hvor tilgangen på penger og ting er

stor, vil jeg påstå at mange likevel kjenner på mangelfølelsen. Ikke nødvendigvis fordi vi faktisk mangler noe, men fordi vi opplever det sånn. Det er en form for relativ mangel, vi har ikke det samme som andre vi sammenligner oss med. Vi har ikke like raske ski som naboen, vi kan ikke reise på like fine ferier som kollegaen.

Svein Anders Noer Lie beskriver hvordan Martin Heideggers begrepspar «til hånden» og «for hånden» kan belyse fenomenet (Lem 2008). Når noe er «til hånden» er det behagelig til stede. For eksempel så er du fornøyd med turutstyret ditt. Men så oppdager du at det finnes en enda bedre bukse eller enda raskere ski. Da har tingene plutselig blitt «for hånden», vi legger merke til dem og de irriterer oss. Det oppstår en mangelfølelse, vi opplever oss begrenset, og får behov for å fylle gapet mellom det vi har og det vi kunne hatt. Selv om vi nettopp var helt fornøyd med de samme tingene. Jeg mener



Kirsten Marthinsen

“Det oppstår en mangelfølelse, vi opplever oss begrenset, og får behov for å fylle gapet mellom det vi har og det vi kunne hatt. Selv om vi nettopp var helt førnøyde med de samme tingene.”

at følelsen av å mangle, selv om behovet ikke er reelt til stede, er en av grunnene til det problematisk høye forbruket vi har.

I tillegg er det slik at selv om følelsen av å mangle gjør at vi prioriterer hardere, så betyr det også at vi utsetter mer langsiktige behov til fordel for å oppfylle det kortsiktige, mer akutte (Heshmat 2015). Følelsen av å mangle noe gjør oss med andre ord nærsynte og korttenkte. Dette er en av bidragsyterne til den kollektive handlingslammelsen vi ser ut til å være rammet av i møte med klimakrisa og biomangfoldkrisa. I møte med disse krisene trenger vi nemlig det motsatte, vi

trenger å se utover oss selv, og lenger fram i tid enn i morgen eller neste sommer. Hvis vi har et slikt perspektiv, ser vi også at forbruksnivået vi har ikke kan opprettholdes. Det går i for stor grad utover både våre medskapninger og fremtidige generasjoner av mennesker. Men når vi kutter i forbruket, er det lett å møte mangelfølelsen. Da er det nyttig å ha noen redskaper for å kunne gjenkjenne og håndtere den.

En av behandlingene for mangelsykdommen kan være å bli bevisst på – og glede seg mer over – det man faktisk har, heller enn å fokusere på opplevelsen av begren-

“Følelsen av å mangle noe gjør oss med andre ord nærsynte og kort-tenkte.”

sning. Noer Lie peker på at tilstedeværelse kan hjelpe oss med å klare det (Lem 2008). Hvis vi er mer til stede her og nå, tenker vi ikke like mye på hvor mye grønnere gresset er på den andre siden av gjerdet. Det er ikke dermed sagt at vi ikke skal tenke framover. Paradokset ligger i at ved å være mer til stede i øyeblikket, blir vi bedre i stand til å tenke framover. Vi blir mer oppmerksomme på hva vi faktisk har. Tilstedeværelse gjør det lettere å se framover, fordi vi kan planlegge ut ifra hvordan tilstanden faktisk er i stedet for hvordan vi tror tilstanden er.

Med tida har jeg blitt flinkere til å spørre

meg selv en gang til når mangelfølelsen kommer over meg: Hvor kommer den fra? Hvilket behov prøver jeg å dekke? Trenger jeg egentlig det impulsen sier at jeg vil ha? Og med det spørsmålet kommer jammen også en hel del mer frihet!

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The Polluter Pays Principle and a Fair Climate Justice

As the world faces the consequences and reality of greenhouse gas emission, there emerges the question of how nations should be held accountable. This piece brings in different theories to examine this challenge.

