



Power: the missing element in sustainable consumption and absolute reductions research and action



Doris Fuchs ^{a,*}, Antonietta Di Giulio ^b, Katharina Glaab ^a, Sylvia Lorek ^c, Michael Maniates ^d, Thomas Princen ^e, Inge Røpke ^f

^a University of Muenster, Germany

^b University of Basel, Germany

^c Sustainable Europe Research Institute, Germany

^d Yale-NUS College, Singapore

^e University of Michigan, USA

^f Aalborg University, Denmark

ARTICLE INFO

Article history:

Received 24 June 2014

Received in revised form

26 December 2014

Accepted 2 February 2015

Available online 13 February 2015

Keywords:

Absolute reductions

Sustainable consumption

Power

Meat

Social change

ABSTRACT

In this essay, we aim to demonstrate the value of a power lens on consumption and absolute reductions. Specifically, we illuminate what we perceive to be a troublesome pattern of neglect of questions of power in research and action on sustainable consumption and absolute reductions. In pursuit of our objectives, we delineate how many of the informal and implicit “theories of social change” of scholars and activists in sustainable consumption and sustainable development fail to address power in a sufficiently explicit, comprehensive and differentiated manner and how that failure translates into insufficient understandings of the drivers of consumption and the potential for and barriers to absolute reductions. Second, we develop the contours of a power lens on sustainable consumption. Third, we illustrate the value of such a power lens, with a particular focus on the case of meat consumption.

© 2015 Elsevier Ltd. All rights reserved.

1. Sustainable consumption, absolute reductions and the importance of power

The persistent decline of critical natural systems in spite of an array of efficiency improvements in socio-technical systems highlights the necessity of real net reductions in global material consumption (Fedrigo and Hontelez, 2010; Lorek, forthcoming). Such reductions would necessarily vary across geography and economic class, with the poor benefiting from real growth in consumption while the rich experience tangible net reductions. But overall global material throughput must ultimately decline if sustainability is to be achieved. Despite success stories celebrating breakthroughs in the efficiency of some products (electric cars, LED lighting, etc.), the sheer enormity of overall

resource use and assault on environmental systems continues to grow. Rebound effects have generally (over)compensated efficiency gains (Alcott, 2008; Clugson, 2012; Global Footprint Network, 2014). It would be a mistake to pretend that consumption can occur beyond planetary boundaries, or to proceed as if natural resources or the ability of natural systems to absorb pollutants are endlessly available. Thus, although sustainable consumption cannot and should not be narrowed down to absolute reductions, absolute reductions are needed to achieve sustainable consumption.

Such reductions will not arise spontaneously, nor simply on the basis of more data, better models and greater understanding of impacts. Nor will they occur solely due to better arguments and more pleading by and to policymakers. Real sustainable consumption – consumption at levels that reverse the depletion of natural capital, repair the rapid unraveling of the global biosphere, and produce more prosperity at lower levels of overall consumption – will only emerge through collective action, adroit organizing, and the focused exertion of influence; in short, through the dynamics of power. It will arise when particular agents, working alongside or within established organizations or across institutions,

* Corresponding author. Chair in International Relations and Sustainable Development, University of Muenster (WWU), Scharnhorststr. 100, 48151 Münster, Germany. Tel.: + 49 251 8325326.

E-mail address: doris.fuchs@uni-muenster.de (D. Fuchs).

URL: <http://www.uni-muenster.de/Fuchs/en/index.html>

deliberately change behaviors, prevailing norms, institutional structures, arenas of choice, and the boundaries of rational policy making. This work of creating conditions that initiate and accommodate real net reductions in consumption in planned and just ways is thus inextricably tied up with questions of power – the power to initiate change in service of sustainability and long-term human prosperity, and the power to blunt such changes by entrenched interests and institutions. Accordingly, our exploration of the sustainable consumption and absolute reductions literatures forces us to conclude that these fields have little choice but to develop an explicit, differentiated and comprehensive analysis of power dynamics in consumption (Fuchs, 2013a; Zenóbio Gunneng, 2006).

In recent years, scholars of sustainable consumption have begun to ask important questions about power and change in complex socio-technical systems (see, for example, Avelino and Rotmans, 2011). Nevertheless, the dominant story of academic and policy foci on sustainable consumption is largely one of avoidance – of dodging any sustained and systematic analysis of and confrontation with power. The contemporary roots of this story can be thought to begin in the global North in the late 1960s with the rise of two linked movements: the appropriate technology movement (AT) and the voluntary simplicity movement (VSM). The AT movement, itself a retreat from the politics of confrontation of the 1960s by weary activists, imagined that social power could be fundamentally redistributed through technical choice (Winner, 1986). The VSM was also in ascendance at this time. Drawing from a deep history of anti-materialism from around the world, it privileged personal sacrifice and material restraint and did not analyze relevant larger forces and structures (Maniates, 2002). This twin depoliticization of consumption and social change extended into the 1970s, when consumption became incorporated into the academic conversation via the “IPAT” formula (Ehrlich and Holdren, 1971), which described environmental impact as a function of population, affluence, and technology. Scholars and policymakers, quickly found the “affluence” segment of IPAT to be politically unwieldy, and shifted their attention to new technologies of production, accommodating, in effect, rising affluence (i.e., more consumption) with a promise, however implicit the mechanisms, of lower environmental cost (Chertow, 2001).

The 1992 Earth Summit discourse on sustainable development (UNCED, 1992) was, by and large, a natural extension of this earlier flight from the politics of consumption (e.g. Chatterjee and Finger, 1994; Princen et al., 2002), and served to cement it into place. The dominant narrative of Rio, after all, was that sustainability could be achieved with more economic growth (and rising levels of consumption) made possible by environmentally benign technologies spread by accelerating processes of economic globalization. The central challenges were managerial and scientific: better assess the costs of environmental damage, shift taxes and prices to fully account for environmental harms, and develop and disseminate new production processes and practices (Clark, 1989). The main document of the Earth Summit, Agenda 21, devoted an early chapter (Chapter 4) to changing consumption patterns, which focused almost exclusively on new technologies, efficiency improvements, and on the minimization of waste. Although the very results of the 1992 Earth Summit were defined by the dynamics of power among actors, both governmental and non-governmental, more fundamental questions about the exercise of power were relegated to the streets beyond the main conference halls. Since then, initiatives under the banner of sustainable development have disproportionately focused on sustainable production, e.g. more efficient and ‘green’ production, a shift to renewable energy sources, and localism.

These are important and admirable initiatives, but they stand as evidence of the systematic avoidance of questions about how much is enough, and about the arrangements of power that drive the exponential and ultimately unsustainable growth of consumption and material throughput.

This genealogy is one plausible explanation for why much of the research into sustainable development, and around sustainable consumption in particular, has tended to avoid questions of power. Another explanation derives from the nature of knowledge generation in the sustainable consumption field. Economics, psychology, and business studies are important contributors to the field. Each of these disciplines takes the individual as the primary unit of analysis. To the extent that power is an analytic category for these disciplines, it is a narrow sense of power, one generally confined to the power of individual actions (as consumers, as citizens, as participants in commerce) and the power coming from the aggregation of these actions. The debate on the existence (Ginevičius and Krivka, 2011) or non-existence (Akenji, 2014) of consumer sovereignty and its influence on the market mirrors this approach to power.

A third source of the field’s aversion to power, in our view, lies in the complexity of “consumption”. Individual acts of consumption can be seen as the result of multiple factors combining across different levels and over time, producing patterns of consumption whose origins and drivers are murky at best (Di Giulio et al., 2014; Kaufmann-Hayoz et al., 2013). Such murkiness has, as we perceive it, the effect of sidelining questions of power and agency, because in this complexity power becomes diffuse and no single actor can influence the nature or direction of consumption (e.g. Sayer, 2012). What is more, in economics this very lack of control is axiomatic: no actor — producer or consumer — can, or should, exert control over the market; well-functioning markets and their putative efficiencies require it. This axiom may be a useful assumption for estimating prices and output changes, but it says little about the drivers of actual consumption patterns. For that, power must enter the equation.

