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Ecosocial food policy: improving human, animal, and planetary well-being

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The article argues that to achieve a sustainable food system a paradigm shift is a necessity. Even though food is invariably related to ecological, health, and social issues it is all too often treated within a narrow framework that focuses on production volumes. In particular, the ecological and ethical impacts of food production—chemical pollution, loss of biodiversity, soil erosion, depletion of natural resources, greenhouse-gas emissions, and effects on animals—remain unresolved. The root cause of this problem is a paradigm in which human actions and societies are regarded as separate from nature and the interconnectedness between human well-being and the vitality of ecosystems is disregarded. In fact, in the Anthropocene, the greatest challenge to feeding humans is caused by humans themselves. This article recommends adopting an Ecosocial Food Policy (EFP) that rests on relational, systemic, and holistic thinking and respect for planetary boundaries, with well-being as the central concept. A fundamental principle of EFP is the interrelatedness of food, social, health, and environmental policies. We provide some examples of EFP practices, such as agroecological farming and a shift to plant-based organic food.

Keywords: ecosocial food policy, paradigms, relationality, sustainability, well-being, health, plant-based food

Food in its Context

Food is literally a matter of life and death. The ways in which it is produced and consumed affect not only human and animal well-being, but also the vitality of ecosystems. Food production and consumption are among the primary drivers of environmental pressures, especially habitat destruction and climate change, excessive water use, and toxic emissions (Hertwich et al. 2010). The contemporary food system itself is thus one of the drivers threatening to jeopardize the Earth’s capacity to produce food in the future (EC–SCAR, 2011).

Even though food is clearly linked to many ecological, health, and social issues, it is all too often treated for policy purposes within a narrow framework that focuses solely on production volumes. Although on a global scale the current agricultural system produces more food than ever before, it also contributes to ill-health, environmental imbalances, and social disintegration (Waltner-Toews & Lang, 2000). When the spotlight is on quantity, the question of access is quickly overshadowed. Moreover, it is important not to lose sight of the fact that food security is one of the top issues in the world today, together with climate change, terrorism, and severe income disparity (Rogers et al. 2008; Howell, 2013).

Despite mounting evidence of severe dilemmas, efforts to design and implement sustainable food policies remain insufficient. Responses are erratic and tentative and thus far have been inadequately integrated. In many cases, solutions offered for one problem create injurious effects elsewhere. The lack of attention to systemic issues may be a major reason why the patterns of food production and consumption show hardly any shift toward greater sustainability. (Lang et al. 2009; Reisch et al. 2013.)

Although we live in an interrelated world, our activities, policies, and practices are guided by a paradigm of “human exemptionalism” (Catton & Dunlap, 1980), in which the development of our societies is still perceived as independent of ecological constraints. In this paradigm, economic values reign supreme (Hirvilammi & Helne, 2014). With respect to food policy, the paradigm has, since the end of World War II, mainly taken the form of productivism, an
ideology based on the belief that ensuring ample output will deliver health, well-being, and progress (see, e.g., Clunies-Ross & Cox, 1994; Lang et al. 2002, 2009; Foley et al. 2011).

In the epoch of the “Anthropocene” (Crutzen & Stoermer, 2000), the greatest challenge to feeding humans is caused by humans themselves. This is due to the many major and still growing impacts of human activities on the Earth and its atmosphere. These human-incurred changes occur more quickly than do natural planetary changes. For example, natural climate variability is unlikely to have contributed more than about one-quarter of the temperature rise observed in the past 60 years. At least 74% of the observed warming is due to human activity (Huber & Knutti, 2012). Human actions are putting such a strain on the planet’s natural functions that the ability of ecosystems to sustain future generations can no longer be taken for granted (MEA, 2005; Blunden & Arndt, 2016). Human-induced climate change, which may ultimately tip complex natural systems over the edge and render them unsustainable, increases the threat. The ecological challenge is in not overstepping the planetary boundaries (Rockström et al. 2009) while the social challenge involves tackling growing inequality, including an unequal distribution of the global food supply (Royal Society, 2012; Porkka et al. 2013). Paradoxically, rising global economic prosperity, which increases demand for energy, food, and water, makes the social challenge even greater (Reisch et al. 2013). Rising prosperity is also linked to rapid dietary change in favor of Western-style diets consisting of high intakes of meat, fat, and sugar, posing a risk to individual health, social systems, and environmental life-support systems (EC–SCAR, 2011).