It is true that global climate change largely exists as a result of human production, consumption, and subsequent green-house gas (GHG) emissions. A ‘perfect moral storm’, the causes and effects of GHGs are dispersed both geographically and generationally, making it especially difficult for governments to assign blame. Existing policies makes perpetuating consumption even easier (Gardiner 2010, 548-50). In response, the Polluter Pays Principle (PPP) was created, attributing political and moral responsibility for the ill effects of anthropogenic climate change to those who have historically polluted – a way of enforcing a distributive justice on a global scale. I will define and give two distinct arguments in support of the PPP. Then, I will offer an objection to the principle given by political philosopher Simon Caney. Finally, I will assert that, in

light of Caney’s objection, a different way of distributing the benefits and burdens of GHGs would be fairer.

What is the PPP?

Consider that “distributive justice concerns itself with the distribution of benefits and Burdens”, and that GHGs are a resource (Caney 2006, 123). Fair access to GHGs, then, requires understanding how to distrib-



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ute benefits and burdens amongst those who use them: the whole world. But goods cannot be rightly allocated without analyzing how anthropogenic climate change occurred in the first place – as an accumulation of GHGs in the atmosphere over generations, the results of which manifest globally. This accumulation was (and for the most part still is) augmented by developed nations, and much to the detriment of developing ones. Given this, to assign an equal balance of benefits and burdens to every nation seems inappropriate, even unethical. If the actions of a nation of individuals resulted in a certain level of pollution, that nation should pay in accordance with that level of pollution by monetarily accommodating for damages and/or reducing their own GHG emissions. It would mean adapting to a more measured way of life with fewer cars, less travel, and so on.

Applied to a national framework, the PPP adopts a ‘you broke it you pay for it’ position, rooted in an assertion of historical accountability. Proponents of this argue that we seem to hold people accountable for their pasts in our everyday lives – why not extend that to concepts of climate change (Neumayer 2000, 180)? Applying historical accountability on a macro scale therefore falls

in line with our everyday moral intuitions. Caney supports this notion, stating that: “We frequently think that if someone has produced a harm, then they should rectify that situation” (Caney 2006, 125). Indeed, even international law has agreed to hold people accountable for their historic faults. The Organization of Economic Co-Operation and Development (OECD), for example, endorsed the PPP in 1974 (Neumayer 2000, 187). More recent avowals include the Commission of Global Governance, the European Union and the Council of Ministers, as well as a “number of academic commentators” (Caney 2006, 125).

Of course, there are multiple ways to interpret the PPP. Peter Singer offers a version that begins with likening the atmosphere to a sink which everyone has access to. It seems unfair that some people get to pour more waste (GHGs) into the sink than others, yet that is what developed nations have done at the expense of others. They have used the sink more and industrialized because of it – without the right to have done so in the first place. And they still do: “the average American ... uses more than 15 times as much of the global atmospheric sink as the average Indian. Thus Americans ... effectively deprive those living in poor countries of the

opportunity to develop along the lines that the rich ones themselves have taken” (Singer 2010, 189). By this interpretation, it seems reasonable that the polluter should pay, as they received a bigger piece of the emissions pie (or the atmospheric sink), and should eat smaller pieces of future pies to accommodate, relative

“Applied to a national framework, the PPP adopts a ‘you broke it you pay for it’ position, rooted in an assertion of historical accountability. Proponents of this argue that we seem to hold people accountable for their pasts in our everyday lives – why not extend that to concepts of climate change”


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to what is owed. This concept can be further expounded via the liberal notion of equally allocating goods. That is, a just liberal democracy aims at distributing “the benefits of emission-intensive economic production equally” (at least, it claims to) (Neumayer 2000, 188). This position entails reducing over-emitters’ access to emissions themselves to balance out their use of a resource that should be distributed equally amongst peoples, a notion that is foundational in justifying the PPP: “It is not about blame or collective moral guilt... but about assigning an equal share of the beneficent existence of

the absorptive capacity of nature to every individual” (Neumayer 2000, 188).

Problems with the PPP?