Perhaps most important, the field’s insufficient attention to power is related to the fact that, scholars and practitioners often fail to make explicit and critically reflect on their theories of social change, i.e. on their informal assumptions about what drives changes in society. This can lead to unrealistic expectations regarding the ease of diffusion of more sustainable practices, expectations based solely on rational decision making, the potential of marketing, or the good will of leaders, for example. Simplistic assumptions about the natural diffusion of “good ideas”, for instance, can lead to over-optimism by advocates of sustainable consumption, resulting in frustration and despair when those changes do not materialize. Similarly, a failure to address the intricacies of power can result in resignation in the face of an apparent lack of potential for change.

Most fundamentally, a lack of engagement with power prevents the field from identifying effective strategic interventions for fundamental, transformative change in systems of production and consumption. Consequently, a retreat from power, from when, how and where it occurs, diminishes the policy relevance of sustainable-consumption scholarship. If research on sustainable consumption is to reach its potential as a field of inquiry and action capable of fostering absolute reductions, it must rise above the many factors that have kept questions of power at a distance. Power must enter the equation.

In this essay, we aim to demonstrate the value of a power lens. Specifically, we illuminate what we perceive to be a troublesome pattern of neglect of questions of power by scholars in the field and demonstrate why and how those in the sustainable consumption community might pursue more power-explicit approaches to

inquiry and action. In pursuit of these objectives, we start by delineating how implicit claims about social change embraced by scholars and activists in sustainable consumption fail to address power in a sufficiently explicit, comprehensive and differentiated manner, and how that failure translates into insufficient understandings of the drivers of consumption and the potential for and barriers to absolute reductions. We then develop the contours of a power lens on sustainable consumption. Third, we illustrate the value of a power lens for the case of meat consumption and briefly sketch what the application of such a lens to the case of organic food could look like, drawing on examples from Denmark in particular. We conclude with a summary of our argument and discussion of its implications.

2. Implicit claims about social change and the role of power

When analysts, policymakers or citizens argue that Actor X should pursue Action Y to enhance sustainability or lower consumption, they are employing and advancing an implicit set of claims about how and why social change occurs. These claims are frequently informal and they unavoidably embody assumptions about power – about the ability of particular actors (making use of specific instruments of persuasion, collaboration, and coercion) to change behavior, shift norms, alter policy, or reengineer economic relations. Thus one way to bring power to the study of sustainable consumption studies is to make explicit such claims.

As examples, we sketch such implicit claims about social change (not to be confused with formal social science theories) and their associated notions of power below. In doing so, we do not seek to survey all that social scientists say about social change and catalogue the various theories. Neither do we claim that we know how social change occurs. Nor are we arguing for the superiority of one claim over another; one or another may be highly useful in particular settings. For instance, the “buy green” understanding of social change may work very well among a subpopulation that is highly influenced by market forces, has strong social concerns, and is primed for taking steps beyond purchasing. It may be useless among subpopulations that have limited purchasing power.

Our intent, to be clear, is simply to shine light on that which is often hidden, thereby illuminating assumptions about power, some of which might seem obvious (big, wealthy actors have more power resources and wield them at will) and others tacit (tiny actors can marshal moral authority or plant an idea). We believe that the analysis of social change in general and the promulgation of recommendations to reduce consumption in particular warrant explicit recognition of such claims. Our hope is that an awareness of informal, underlying claims of the dynamics of social change and the power expressions therein will enhance the analytic clarity of scholarship in sustainable consumption and increase the effectiveness of those promoting a post-consumerist society.

Box 1 details six such understandings of social change, all of which, to our read, are prevalent in the sustainable consumption literature. Identification of these understandings emerges from our collective experience in a variety of fields, including sustainable consumption, global environmental politics, ecological economics, resource conservation, and climate science. Each of the items is a highly stylized expression of what we see in policy recommendations and individual suggestions for behavior change, in both academic and popular literatures. In the interest of clarity, we purposely avoid injecting qualifiers and conditions into these understandings of social change.

Box 1

Frequent, implicit assumptions about social change.

The following understandings of social change and power illustrate assumptions about power (or the absence thereof). They differ in the degree to which they implicitly or explicitly award a role to power in general, and to the power of selected actors or ideas, in particular. The list aims to illustrate that research on sustainable consumption and absolute reductions would be well-served by closer attention to and critical reflection on such assumptions about power and the more systematic and comprehensive consideration of power in its many forms and nuances.

1. *Change Just Happens* Social change occurs much like biological change; it is incremental, evolutionary, adaptive, and autonomous. Whatever the source of variation – genetic, ideational, epistemological, geographic, cultural – stasis is not an option. Systems change: they always have and they always will. A related version is *aggregation*, in which social change occurs if enough individual people change their behavior. Social change is the sum of all individual action and behavior change. Common examples include economic supply and demand functions and voting. Here again, there are no agents of change per se; if there are, they are so widely distributed within seemingly autonomous systems that their actions or abilities hardly matter. With aggregation, if power is implied, it is in notions such as consumer sovereignty and social fads. Still, there is no agent per se, no concentrated power in any subset of actors.
2. *Diffusion* Social change occurs when a “seed” is planted, whether a new technology, an energy source or a management idea, and it grows and spreads. Others see it, they hear about it, they copy it, they expand it, and a critical mass is reached. The idea or technology or social practice becomes self-reproducing and diffuses throughout society. With diffusion, no agent makes change happen. Power is diffuse and difficult to detect. To the extent notions of power exist in this understanding of social change, they reside in the very attractiveness of the seed.
3. *Buy green, be political* Social change occurs when consumers buy with larger social and environmental benefits in mind. Such consumer behavior alters corporate decision making and, at times, government decision making. Power emerges from the aggregation of conscientious consumers that together shift the decision making of other powerful actors, e.g. corporate and governmental decision makers. Once again, however, aggregation itself holds no agent of change.
4. *Education* Social change occurs when people acquire new information or when they are shown that their values conflict with their actions. Power resides with the educator: formal teachers, parents, or “elite influentials” including the media, advertising companies, and government propaganda arms.
5. *Good science, good policy* Social change occurs when problems are assessed scientifically, the assessment is effectively communicated to decision makers, and those decision makers enact measures to change or constrain citizen and business behavior. Power resides first and foremost in the scientific knowledge. Power also accrues to agents who communicate this knowledge to decision makers, and to decision makers whose subsequent regulatory action is legitimized by scientific knowledge.
6. *Crisis* Social change occurs when a crisis occurs, or the appearance of a crisis is manufactured. Peoples' attention

is heightened and the motive for change intensifies. Defenders of the status quo melt away, creating space for the builders of a new order. Power flows from the freedom and initiative to act that temporarily comes from crisis.

We illustrate this argument by playing out a specific example: Research on the sustainability of food consumption has demonstrated that high levels of meat consumption are environmentally problematic due to the carbon, land, and water intensity of meat production. It may take some time before politicians and the public pay more attention to this issue, but a crisis in terms of a climate related natural disaster or preparations for the next global convention on climate change may provide a window of opportunity. Media coverage in these contexts can further increase awareness. In turn, public pressure to do something grows, which motivates individuals to eat less meat while encouraging politicians to initiate educational campaigns and new taxes to deter meat consumption. In the end, these activities all sum up to produce substantial reductions in meat consumption. Such an account may seem plausible, and yet many of us would doubt its likelihood. Indeed, a problem with this account is that it tends to ignore all the power struggles involved in the process and all the explanations for why things may not turn out for the better. Accordingly, it is not able to explain why we often just see small modifications rather than absolute reductions. This derives in part, we suggest, from the often informal and unconscious ways in which claims about social change insinuate themselves into sustainability thinking. To understand the barriers to absolute reductions in meat consumption, then, and to identify effective strategies for their pursuit, questions of power must move to the center of analysis. The following section discusses the theoretical basis for such a power-focused analysis, before we apply it to the question of absolute reductions in meat consumption.