Perhaps the most jarring issue facing the PPP is the fact that those who have historically over-polluted were unaware of how they would affect the future. How is it just to assign harsh blame to a country which did not know any better? After all, present GHG accumulations stem from pollution dating back 200 years, when the harmful effects of GHGs were yet to be uncovered simply because they hadn’t occurred yet (information

“We can say that the first industrial polluters were inculpably ignorant because they could not foresee climate change. That is, polluters could not have realized what they were doing; their ignorance, though criticisable, is not blame-worthy. To hold present nations historically accountable ignores that fact.”

about climate change was not even readily accessible until the early 1990s) (Caney 2006, 131). Here it is helpful to introduce the concept of culpability. A doctor who accidentally kills their patient by not knowing their penicillin allergy, for example, may still be considered culpable if that allergy information was reasonably accessible but overlooked. They may have forgotten to ask, they may have been tired, overworked – the resulting death nonetheless makes it so that their ignorance is blame-worthy. The doctor should have known better. Culpability would likely be assessed differently had there been no information available about the patient's penicillin allergy, however. We can say that the first industrial polluters were inculpably ignorant because they could not foresee climate change. That is, polluters could not have realized what they were doing; their ignorance, though criticisable, is not blame-worthy. To hold present nations historically accountable ignores that fact.

In response to the PPP

In light of the previous objection and others not mentioned, I offer a potential solution to a distributive climate justice first proposed by Singer (2010). His 'time-slice' principle – "Equal Shares for Everyone" – starts by offering all nations a fixed allotment of GHGs (Singer 2010, 190). Namely, it determines current distribution of goods and whether that division is fair to all parties involved. Fair allotments would be determined by current United Nations projections of population growth by 2050 (how much energy is reasonably needed per person), with a focus on stabilizing emissions. While this

"A more pragmatic solution would be to work with a time-slice principle. This solution recognizes that the point of distribute climate justice is to rectify and mitigate anthropogenic climate change so that we can increase global welfare overall."

task may seem daunting to nations who are accustomed to gross over-emitting, it is not impossible precisely because of a built-in trade component. A country that knows it will over-emit may purchase the shares of another country who under-emits, which is economically (and environmentally!) advantageous for both countries. This way, developed countries will not 'suffer' from having to 'drastically' alter their habits. It also accommodates countries who need more energy for practical reasons (like Canada in the winter) but not at the expense of others.

Most do not deny that developed nations largely caused anthropogenic climate change (Singer 2010). The United States' significant relative access to the benefits of emitting GHG does intuit a sense of injustice, especially given "the world's poorest people, [who] are not able to partake in the benefits of this increased productivity in the industrialized nations—they cannot afford to buy its products – and if rising sea levels inundate their farmland ... they will be much worse off than they would otherwise have been" (Singer 2010, 188). Yet it seems unfair to stringently charge developed nations for the actions of inculpably ignorant people who lived generations before them. That is not to say current practices of over-emission are excusable – and developed countries surely continue to emit – but making present citizens endure punishment for the actions of their foremothers is less practi-

cal than observing negative trends that could be fixed. A more pragmatic solution would be to work with a time-slice principle. This solution recognizes that the point of distribute climate justice is to rectify and mitigate anthropogenic climate change so that we can increase global welfare overall. Working with a time-slice principle avoids the problem of assigning blame to the inculpably ignorant, while still making sure those who pollute drastically alter their habits. Admittedly, scientifically determining what each country should emit GHG-wise is a problem now, but not an irreparable one. But if we care about delivering a fair and equal solution free from the PPP's baggage, then the time-slice principle offers a progressive path forward. It would help make carbon pricing more equitable, which would hopefully engender more public acceptance of emissions reduction on a global scale – something we should all agree on.

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Green Savior or Greenwash?

Since its invention in the 1930s, plastic has come to dominate modern society. Despite plastic's beneficial uses, it has a dark side: contributing to greenhouse gas emissions, polluting the environment, and threatening wildlife. Bioplastics are emerging as a green front-runner to replace traditional plastic, yet questions remain. Are they actually green, or just another greenwash product contributing to environmental harm?