3. The contours of a power lens

Power is intrinsic to human interaction, to social organization, and to the shaping of societal change. It is, in short, at the core of politics. Politics for some is that which gets in the way of science or rationality or planning. What is more, for those accustomed to precise, measurable concepts (e.g., economic output, population growth, toxicity levels) power can seem too vague to be of use. Excising both, politics and power, is what, from this view, is needed.

We take just the opposite position. That is, politics and power are part and parcel of the human condition (Arendt, 1959). Yes, they are imprecise, messy, and oftentimes manipulative and self-serving. But this is what the variability in human needs and aspirations, capacities and proclivities, the indeterminacy of social interactions, and the need for people living together in communities results in—politics and the exercise of power. Some of us may wish it were not so, but that very wishing and especially the acts it prompts are political. Accordingly, we delineate a power lens here, i.e. a particular way of looking at things, specifically a way of identifying different sources and exercises of power.

As for the lack of precision, power is not unlike so many other concepts that we use to describe and analyze human behavior and organization—e.g., freedom, human rights, or democracy. These too are imprecise but are no less important to understanding human relations. The real challenge—analytical and applied—is to make underlying power relations explicit, even in a field such as consumption which is typically constructed as individualistic. This is important as “power is its most effective when least observable” (Lukes, 2005: 1). An explicit examination of power can make visible the otherwise invisible workings of power in sustainable and,

maybe especially, unsustainable consumption practices. Once these workings are revealed, they can be scrutinized, assessed and judged on ethical or other grounds, and challenged and changed or embraced and expanded. Doing so requires understanding what makes an actor (a single consumer, a company, or a nation state) powerful, what its sources of power are, how power is exercised, and how power relates to political outcomes. These are subjects of study going back centuries. We don't pretend to capture it all, nor claim that there is consensus. But we offer a framework that, we believe, is appropriate for and pertinent to an examination of power in sustainable consumption. Such a framework can then help researchers find more promising answers to questions such as why certain sustainable or unsustainable practices exist, what their sources of stability are, and how one might still think about and try to change them.

There is no single, universally agreed notion of power, as power is expressed in different ways. Social scientists often employ heuristic devices such as the three faces or dimensions of power (Lukes, 1974, 2005; Fuchs, 2013), or seven ways of creating power (Haugaard, 2003), or four forms of power (Barnett and Duvall, 2005). What is generally accepted, however, is the Weberian notion that power is the capacity to influence others, to get others to do what they would otherwise not do. This can be carried out via attempts to change values, rules, decisions and their implementation. Power is not always coercive, but can also be persuasive or go unnoticed; it can be exercised by individuals against each other (“power over”), but also by groups of actors in pursuit of joint goals (“power with”, which, at least in the political realm, normally means against other actors' goals, however).¹ In all of these senses, however, power is relative: one actor's increase in power is another's decrease.

Scholars usually concur in distinguishing between material and ideational sources of power.² *Material sources of power* derive from access to and control of technological, natural, or economic resources and assets such as money, oil, communication and other infrastructures and transport capacity. These capabilities are relative. Absolute levels of weaponry or wealth, for instance, or of legal, economic or social resources in general, do not determine the potential degree of influence, only those levels relative to others.

Ideational sources of power, in turn, are diffuse and frequently invisible, deriving from social constructs such as ideas, identities, values and norms and drawing on symbolic structures of meaning. Examples of such constructs are nationalism, democracy, and peace. With regard to the topic explored in this paper such constructs are, for example, prosperity, efficiency, consumer sovereignty, freedom of choice, conservation, waste, nature, or sustainability. Similarly, perceptions of actors as legitimate, reliable, competent, or trustworthy can provide such sources of power. Ideational sources of power are relative, too. For instance, the power of an idea—e.g., absolute reductions—exists only in relation to other competing ideas—e.g., growth.

Material and ideational sources of power can be exercised in different ways. Building on Fuchs³ (2007), we offer three dimensions of the exercise of power: instrumental, structural, and discursive. These three dimensions facilitate a differentiated analysis of competing and overlapping exercises of power. At the same time, they allow us to explore power asserted by discrete agents and power embodied in prevailing institutions and norms. We are

¹ In this sense, power has both constraining and enabling aspects (see also Partzsch and Fuchs, 2012).

² Ideational and material forms of power also interact and draw on each other in practice (Fuchs and Glaab, 2011).

³ Fuchs, in turn, draws on Lukes (1974, 2005) and Levy and Newell (2005).

convinced that a power lens for sustainability must account for both manifestations of power, and we construct our framework accordingly, knowing that this places us at odds with theorists who argue that power flows principally from actors (e.g. [Avelino and Rotmans, 2011](#): 553).

Instrumental power draws attention to the direct influence of an actor on political decision-making by means, e.g., of lobbying or campaign finance. An exercise of instrumental power thus tends to draw on actor-specific material resources, which furnish actors with the ability to influence policy decisions (also known as “policy output”) ([Fuchs, 2013b](#)). A focus on *structural power* brings the material conditions influencing actors' choices into the limelight, i.e. the ability to influence policy input. It reveals that structural material power predetermines processes of decision making and non-decision making via the shaping of actors' behavioral options. A much cited example of the latter case in the field of sustainable development is the threat of transnational corporations shifting investments and jobs to other countries if governments adopt unfavorable policies (taxes, environmental or labor standards). This is also an example of an invisible exercise of material power, as this threat, though effective, is often never voiced. Lastly, *discursive power* reveals how policy problems, actors, interests, and solutions are not just given, but defined *before* decision making commences. It is a particularly subtle and diffuse dimension of power.⁴ Discursive power draws on ideational sources, i.e. values, norms, and ideas, when trying to influence public debate and political agendas. An example of a dominant idea in the context of sustainability and absolute reductions is the idea of the economic necessity of constant growth.⁵ Lacking a (directly) coercive element, discursive power is exercised through persuasion, argument, language and narrative.

Each dimension of power is potent in its own right, and the three often interact in symmetric and asymmetric ways, sometimes producing surprising synergistic outcomes. To illustrate these interactions and demonstrate the utility of these concepts to an inquiry into absolute net reductions, we turn to the role of power in shaping the consumption of meat. We also briefly sketch the case of organic food to note that power relations do not necessarily work against improvements in the sustainability of consumption. Together, the two cases suggest how a power lens strengthens analyses of consumption and allows the identification of barriers to, as well as the potential for, achieving absolute reductions.

4. An illustration of the power lens: the difficulties of reducing meat consumption

Few in the sustainable development community would contest the pronounced desirability of reducing the consumption of meat, especially in the so-called rich world. Meat production is carbon intensive, directly and indirectly consumes large areas of land, and is relatively water intensive ([Duchin, 2005](#); [Notarnicola et al., 2012](#); [World Bank, 2009](#): 15). Diets heavy in meat appear to be less healthy than those tilted toward fruits and vegetables. Meat consumption may also be ethically unsustainable (e.g. [Foer, 2009](#)). In terms of absolute reductions, a reduction in meat consumption may

be one crucial change in food consumption practices. Meat consumption, thus, is an issue ripe for the application of a power lens.