Plastic Planet

Albatross starving from plastic ingestion, turtles caught in six-pack rings, and beached whales with stomachs full of plastic are becoming common images in mainstream media. Environments change naturally over time, however, one unnatural thing currently clogging up ecosystems and polluting the environment is plastic. Derived from oil and natural gas in processes that create polythene polymer, plastic was accidentally invented in 1930s Britain. Expanding fairly slowly, polythene became popular during WWII, although modern grocery bags were not created for another twenty years in 1965. Since the late 1970s, plastic use has grown exponentially (Song 2017). The World Counts estimates that 5 trillion bags were used in

2016 alone, yet only 1% of these bags were recycled (Song 2017; citing World Counts 2016). In total, over 8.3 billion metric tons (Mt) of brand-new plastic has been produced, since first created up until 2017; only 9% of which has been recycled, and 12% incinerated (Geyer et al. 2017).

Despite plastic's many uses and benefits as a strong and light-weight material, it has a dark side. Plastic is made from a combination of natural gas and petroleum, both of which are fossil fuels contributing to climate change (Muthu 2011). In the U.S., natural gas is more common for producing plastic (EIA 2018). Nevertheless, estimates show 5% of America's annual petroleum consumption still goes towards plastic, utilizing approximately 330 million oil barrels a year

(Petroleum.co.uk n.d). Furthermore, an average of 3 tons of CO₂ is given off per ton of PET (polyethylene terephthalate) produced, meaning that 2.5 million tons of CO₂ was emitted just for producing bottled water in 2006 (Pacific Institute 2007). Given that the U.S. emitted 6052 million tons of CO₂ in 2006 (Global Carbon Atlas 2017), 2.5 million tons may seem small, but that only accounts for bottled water production, not for other bottled drinks, food packaging, and the millions of other plastic products on the market. Plastic manufacturing continues to grow – increasing emissions and posing new disposal challenges.

Virtually every piece of plastic ever created still exists today (Geyer et al. 2017). Plastic does not biodegrade, so it often breaks up into smaller particles through photo-degradation from the sun's rays (Song 2017). Even when plastic does appear to diminish, the outcome is actually more

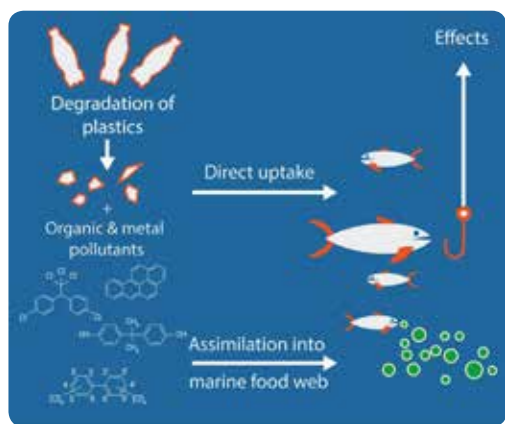
sinister. Photo-degradation occurring over the course of fifty plus years culminates in the release of “smaller and more toxic petro polymers” (Song 2017, 185; UNEP 2014). In water, photo-degradation takes longer to occur, but can spread particles much further (Song 2017).

Even without the added danger of toxic micro-particles from photo-degradation, plastic is posing serious threats to wildlife. Each year, over 8 million metric tons of trash is dumped into the ocean (Geyer et al. 2017), and by 2050 there will be more plastic in the ocean than fish (UN News 2017). With so much trash, it is no surprise that many animals consume or get tangled in the plastic waste they mistake for food, often resulting in death or injury (Song 2017). By 2050, 99% of seabirds will have ingested plastic which can cause malnutrition and starvation (UN News 2017). Furthermore, when animals ingest plastic, the toxins and



Emilian Robert Vicol

Plastic degradation process



SINTEF – Plastic degradation process

plastic particles consumed can move up the food chain (Kim et al. 2018). Recent studies already show trace amounts of plastics passing through humans, although the health consequences are not yet known (Kim et al. 2018).

A Plastic Pollution Solution?

In response to the dangers and troubling amounts of plastic polluting Earth's natural resources, countries are finally taking action to implement new measures. Some efforts to limit plastic include information campaigns, taxes, fees, or outright bans (Song 2017). For example, in 2015 the U.S. launched the Microbead-Free Waters Act, effectively banning microbead infused cosmetics. In 1991, Germany passed legislation requiring retailers to pay a tax for providing plastic bags, which the companies then charge to customers who want bags (Xanthos & Walker 2017). Other nations, such as Morocco, which used to be the world's second largest plastic bag consumer, has banned providing plastic bags at the checkout (Alami 2016). Even more impressive, beginning in 2008, Rwanda banned the complete sale, use, and manufacture of plastic bags (Xanthos & Walker 2017). Despite bans, taxes, and other campaigns; bags and other forms of

plastic waste are often still exchanged or seen polluting the environment. Consequently, Earth's rivers, oceans, and land continue to be inundated and poisoned by plastic.

The notion 'out of sight, out of mind' must cease. Media coverage and growing awareness towards plastic pollution has finally come to the fore, highlighting the waste problem of mass consumption. Even with growing awareness and increasing calls to recycle plastic, the recycling and collecting of litter can only do so much. Along with the emerging zero waste and plastic free movements, education aiming to prevent pollution and reduce plastic consumption could form a path to much needed change. Fortunately, bioplastics are also emerging as a promising replacement to traditional plastic.



Total Corbion – Plastic degradation process

Bioplastics are synthetic plastic alternatives derived from biological materials rather than oil and gas (Posen et al. 2017). Most bioplastic food packaging contains PLA (polylactic acid) which can be made from corn, sugarcane, or other plant-based inputs (Posen et al. 2017). Another method for creating bioplastic involves producing PHA (polyhydroxyalkanoate) through micro-organism engineering (Gibbens 2018). In recent years, research aiming to create bio-

plastics from a variety of different resources including fungi, milk, and oil palm cellulose has grown (See: Bonnaillie et al. 2019; Isroi et al. 2017; Posen et al. 2017). Currently, the bioplastic market remains small with 880,000 tons produced in 2017, accounting for just 0.3% of all plastic production (Calabrò & Grosso 2018). With the potential to cut CO₂ emissions, utilize organic materials and agricultural waste, bioplastic shows promise for reducing reliance on traditional plastics (Isroi et al. 2017). All the same, even with the potential for good, there is reason to be skeptical towards this possible ‘green’ savior.

Social & Environmental Consequences

Bioplastic is often touted as an up-and-coming green alternative to traditional plastics. However, it may not be so green after all. As with biofuels, producing bioplastics has many negative environmental impacts. With

“Meeting global bio-plastic demand would require 3.4 million acres of land; bigger than Denmark, Belgium, and the Netherlands put together.”

increasing food scarcity and global soil depletion, agriculture for goods rather than food production is controversial. Meeting global bioplastic demand would require 3.4 million acres of land; this is bigger than Denmark, Belgium, and the Netherlands put together (Cho 2017). Furthermore, growing crops to create products is closely tied to fossil-fuel driven monoculture models (Mol 2014). Making traditional plastic annually requires 8% of global oil outputs (Gibbens 2018). Overall, bioplastics may

Deforestation, runoff, and soil erosion from plantations





Industrial composting

 Wastebusters

give off lower CO₂ levels throughout product lifespan, but still create greenhouse gas emissions (Posen et al. 2017). Large monoculture plantations producing plants for bioplastics still rely on clearing land, and fossil fuel inputs for processing, transporting, and cultivating the crops.

In Colombia's Pacific region large oil palm plantations disrupt local communities, threatening food sovereignty and autonomy (Mol 2014). The location is one of Earth's most biodiverse, yet massive monoculture plantations eradicate local species and traditional farming methods which intersperse crops among native vegetation. Monocultures cause deforestation, require large sums of water, and physically alter the environment and microclimate. Local areas surrounding plantations notice-

ably experience wind pattern changes, less precipitation, and higher temperatures. Additionally, intensive use of pesticides and fertilizers to maximize yields, poison native species, groundwater, rivers, soil, and locals (Mol 2014). Research has found that bioplastic's extensive use of land and chemical inputs actually contributes to higher levels of ozone depletion than traditional plastics (Cho 2017; Posen et al. 2017).