We do not aspire here to provide a comprehensive analysis of the meat system – that is, the system of provision, distribution and consumption of meat. Instead, we provide illustrative examples of how various forms of power are important to the maintenance of the current, unsustainable system and to understanding how the system responds to challenges and (re)stabilizes itself. Challenges may emerge from the unintended consequences of human activities, such as climate change, the disruption of common practices through scandals, such as BSE or the horse meat affair in Europe in 2013,⁶ and from actors actively seeking to dismantle or change the system, i.e. dynamics challenging or disrupting the dominant power relations. The examples are chosen so that they cover different aspects of the meat system and simultaneously illustrate the working of different kinds of power. Specifically, we look at how power is exercised at different stages of the supply chain, for instance to keep meat prices low and thus maintain and expand meat consumption, as well as the forms of power that make the system resistant to political, societal and economic challenges. For each of these aspects, we point out structural as well as instrumental and discursive forms of power, emphasizing in particular discursive power, as it tends to be the least visible. Finally, we suggest possible “cracks in the wall”—that is, possible weak spots in established power relations that could be exploited to reduce the consumption of meat. The examples refer mainly to Denmark, a small country yet one of the world's largest producers of pig meat, but they are illustrative of the more general conditions of the system and its power relations.

4.1. Power and low prices

All else equal, low meat prices increase meat consumption. The question is, therefore, how power is exercised in efforts to maintain the conditions that enable meat to be sold at low prices. In the public debate and in much of the associated scholarship, meat prices are often depicted as market outcomes resulting from price negotiations at every step of the supply chain. Power tends to be discussed only in terms of structural power, in cases in which one of the partners in the exchange controls such a large share of the relevant market that they can determine prices. As we will see, however, all forms of power play out in both direct and indirect political and societal forms to shape prices at every stage of the supply chain. Deliberate attempts to maintain low meat prices or to lower them further, whether by corporate, governmental or civil society action, are exercises of power. They are sometimes the result of the market power of the negotiating parties ([Harvey, 2007](#)). Frequently, however, they are influenced by the exercise of political power.

The first step in the supply chain is land, specifically land used to produce feed.⁷ Low prices start with cheap land. Access to such land, directly or indirectly, is crucial for feed producers. For instance, Denmark's pig meat production is partly based on the import of feed from other countries, such as soy from Argentina and

⁴ Discursive power enters the policy process at the earliest stage, creating “interests” and organizing “some definitions of issues [...] into politics while other definitions are organized out” ([Hajer, 1995](#), 42).

⁵ Discursive power also has a structural dimension, as norms and ideas are rather stable shared understandings in societies. At the same time, actor-specific material resources may help actors, both individual and collective, to exercise this discursive power through media campaigns including electioneering, public writing and speaking, and advertising and education.

⁶ It was discovered that in many products sold as containing beef, horse meat was included instead.

⁷ Actually, one could start the analysis with seed production and ownership. This, however, has been done extensively and, importantly, with considerable attention to questions of power by the literature on GMOs ([Falkner, 2009](#); [Glaab, 2013](#); [Newell, 2003](#)), which is why we allow ourselves to skip this step here. In addition, business actors individually or jointly also exercise power in pursuit of low prices via the lobbying for certain production (especially environmental and labor) standards ([DanWatch, 2011](#); [Danielsen and Nørgaard, 2012](#)) as well as tax exemptions and subsidies at this first stage of the supply chain, of course; a point which we do not further pursue here for reasons of space.

Brazil and palm oil from Malaysia (Bosselmann and Gylling, 2012/13). One means of gaining access to cheap land in feed producing countries is through the exercise of instrumental power, i.e. through lobbying governments to privatize land, land that other, often poor subsistence farmers have used for generations, and to sell it to large local land owners or to foreign companies and countries (Borras et al., 2012; Borras and Franco, 2012). But gaining access to cheap land is also facilitated by the discursive power of ideas and actors. Relevant authorities need to believe in the concept of private ownership of land and the benefits this produces. In this context, framing the acquisition of land more positively as “investment” rather than “land grabbing” further facilitates such purchases (TNI, 2013). Similarly, a core belief of the free market system plays a role here, namely the belief that those with the financial resources to acquire land legitimately earned these resources and deserve to “invest” them where returns (their private returns) are highest. At the same time, large scale land acquisitions are also considered the most productive use of scarce resources, especially capital, and a necessary part of modernization, thus enabling the labeling of subsistence farmers as “unproductive” and legitimizing their expulsion from the land.⁸ Such ideas exercise discursive power in the context of land acquisitions and their conditions. They enable and constrain actors, but can also be strategically used and shaped by the latter. Structurally, access to cheap land is made possible by existing asymmetries among the resources and political influence of different parts of the population both within (especially developing) countries and globally, as well as the current global economy's tradition of externalizing environmental and social costs of deforestation. In sum, at this first step of the supply chain, different forms of power play a pivotal role in keeping meat prices low.

The second step in the supply chain in which power plays out is in the meat processing countries where the animals are raised. Structural power plays an important role as industrialization and continued automation of agricultural production have increased the capital-intensity of farming and contributed to an ever increasing concentration of ownership. Today, the global meat industry is highly consolidated and concentrates market power in a few companies that dictate the terms of trade (Heinrich Böll Foundation, 2013: 12f). Hence, much meat production takes place in large-scale industrialized systems, with low per unit production costs and hence consumer prices while social and environmental costs are externalized (Kjeldsen-Kragh, 2010). In this context, instrumental power is pivotal, as lobbying activities affect animal welfare as well as environmental and labor standards, for example. This also creates public health risks through, for instance, the diffusion of bacteria resistance to antibiotics (Zhang, 2013; Hansen, 2012).

The implicit acceptance of such externalities by governments and the public again underscores the relevance of discursive power. Although the industrial agricultural sector contributes a small share of jobs and GDP in most industrialized countries, it carries the image of being crucial for the economy and well-being of the population. In many European countries, this image partly results from a history of food insecurity in wartime and the desire to be self-sufficient. Partly due to this history, the agricultural sector in industrialized countries tends to be well connected with the relevant regulatory bureaucracies, as well as education and research institutions, and consultancy services. The structural power of

these organizational arrangements effectively contributes to the power of the idea that the sector remains crucially important for related industries, and for jobs and exports. In Denmark, one can also observe that the sector further legitimizes its own importance discursively by arguing that it helps feed the world, and that all meat consumers benefit from low prices (DAFC, 2013). This discourse is so powerful that a biophysical perspective, which would show that the role of the agricultural sector in Denmark is mostly limited to throughput of biomass (Erb et al., 2009; Haberl et al., 2009), is rarely even considered. In sum, structural, instrumental and discursive power all play a role at this second step in the supply chain, as the few examples given above demonstrate.

Processing is the third step in the supply chain where a knot of power relations makes meat cheap. The structural organization of slaughterhouses as highly industrialized and mechanized units along with capital concentration have influenced power relations at this step and kept a downward pressure on labor costs. The replacement of labor with machines was also facilitated by cheap energy. Yet, these low costs are also based on the structural power conditions behind cheap labor and energy. While Danish labor unions once succeeded in building up a position of strength that secured wages at a certain level in Denmark,⁹ the migration of workers from Eastern Europe to Germany, where many are employed in slaughterhouses at very low wages, has increasingly undermined the conditions in Denmark. Pigs are increasingly sent to German slaughterhouses (relying also on low prices of transport), and Danish slaughterhouse workers are laid off or forced to accept lower wages. Similarly, the price of energy is itself much determined by uneven power relations (Princen et al., 2015). In the processing step, then, power plays out in various ways as well. First, liberalization in the form of free trade and labor migration has strengthened capital vis-à-vis labor providing it with the ability to write the rules of the game and thus acquire structural power. This development, secondly, has been strongly supported by the liberal ideas of the benefits of free trade and the usefulness of competition, i.e. discursive power, and thirdly, by corresponding lobbying efforts of business, especially transnational corporations and their alliances at the EU level and in the relevant capitals of member states, i.e. instrumental power.¹⁰

The fourth step in the supply chain for pig meat is retailing, and here the ecology of power relations is especially rich. In the developed world and increasingly in the developing world, a handful of large supermarket chains jointly control large market shares and exercise substantial structural power in relation to producers and processors. In other words, ever-increasing capital concentration and buyer-driven supply chains allow major retailers to push prices downward. Germany, for example, is particularly known for fierce price competition among discounters. The relevance of low prices, however, is also a function of the discursive power of the idea of the sovereignty of consumers and the value of “bargains”, which is enhanced by the advertising and marketing strategies of these retailers. In addition, retailers exercise instrumental power by lobbying their governments to design favorable product standards and to implement and enforce those standards. What is more, retailers have created their own food governance in the form of private certification and auditing systems thus exercising structural power in the form of direct rule-setting power with substantial consequences for social well-being across the globe (Fuchs et al., 2009; Fuchs and Kalfagianni, 2010). While these

⁸ Ultimately, such a system of unequal access to land is protected by laws, and, if challenged, by police intervention, sometimes by the brutal force of governmental security units and private armies, thus involving another direct and material form of power.