Besides harming nature, locals are also taken advantage of. In the Colombia Pacific, habitat destruction impacts hunting, river contamination leads to declines in fishing, and intensive plantation water-use reduces resources for more efficient traditional sub-

“Bioplastic’s extensive use of land and chemical inputs, actually contributes to higher levels of ozone depletion than traditional plastics.”

sistence methods. Locals become prisoners in their own homes, unemployed or poorly paid, no longer able to feed themselves adequately or move freely. Culture, dignity, and relations are often under assault from 'development' programs touting plantations as an opportunity to improve local livelihoods (Mol 2014). Furthermore, monoculture plantations sometimes arise from land grabs, adversely affecting local populations and land owners. This is especially the case among indigenous populations who may have no formal land contracts and can be displaced by corporations or the state. In Indonesia, corrupt government officials often take bribes from wealthy companies to lift environmental protections or displace existing groups (Hall 2011).

Difficult Disposal

Apart from the ill effects of producing the crops to create bioplastics, getting rid of the materials after use poses its own set of challenges. Like normal plastics, bioplastics in marine environments break down into micro particles which poison sea life. Furthermore, if PLA leaches out of the product into the

ocean, it will not biodegrade at all (Gibbens 2018). The terms 'compostable' and 'biodegradable' are misnomers, because specific conditions must be met for the processes to occur. Typical home composting can not break down 'compostable' plastic with PLA, since the material requires intense heat only given at industrial composting sites (Pond 2017). Existing infrastructure to properly recycle or degrade bioplastics, in combination with consumer know-how, is necessary for effective bioplastic disposal (Gibbens 2018). Much like traditional plastic, if bioplastic continues to end up in landfills it will remain, perhaps for eternity, preserved in the anaerobic environment (Posen et al. 2017). However, even without oxygen, bioplastic undergoes changes to release methane gas (Cho 2017). As is widely known, methane is a highly potent greenhouse gas; it is 23 times worse than CO₂. Moreover, it is difficult to distinguish between bioplastic and normal plastic in order to effectively treat the waste (Calabrò & Grosso 2018). Some products contain both PET and PLA, and thus are not biodegradable. This is the case with Coca Cola's PlantBottle, which is a perfect exam-



Water bottle 'grown' from algae

“Much like traditional plastic, if bioplastic continues to end up in landfills it will remain, perhaps for eternity, preserved in the anaerobic environment.”

ple of greenwash, or a product appearing to be ‘green’ simply to increase sales. The name PlantBottle suggests the packaging is plant-based and biodegradable, however plant material has only replaced 22.5% of the PET content (Pond 2017). Also, mistakenly mixing bioplastic with normal plastic batches can contaminate recycled PET – sending the entire lot to the landfill (Cho 2017). Whether a product stating ‘compostable’, ‘plant-based’, or ‘biodegradable’ will live up to its label, depends on the product material and the recycling and disposal systems in place.

Avoiding Greenwash

With significantly more pieces of microplastic in the ocean, than stars in our galaxy (UN News 2017), humanity’s plastic addiction has gotten out of control. To curb emissions, plastic pollution, and the adverse environmental effects, a convenient and eco-friendly alternative is necessary. Bioplastic holds potential to be one possible solution, yet just like other ‘green’ products promising to save the planet, there are downsides.

Bioplastic is not itself a bad thing, however its production and degradation matters. Relying on monoculture plantations, fossil-driven technology, and industrial composting will not do. To make sure bioplastic is truly green and not simply greenwash, looking into the lifecycle is key. Supply chains using renewable resources and crop residues to make easily recycled or garden compostable products can help. For example, Full Cycle Bioplastics turns organic waste into containers and cutlery; this transforms food and agricultural waste into useful compostable and marine degradable prod-

ucts. Also, Japanese-based AMAM is working to replace plastic completely through making packaging material from agar in red algae (Cho 2017).