⁹ <http://www.nnf.dk/media/16764/Slagter-2012-2014.pdf>; <http://www.maskinbladet.dk/artikel/ionforskel-pa-150-kroner>.

¹⁰ The EU is notorious for a hugely asymmetric presence of the representation of business interests vis-à-vis civil society.

private food standards would seem to increase production prices due, for instance, to the costs involved in reporting, certification and auditing,¹¹ the ability of retailers to simultaneously exert downward pressure on prices means that these costs may well not be translated into increases in retail prices but into losses in farmer and farm labor incomes (Fuchs et al., 2012). Finally, capital concentration in the retail sector is influenced by anti-trust laws, and the models used for assessing the impact of a given merger or acquisition on market structures. Thus, knowledge and its evaluation by actors play an important role here as well. Again, then, we can see actors employing instrumental as well as structural and discursive power in attempts to keep meat prices low or lower them further.

Before turning to the fifth and final step in the supply chain, it is important to underline that in these first four steps the “consumer” is hardly present. These forms of power—structural, instrumental, and discursive—are usually opaque to the consumer. What the consumer sees is cheap and abundant meat.

The final stage in the meat supply chain, in which power also plays a role, is indeed consumption. In terms of instrumental power, consumer associations lobby on behalf of what they perceive is or should be the consumer interest, including food safety and quality aspects and, once again, low prices. Consumers themselves are increasingly detached from food production and its circumstances. Instead, they are influenced ideationally by cultural ideas about what constitutes a “real meal” as well as notions of health and animal welfare, for instance. In many cultures, meals tend to be named after the meat dish. In terms of discursive power, i.e. the power of norms and ideas, consumer knowledge about foods, e.g. on environmental impacts, social and health characteristics¹² as well as on recipes, plays an important role. Simultaneously, consumers are structurally constrained by their income and time, which is paralleled by an increase in meat-serving fast food chains and meat-heavy convenience food, and the food on offer in canteens and restaurants. Also, meal practices in canteens, hospitals or schools constantly reconfirm the discursive idea of meat as a “must” in a meal. Moreover, information asymmetries constrain the discursive power consumers potentially could exercise. The food industry often succeeds in its fights against stricter labeling requirements. Finally, power relations within families also play a role in meat consumption. Research has shown the gendered eating patterns within families, specifically the demand for meat voiced by men, and the distribution in power in food consumption in families (Buerkle, 2009; O’Doherty Jensen, 2009; O’Doherty Jensen and Holm, 1999). While women do most of the shopping, men tend to have veto-power on reductions in meat consumption.

4.2. Industry stability and resistance to change

The power of the meat industry becomes visible when one considers how it has maintained itself in spite of numerous challenges in recent decades. There has been no dearth of such challenges. Intensive production methods in pig farming have been challenged on the grounds of ethical standards and concern about animal welfare. Animal welfare organizations protest against sows locked in gestation crates, tail-docking, castration of pigs without anesthesia etc. Another fundamental challenge relates to the diffusion of bacteria resistance to antibiotics, due to the required

treatments of animals raised in such bad conditions with antibiotics and the large animal pharmaceutical industry that stands behind this development (ETC Group, 2011). Health arguments with respect to food consumption have increasingly gained power and they present a challenge to the meat sector, as medical research has associated meat heavy diets with a higher probability of heart diseases, for instance. In the context of the rise of climate change to the top of the political agenda, it has also become widely known that meat consumption is carbon, land, and water intensive and that a reduction in meat consumption is desirable also from an environmental perspective. This is all the more the case, as the limits to the availability of natural resources become increasingly acute and social conflicts over land and water will increase in number. Finally, a challenge to the meat sector also arises from within, as the organic agriculture model gains power in the developed and developing world and creates alternative production systems and business models, which, in turn, fit a new consumer lifestyle that privileges sustainable food production and decenters meat from daily life.

How have the dominant actors within the meat production and distribution system coped with and thwarted the challenges? In a struggle for power based on ideational and material sources, those actors profiting from the systemically cheap prices have been able to mobilize research institutions, which are in some cases willing to document that the animal welfare situation, for example, is not so bad.¹³ By funding the research and subsequently using the resulting “knowledge” in pursuit of its objectives, the sector thus mobilizes both structural and discursive power. In case this claim is difficult to defend, suggestions are developed for improving conditions. However, these improvements are not too expensive and do not change the industrialized systems in any fundamental way (D’Eath et al., 2014). A key argument in the legitimization discourse is that expensive improvements would lead to a loss in competitiveness and a shift of production to other countries where animal welfare would be even lower. Thus it is argued, changes at the international level would be needed first. This argumentation creates the impression that power emerges from a structural situation that seems impossible to change. Also, the sector copes by being able to hide information from the public. Especially in the case of antibiotics, the sector succeeded in keeping the extent of the problem a secret for a long time.¹⁴ The ability to hide relevant information is a function of structural power but aided by lobbying against regulations providing better access to relevant information as well as the discursive power of ideas regarding the balance between the public’s right to information and a company’s right to business secrets. At the same time, the meat industry has seen and publicly promoted technology as a source of solutions to many of the above challenges, including the development of new fodder reducing methane emissions or the use of animal waste for biogas. Finally, power struggles result from internal challenges to the system arising from alternative production systems and business models, specifically organic farmers. While these power struggles have not yet been resolved, they have so far failed to lead to a change in the dominant system. On one side, the organic farming sector remains small compared to the conventional sector, and attitudes towards food have only changed in certain consumer groups. On the other

¹¹ The actual improvements in environmental or social performance required by these standards are actually rather limited. Food safety and hygiene receive more attention due to the risk of scandals and associated financial losses.

¹² The Atkins diet is particularly noteworthy as a discursive promotion of meat consumption rather than the consumption of carbohydrates.

¹³ Discussed e.g. here: <http://universitetsavisen.dk/videnskab/sandoe-jeg-er-et-rodehoved-men-ikke-uaerlig>.

¹⁴ After several years of secrecy the Danish Parliamentary Ombudsman in June 2014 declared it illegal to keep it secret which pig farms are infected with MRSA. http://www.ombudsmanden.dk/find/udtalelser/beretningsager/alle_bsager/2014-8/pdf/.

Table 1
Some manifestations of power supporting meat consumption and especially cheap meat.