There are also other alternatives to traditional plastic. Several stores in Thailand and Vietnam have begun replacing plastic packaging on produce with banana leaves (Tuoi Tre News 2019). Also, bringing re-useable shopping and produce bags, buying in bulk, or choosing the product in cardboard or no packaging, can significantly reduce plastic use. Living plastic free is difficult, and takes a bit of effort, but can lead to creative solutions and positive outcomes. Hopefully in the future, truly eco-friendly alternatives will transform plastic into a thing of the past.

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Shopping without single use plastics



Rethinking Sustainable Consumption

Designing Consumption as Social Spaces and its Potential for a Sustainability Transformation

The definition of sustainable development requires reassessment. This article argues that only by supplementing the understanding of human needs with the fundamental social needs for participation, creation and identity, can one transform the patterns of consumption and create a sustainable society.



Karoline Pöggel

In a world of extremes, humans suffer from hunger and obesity, feeling isolated and lonely in gigantic cities full of people, where children are alienated from nature incapable of recognizing a cow or fresh vegetables. In a world where extremes tear humans apart, the necessity to reconsider what a good life entails and what kind of society we create lingers constantly below the surface of human existence. Re-assessing the idea of what a good life is, means, to a great extent, re-assessing consumption patterns in modern society.

Evaluating consumption patterns in society leads us to take a closer look at the values society has come to agree on. Sustainable development is enshrined as the alternative, addressing the great challenges of modern society, such as climate change, biodiversity loss and plastic pollution. Sustainable development is the only form of development considered capable to create a future for hu-

mans on earth. The international community agreed on the interpretation of sustainable development as defined in the Brundtland report. According to the World Commission on Environment and Development (WCED 1987), sustainability means equitable satisfaction of present and future needs. Nevertheless, I argue that regarding the implementation of sustainable development, a limited idea of needs is applied. Present and future needs are narrowed down to subsistence. Subsistence is the need for food, shelter and work (Rauschmeyer & Omann 2014). Yet,

“Re-assessing the idea of what a good life is, means, to a great extent, reassessing consumption patterns in modern society.”

there is a wider acknowledgement of a different, supplementary set of fundamental human needs for a healthy and happy society. Maslow (1943) shaped the discus-

sion on needs, creating a hierarchy pyramid, where physiological and safety needs build the broad base, while love and belonging, esteem and self-actualization shape the top layers of the pyramid. Max-Neef (1991) elaborates on the understanding of human needs by complementing subsistence and safety with the needs for participation, affection, understanding, idleness, creation and identity. Consequently, the discussion on a good life and human wellbeing in the context of sustainability has to consider an integrated set of human needs. The persistent lack of a wider discussion and implementation of a holistic set of fundamental human needs that reach beyond subsistence and safety is one of the causes for an ongoing unsustainable form of development.

An integrated understanding of needs in sustainability and the implementation of social needs in consumption has the potential to transform the patterns of consumption for sustainability. The process of consumption requires the use of energy, labour and natural resources in order to satisfy needs. Geiger et al. (2017) define sustainable consumption as a way to consume within ecological limits, guarantying socio-economic livelihoods where people now and in the future will be able to meet their needs. It remains valid that planet earth is limited and resources have been consumed close to exhaustion. Nevertheless, the practice of consumption continues to deplete natural resources. The needs of subsistence can

“The persistent lack of a wider discussion and implementation of a holistic set of fundamental human needs that reach beyond subsistence and safety is one of the causes for an ongoing unsustainable form of development.”

only be satisfied by material-rich strategies, whereas social needs, such as affection, participation and identity can be realized with much less material (Rauschmeyer & Omann 2014). When combining consumption and sustainability, the meaning of sustainability needs to be redefined.

As soon as the whole set of fundamental human needs is considered, consumption becomes a social space. Organizing consumption as a social place opens a sphere for new sets of meanings attached to the consumption process. Meaning-making occurs, reaching further than the status or value associated with different brands or products. It becomes a space for social interactions, where individuals actively meet others involved in the process of sustainable consumption. The consumption good is elevated from a rear product and transforms into a process that involves nature and places that the person can relate to. The meaning attached to goods in social consumption spaces can help to overcome the alienation and disconnection that humans feel in modern societies.