	Structural power	Instrumental power	Discursive power
Cheap land	<ul style="list-style-type: none"> - Distributional asymmetries in land ownership and political influence - Externalization of environmental and social costs of deforestation 	<ul style="list-style-type: none"> - Lobbying governments to privatize land 	<ul style="list-style-type: none"> - Fostering belief in private ownership and free market system as beneficial for all - Framing the acquisition of land as “investment” rather than “land grabbing” - Considering large scale land acquisitions as most productive use of scarce resources
Animal production	<ul style="list-style-type: none"> - Increasing capital concentration fostering - Low per unit production costs - Enhanced ability to prevent undesirable regulation 	<ul style="list-style-type: none"> - Lobbying activities limiting animal welfare as well as environmental and labor standards - Historical interconnectedness of agricultural sector with the relevant regulatory bureaucracies 	<ul style="list-style-type: none"> - Cultivating the historical image of the agricultural sector as being crucial for the economy
Slaughtering	<ul style="list-style-type: none"> - Downward pressure on labor costs through - Capital concentration - Liberalization - Free trade - Labor migration 	<ul style="list-style-type: none"> - Lobbying activities limiting animal welfare as well as environmental and labor standards 	<ul style="list-style-type: none"> - Mainstreaming arguments about the benefits of free trade and the usefulness of competition
Retailing	<ul style="list-style-type: none"> - Capital concentration: few supermarket chains jointly control large market shares leading to - Buyer-driven supply chains - Retailer driven food governance through private certification and auditing systems 	<ul style="list-style-type: none"> - Lobbying for/against product standards or labels 	<ul style="list-style-type: none"> - Promoting the idea of the sovereignty of consumers and the value of “bargains”
Consumption	<ul style="list-style-type: none"> - Abundant offers of cheap meat - Meat dishes in cafeterias 	<ul style="list-style-type: none"> - Lobbying in the name of consumer interests on low price, even if conflicting with food safety and quality aspects 	<ul style="list-style-type: none"> - Cultural ideas about what constitutes a “real meal”
Resistance to system change	<ul style="list-style-type: none"> - Ability to mobilize research institutions supporting biased knowledge 	<ul style="list-style-type: none"> - Lobbying against regulations providing better access to relevant information 	<ul style="list-style-type: none"> - Emphasizing a company's right to business secrets rather than the publics' right to information - Promoting technology as the most comfortable source of solutions

side, organic labels have been watered down¹⁵ and many competing organically-appearing labels are in use in many countries, so that the lines between the conventional and organic sectors become blurred from the perspective of consumers.

In sum, the meat industry has considerable power in the political system and has been able to thwart or delay stringent animal welfare and environmental regulations. Indeed, it has managed to do so in spite of the fact that it would be cheaper to reduce nutrient emissions from agriculture than from other sources, for instance. With this power, the sector has been able to legitimize the continuation of business as usual in meat production. Table 1 summarizes the arguments provided above.

4.3. Some cracks in the wall

Sometimes changes are achieved, however. Thus, the power of animal welfare organizations has been sufficient to improve the conditions for pregnant sows, for example (Elzen et al., 2011). Here, the discursive power of ideas of animal welfare and animal rights seems to have been strong enough to gain some impact. Likewise, the sector's avoidance of regulation for reducing carbon emissions has become increasingly politically untenable. Education and information are also fostering the emergence of alternatives in the form of the development of “New Nordic Food” (Micheelsen et al., 2013) or new cooking books (Meyer and Astrup, 2012) partly because the idea that meat consumption is unhealthy and carbon intensive is gaining hold. Structurally, community supported agriculture (CSA) and many other local initiatives are trying to develop ideationally powerful alternatives and to overcome the structural constraints set by the larger system. Other changes, however, are still in the far distance.

5. The limited case of organic food

Of course, power relations do not necessarily and always hinder improvements in the sustainability of food consumption. Examples can be cited in which the exercise of power across multiple dimensions may move the system toward sustainability. At first glance, a promising candidate for such an analysis may be the increasing production and consumption of organic food, which we, due to space constraints, cannot discuss in similar detail here but will briefly sketch. In this discussion, we will also show that the case is not as easy to interpret, at second glance. Again Denmark could serve as an example with both a relatively early and a relatively high penetration of organic farming and food consumption (Jørgensen, 2007, 2010).

The history of organic food in Denmark is long and complex and involves a broad variety of actors. The history has been summarized as a series of phases: a pioneer phase in the 1970s; expansion and organization in the 1980s; governmental acceptance and some integration with the conventional food sector since the late 1980s; consolidation of industrial processing in the Danish organic food sector and the successful establishment of a strategic niche in important retail chains in the 1990s; and from the late 1990s the emergence of box schemes and the increasing importance of organic food in public catering (Jørgensen, 2007, 2010) and the more recent link to the New Nordic Food movement. The story of successful change of production and consumption practices in this field is fraught with power issues. The dominance of conventional food producers and retailers on a structural level was challenged by means of instrumental power, including, the building of alliances with powerful actors such as a key retail chains or the development of new material resources such as a system for advice on organic farming and the establishment of research activities. In addition, discursive power helped to mobilize links to important societal discourses on animal welfare, GMO, nutrition, lifestyles with culinary trends, and regional development. At the same time, the

¹⁵ EU labels for organic food, for instance, are considerably less stringent than the private organic labels that already existed by the time the EU introduced its labels.

conventional food sector also made use of discursive power through the deployment of counter strategies such as the promotion of “green” concepts intended to compete with the labelling of organic food.

Assessing the dynamics of power within these two cases begins to illuminate the conditions under which sustainability transitions may become more likely. As such, the transition towards organic food is still based on the agency of enthusiastic supporters and entrepreneurs, who operate from a combination of idealistic, commercial and organizational interests (which shaped their discursive power in promoting the process). In that sense, organic food was not only successful in discursively establishing the idea of “organic”, but also in terms of challenging structural conditions through the exercise of instrumental power for the support of governmental actors for organic labels. It was, in this effort, also able to establish itself as a more positive sustainability project than the promotion of a less meat-intensive diet.

However, the transition towards organic food also meets with barriers that can be analyzed in terms of power. So far, the increasing consumption of organic food has mainly been considered to be a market niche (for instance, the market share for organic meat is still very low), which is not seriously challenging the conventional food sector. Should the organic sector improve its structural position though, this may induce more resistance from the conventional sector. Already, the conventional sector has been able to ensure that the European Union's organic labels have lower standards than the original private ones, via its exercise of instrumental power. Indeed, critical observers are wondering whether retailers have not been successfully pursuing “corporatization” of organic food in the interest of profiting from higher profit margins while at the same time undermining the fundamental challenges to conventional production methods originally raised by organic producers (Johnston et al., 2009). More fundamentally, organic labels in general, and the less stringent organic labels in particular, imply little progress in terms of absolute reductions, by themselves. Thus, the dynamics and power relations between organic production and consumption on the one side and ideas and initiatives supporting absolute reductions would require further scrutiny as well. The case of organic food would thus provide an interesting focus for a more detailed analysis of power relations in pursuit of sustainable consumption and absolute reductions as well.

6. Conclusion: the value of a power lens on sustainable consumption and absolute reductions

Our central aim in this paper has been to emphasize the research and activist benefits of a systematic focus on power in the linked fields of sustainable consumption and absolute reductions. We have argued and tried to demonstrate that scholars and activists must critically reflect on their and others' underlying, implicit, and informal understandings of social change and their frequent neglect of power. Power is intrinsic to human interaction, to social organization and to the shaping of societal change. Power is essential in understanding what drives overconsumption and creates barriers against attempts to make it sustainable, and in identifying where potentially effective intervention points may exist. Sustainable consumption and absolute reductions research and action need to consider who sets the agenda, defines the rules and the narratives, selects the instruments of governance and their targets, and thus influences peoples' behavior, options, and their impacts. As the meat case illustrates, unsustainable meat consumption is based on inequality in power and resources both globally and locally, and therefore, policies for a reduction in meat consumption must involve effective strategies to change these basic conditions rather than merely rely on campaigns to persuade

or nudge individual consumers or producers. Research and action that fails to consider the power dynamics involved in such cases runs the risk of camouflaging power by implicitly employing “natural laws,” of making predictions that presume a dominant influence of technical rationality or enlightened individuals, and of missing what is relevant for policy and society.