To illustrate the meaning of social consumption processes, I will describe two sustainable consumption spaces organized with an integrated set of needs. First, community supported agriculture (CSA) is an example of food consumption where farmers and consumers directly communicate and distribute agricultural produce. Consumers share risks and benefits with the farmers and additionally participate in growing and harvesting,

as well as, to a degree, in decision-making. CSA happens outside of the conventional market system (Hvitsand 2016). CSA is an example of a satisfier of subsistence needs and it offers to satisfy needs of participation, creation and identity. Consumers can buy the food they consume at the CSA, which is a way to make food consumption local and sustainable. Furthermore, consumers participate in decision-making around the food they consume; they can grow and harvest their own food and thereby create what they consume. Additionally, as a social space of consumption, CSA provides a group for individuals to feel belonging to and helps develop an identity of sustainability.

Second, another example of social spaces of consumption are repair workshops, where people for example meet in order to fix bikes or mend clothes. A repair workshop offers

support, for instance, to repair broken bikes by providing personal assistance, tools and materials. They often explicitly aim to increase community cohesion and build an alternative way of consumption (Golub et al. 2016). As satisfiers of needs, they offer places for understanding, creation and identity. Repair workshops are sustainable in a sense by using fewer resources. Instead, they recycle products. Furthermore, in a bike workshop, the members learn how to repair, can get active themselves and find a reference group that allows them to fulfil their need for identity and belonging.

The described examples of social spaces for sustainable consumption illustrate that consumption can be a space that offers more than satisfaction of subsistence and safety needs. Reorganizing society according to fundamental human needs means acknowl-



“The designing of consumption spaces in every possible sphere of consumption, according to an integrated set of fundamental human needs, is an essential part of building a sustainable society and carries the potential for a transformation for sustainability.”

edging that humans are inherently social beings, who constantly interact with each other in order to make sense of the world that surrounds them. There exists a need to translate the social needs into the organization of society and in organizing the everyday life. Consumption practices need a deep shift in values in order to redesign society. Market and exponential growth have to be replaced by belonging, creation and participation that create and build the social human being. The illustrated examples of existing initiatives show that it is possible to create alternative social spaces of consumption. The designing of consumption spaces in every possible sphere of consumption, according to an integrated set of fundamental human needs, is an essential part of building a sustainable society and carries the potential for a transformation for sustainability.

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Treasurer

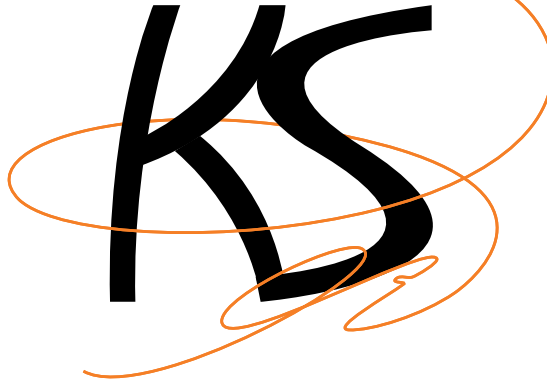
Sofie Van Canegem, from Belgium, holds a master's degree in Law from the University of Leuven. Thanks to her participation in the Philip C. Jessup International Moot Court Competition, she discovered a keen interest in International Law. Following her passion, she is currently enrolled in the Public International Law masters at the University of Oslo, where she specialises in International Environment and Energy Law.

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Tvergastein bears the name of Arne Næss' cabin retreat in the mountains of Hallingskarvet. It was there that Næss, an activist and one of the most wide ranging philosophers of the last century, wrote the majority of his work. These writings, his unique ecophilosophy, and his life of activism continue to inspire environmentalists and scholars in Norway and abroad. In making this journal its namesake, we aim to similarly join academia with advocacy for the environment. We aspire to the "enormous open views at Tvergastein" the perspective Næss found there.



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