Putting power front and center in a social analysis, ideally in biological and physical analyses as well, especially those with “policy recommendations” or “behavior change” prescriptions, is hard, if not downright uncomfortable. Many of us authors have a background in political science and find that even there the reluctance to engage such a messy, intangible subject is common. Many of us have found ourselves avoiding power even as we examine social movements or methods of conflict resolution or, indeed, consumption.

We can speculate as to why there is such reluctance to engage power. But a major reason, we believe, is that for a long time power, along with emotion and spiritual experience, has been relegated to the unscientific, the non-rational, the pre-modern, the backward. That time is coming to an end, not just because scientists now inquire about the spiritual, the emotional and the political, but because it can no longer be denied that, as Hannah Arendt recognized a half century ago, they are essential to the human condition.¹⁶

What is more, we are learning in the late 20th and early 21st centuries that the human condition is part and parcel of the bio-physical condition, the condition of the land, the water, the atmosphere. Engaging power is no longer merely a scientific question, a historical or even a policy and behavior question. It is an existential question. For those of us deeply concerned about the long-term existence of life as we know it, to avoid power is to risk condoning a system that is inherently unsustainable and unjust, both in the short and long term, and at home and abroad. Shying away from power allows the trends to play out to their logical and tragic ends. Asking about power, uncovering the hidden and exposing the inequitable is a civic obligation, a sustainability imperative, and a justice prerequisite. It is time social scientists, natural scientists, and humanists, as well as those in applied fields such as business and engineering, study power, question power, and thereby challenge power. Consumption cannot be sustainable or reductions absolute with anything less.

Acknowledgements

The authors are grateful for the support of the 2014 March Muenster Meeting by the University of Muenster. Michael Maniates acknowledges with gratitude the support of Yale-NUS College (through grant number R-607-264-049-121).

References

- Akenji, L., 2014. Consumer scapegoatism and limits to green consumerism. *J. Clean. Prod.* 63, 16–23.
- Alcott, B., 2008. The sufficiency strategy: would rich-world frugality lower environmental impact? *Ecol. Econ.* 64 (4), 770–786.
- Arendt, H., 1959. *The Human Condition*. University of Chicago Press, Chicago.
- Avelino, F., Rotmans, J., 2011. A dynamic conceptualization of power for sustainability research. *J. Clean. Prod.* 19, 796–804.

¹⁶ Even in political science, questions of power were deemed too normative for a long time, and inappropriate for scientists, because the latter were supposed to be objective and analytical. Related to this was the fact that the complexity of power and its defiance of easy operationalization and measurement means that it cannot easily become an “independent variable”, especially not in quantitative analyses. Here, too, however, we see changes as the value of normative questions and the impossibility of non-normative, objective research have been gaining increasing acceptance again.

- Buerkle, C.W., 2009. Metrosexuality can stuff it: beef consumption as (hetero-masculine) fortification. *Text Perform.* Q. 29 (1), 77–93.
- Barnett, M., Duvall, R. (Eds.), 2005. *Power in Global Governance*. CUP, Cambridge.
- Borras, S., Franco, J., 2012. Global land grabbing and trajectories of agrarian change: a preliminary analysis'. *J. Agrar. Change* 12 (1), 34–59.
- Borras Jr., S.M., Franco, J., Gómez, S., Kay, C., Spoor, M., 2012. Land grabbing in Latin America and the Caribbean. *J. Peasant Stud.* 39 (3–4), 845–872.
- Bosselmann, A.S., Gylling, M., 2012/13. Danmarks rolle i de globale værdikæder for konventionel og certificeret soja og palmeolie. *Fødevarøkonomisk Institut, Københavns Universitet*.
- Chatterjee, P., Finger, M., 1994. *The Earth Brokers: Power, Politics and World Development*. Routledge, New York.
- Chertow, M., 2001. The IPAT equation and its variants: changing views of technology and environmental impact. *J. Ind. Ecol.* 4 (4), 13–29.
- Clark, W., 1989. Managing planet earth. *Sci. Am.* 261 (3), 46–54.
- Clugson, C.O., 2012. *Scarcity: Humanity's Final Chapter?* Booklocker, Port Charlotte, Florida.
- D'Eath, R.B., Amott, G., Turner, S.P., Jensen, T., Lahrmann, H.P., Busch, M.E., Niemi, J.K., Lawrence, A.B., Sandøe, P., 2014. Injurious tail biting in pigs: how can it be controlled in existing systems without tail docking? *Animal* 8 (9), 1479–1497.
- DAFC, 2013. *Sustainable Intensive Production – Growth in Balance*. Danish Agriculture & Food Council. http://www.agricultureandfood.dk/About_us/Sustainable_Intensive_Production_-_growth_in_balance.aspx (accessed 16.12.14.).
- Danielsen, F., Nørgaard, M.M., 2012. Danmarks fodaftryk på biodiversiteten i udlandet. In: Meltofte (Ed.), *Danmarks natur frem mod 2020 – om at stoppe tabet af biologisk mangfoldighed*. Det Grønne Kontaktudvalg, pp. 81–86. http://macroecology.ku.dk/pdf-files/Danmarks_natur_frem_mod_2020.pdf (accessed 16.12.14.).
- DanWatch, 2011. *Sojaproduktion i Argentina – Landbrugets ukendte giftskandale*. <http://hveiti.dk/sites/default/files/DanWatch%20-%20Sojaproduktion%20i%20Argentina%20-%20Landbrugets%20ukendte%20giftskandale.pdf> (accessed 16.12.14.).
- Di Giulio, A., Fischer, D., Schäfer, M., Blätzel-Mink, B., 2014. Conceptualizing sustainable consumption: toward an integrative framework. *Sustain. Sci. Pract. Policy (SSPP)* 10 (1), 45–61. <http://sspp.proquest.com/archives/vol10iss1/1209-041.digiulio.html>. Published online May 19, 2014.
- Duchin, F., 2005. Sustainable consumption of food. A framework for analysing scenarios about changes in diets. *J. Ind. Ecol.* 9 (1–2), 99–114.
- Ehrlich, P., Holdren, J., 1971. Impact of population growth. *Science* 171, 1212–1217.
- Elzen, B., Geels, F.W., Ceas, L., van Mierlo, B., 2011. Normative contestation in transitions 'in the making': animal welfare concerns and system innovation in pig husbandry. *Res. Policy* 40 (2), 263–275.
- Erb, K.-H., Krausmann, F., Lucht, W., Haberl, H., 2009. Embodied HANPP: mapping the spatial disconnect between global biomass production and consumption. *Ecol. Econ.* 69, 328–334.
- ETC Group, 2011. *Who Will Control the Green Economy?*. Communiqué no. 107. Ottawa, Ontario.
- Falkner, R., 2009. The troubled birth of the "Biotech Century": global corporate power and its limits. In: Clapp, J., Fuchs, D. (Eds.), *Corporate Power in Global Agrifood Governance*. MIT Press, Boston.
- Fedrigo, D., Hontelez, J., 2010. SCP: an agenda beyond sustainable consumer procurement. *J. Ind. Ecol.* 14 (1), 10–12.
- Foer, J.S., 2009. *Eating Animals*. Little, Brown and Company, Boston.
- Fuchs, D., 2013a. Sustainable consumption. In: Falkner, R. (Ed.), *Handbook of Global Climate and Environmental Policy*. Wiley-Blackwell, Hoboken, pp. 215–230.
- Fuchs, D., 2013b. Theorizing the power of global companies. In: Mikler, J. (Ed.), *Handbook of Global Companies*. Wiley-Blackwell, Hoboken, pp. 77–95.
- Fuchs, D., Glaab, K., 2011. Material power and normative conflict in global and local agrifood governance: the lessons of 'Golden Rice' in India. *Food Policy* 36 (6), 729–735.
- Fuchs, D., Glaab, K., Kalfagianni, A., Meyer-Eppler, R., 2012. Food security in the era of retail governance. In: Rayfuse, R., Weisfelt, N. (Eds.), *The Challenge of Food Security*. Edward Elgar, Houndmills, pp. 275–291.
- Fuchs, D., Kalfagianni, A., 2010. The causes and consequences of private food governance. *Bus. Polit.* 12 (3) <http://dx.doi.org/10.2202/1469-3569.1319>. Article 5.
- Fuchs, D., Kalfagianni, A., Arentsen, M., 2009. Retail power, private standards, and sustainability in the global food system. In: Clapp, J., Fuchs, D. (Eds.), *Corporate Power in Global Agrifood Governance. Challenges and Strategies*. MIT Press, Boston, MA, pp. 29–60.
- Ginevičius, R., Krivka, A., 2011. Optimal market structure: free competition and consumer sovereignty. *Bus. Theory Pract.* 9 (4), 306–312.
- Glaab, K., 2013. *Hegemonic Practices – the Political Economy of Agricultural Biotechnology in China and India*. D.Phil Dissertation. University of Muenster.
- Global Footprint Network, 2014. *Earth Overshoot Day*. http://www.footprintnetwork.org/en/index.php/GFN/page/earth_overshoot_day/ (accessed 16.12.14.).
- Haberl, H., Erb, K.-H., Krausmann, F., Berecz, S., Ludwiczek, N., Martínez-Alier, J., Musel, A., Schaffartzik, A., 2009. Using embodied HANPP to analyze teleconnections in the global land system: conceptual considerations. *Geografisk Tidsskrift-Danish J. Geogr.* 109 (2), 119–130.
- Hajer, M., 1995. *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process*. Oxford University Press, New York.
- Hansen, K., 2012. Børnehævebørn fik MRSA-bylder og sår. In: Hansen, K. (Ed.), *Bondefangeri. På sporet af en ny tids landskabsforvalter*. Forlaget Bæredygtighed, Klippinge.
- Harvey, M., 2007. The rise of supermarkets and asymmetries of economic power. In: Burch, D., Lawrence, G. (Eds.), *Supermarkets and Agri-food Supply Chains: Transformations in the Production and Consumption of Foods*. Edward Elgar, Cheltenham, pp. 51–73.
- Haugaard, M., 2003. Reflections on seven ways of creating power. *Eur. J. Soc. Theory* 6 (1), 87–113.
- Heinrich Böll Foundation, Friends of the Earth, 2013. *Meat Atlas – Facts and Figures about the Animals We Eat*. Berlin.
- Johnston, J., Biro, A., MacKendrick, N., 2009. Lost in the supermarket: the corporate-organic foodscape and the struggle for food democracy. *Antipode* 41 (3), 509–532.
- Jørgensen, M.S., 2007. Organic food in Denmark – from grass root initiative to market niche: potentials and barriers for further sustainable transition. *Environ. Eng. Manag. J.* 6 (5), 381–389.
- Jørgensen, M.S., 2010. Transition towards sustainable consumption and production? The case of organic food in Denmark. In: Tischner, U., Stø, E., Kjærnes, U., Tukker, A. (Eds.), *Case Studies in Sustainable Consumption and Production – Food and Agriculture. System Innovation for Sustainability 3*. Greenleaf Publishing, Sheffield, pp. 82–102.
- Kaufmann-Hayoz, R., Brohmann, B., Defila, R., Di Giulio, A., Dunkelberg, E., Erdmann, L., Fuchs, D., Götz, S., Homburg, A., Matthies, E., Nachreiner, M., Tews, K., Weiss, J., 2013. Societal steering of consumption towards sustainability. In: Defila, R., Di Giulio, A., Kaufmann-Hayoz, R. (Eds.), *The Nature of Sustainable Consumption and How to Achieve it*. oekom, München, pp. 113–142.
- Kjeldsen-Kragh, S., 2010. Har dansk landbrug valgt et forkert spor? *Tidsskrift for Landøkonomi* 196 (2), 113–127.
- Levy, D., Newell, P. (Eds.), 2005. *The Business of Environmental Governance*. MIT Press, Cambridge, MA.
- Lorek, S., forthcoming. Sustainable consumption. In: Brauch, H.G., Oswald Spring, Ú., Grin, J., Scheffran, J. (Eds.), *Handbook on Sustainability Transition and Sustainable Peace (STSP)*. Hexagon Series on Human and Environmental Security and Peace 10. Springer, Cham – Heidelberg, New York – Dordrecht – London.
- Lukes, S., 1974. *Power: a Radical View*. Macmillan, London.
- Lukes, S., 2005. *Power: a Radical View. The Original Text with Two Major New Chapters*. Palgrave Macmillan, London.
- Maniates, M., 2002. In search of consumptive resistance: the voluntary simplicity movement. In: Princen, T., Maniates, M., Conca, K. (Eds.), *Confronting Consumption*. MIT Press, Cambridge, MA, pp. 199–236.
- Meyer, C., Astrup, A., 2012. Ny Nordisk Hverdagsmad. Spis efter årstiden (The New Nordic Diet. Eat according to the season). Strandberg for FDB.
- Micheelsen, A., Holm, L., O'Doherty Jensen, K., 2013. Consumer acceptance of the *New Nordic Diet*. An exploratory study. *Appetite* 70, 14–21.
- Newell, P.J., 2003. Globalization and the governance of biotechnology. *Glob. Environ. Polit.* 3 (2), 56–71.
- Notarnicola, B., Hayashi, K., Curran, M.A., Huisingsh, D., 2012. Progress in working towards a more sustainable agri-food industry. *J. Clean. Prod.* 28, 1–8.
- O'Doherty Jensen, K., Holm, L., 1999. Preferences, quantities and concerns: socio-cultural perspectives on the gendered consumption of foods. *Eur. J. Clin. Nutr.* 53, 351–359.
- O'Doherty Jensen, K., 2009. Sociological aspects of meat in meals. Cultural impacts and meal patterns. In: Proceedings of the 55th International Congress of Meat Science and Technology. Copenhagen.
- Partzsch, L., Fuchs, D., 2012. Philanthropy: power with in international relations. *J. Polit. Power* 5 (3), 359–376.
- Princen, T., Maniates, M., Conca, K., 2002. *Confronting consumption*. In: Princen, T., Maniates, M., Conca, K. (Eds.), *Confronting Consumption*. MIT Press, Cambridge, MA, pp. 1–20.
- Princen, T., Manno, J., Martin, P. (Eds.), 2015. *Ending the Fossil Fuel Era*. MIT Press, Cambridge, MA.
- Sayer, A., 2012. Power, sustainability and well-being: an outsider's view. In: Shove, E., Spurling, N. (Eds.), *Sustainable Practices: Social Theory and Climate Change*. Routledge, London, pp. 292–317.
- TNI, 2013. *The Global Land Grab. A Primer*. Transnational Institute. <http://www.tni.org/files/download/landgrabbingprimer-feb2013.pdf> (accessed 16.12.14.).
- UNCED., 1992. In: *The Rio Declaration*. New York, Statement of the UN Conference on Environment and Development, Rio de Janeiro, 3–14 June 1992, United Nations.
- Winner, L., 1986. *The Whale and the Reactor: a Search for Limits in an Age of Technology*. University of Chicago Press, Chicago.
- World Bank, 2009. *Minding the Stock: Bringing Public Policy to Bear on Livestock Sector Development*. World Bank, New York.
- Zhang, S., September 2013. Pig-manure fertilizer linked to human MRSA infections. *Nature* 16. <http://dx.doi.org/10.1038/nature.2013.13752>. Accessed 16. Dec 2014.
- Zenóbio Gunneng, A., 2006. *Discourses and Power in Sustainable Consumption and Production Debates*. Master Thesis Philosophy in Culture, Environment and Sustainability. Centre for Development and the Environment. University of Oslo.