Historically, food policy has veered among concerns for agriculture, nutritional health, and international trade. As Lang and his colleagues (2009) have argued, when measured on their own terms, these aims cannot be reached adequately, not to mention they will not allay environmental stress and inequality. Hence, our current notion of food policy needs to be updated to cover far more extensive areas, ranging from how food is produced to how it is processed, distributed, and consumed, from the structures that shape food supply to those that affect health and the environment, and from scientific inquiry to governance and policy making. (Lang et al. 2009.) This expanded orientation means that it is crucial to see the interconnectedness of policies regarding food, society, health, the environment, energy, regional issues, international trade, and security politics.

The overarching dilemma is how to accomplish this task. This article argues that to achieve an ecologically and socially sustainable food policy—or any sustainable policy—a paradigm change is necessary. To mobilize support, an inspiring concept is needed, one that could form the bedrock of future food policies. We argue that well-being, understood holistically, could be such a foundation stone. In the sections that follow, we first describe the productivist paradigm and then give an overview of its dysfunctional consequences. We proceed to lay out the principles of an ecosocial paradigm that rests on relational, systemic, and holistic thinking and an uncompromising awareness of planetary boundaries, the central concept of which is well-being. We next propose that this paradigm could function as the basis for an Ecosocial Food Policy (EFP) and then introduce some examples of possible EFP practices that could simultaneously contribute to guaranteeing food security for 8–10 billion people, to promoting ecological public health, to maintaining biodiversity, to slowing climate change, to reducing the environmental impact of agriculture on land and water, to limiting food waste, to enhancing regional vitality, and to promoting animal well-being. We conclude with reflections on the prospects of the paradigm change and the chances for policy change.

Human Exemptionalism and Productivism in Food Policy

In the last resort, the prevailing food policy can be traced to a paradigm of human exemptionalism. Its fundamental, but implicit, tenet is that humans are separate from nature, which makes it possible to regard nature as a stock of resources for humans to appropriate. It also legitimizes the assumption that humans are superior to other species, with a right to exploit them in any imaginable way. Because the economy is perceived of as separate from nature, economic growth can be pursued without paying attention to its “externalities,” and can be treated as tantamount to progress. The paradigm includes an unflinching belief in the omnipotence of the human race and the ability of technological innovations to solve any problems our species faces (Hirvilammi & Helne, 2014; see also Morozov, 2013).

It is not difficult to find these ideas in one form or another in present food policies and the analysis concerning them. Waltner-Toews & Lang (2000) maintain that the simple input-output model of the mainstream approach assumes that humans are in control of all the important variables that affect
production, which disregards the interdependent nature of planetary processes. According to an EC–SCAR report, the current discourse on the food system is dominated by a productivity narrative that assumes that economic growth is the only way forward for human development. This narrative furthermore presupposes that ecosystems are best preserved if the existing cropland areas are subject to massive intensification efforts that stop further extension of cropland into forests and other natural ecosystems. (EC–SCAR, 2011). Likewise, Thompson et al. (2007) agree that policy prescriptions surrounding agricultural development have over the past 60 years been ruled by the two intersecting narratives centered on technology and economic growth. The economization of food policy is accentuated by the world trade system, in which food is viewed primarily as a commodity (Waltner-Toews & Lang, 2000).

Productivism sees agriculture as an engine of economic growth. This idea is based on evolutionist assumptions about the economic and social transformation of the agrarian economy from backward to modern and from subsistence to market-oriented. The application of scientific knowledge to agriculture is linked to a linear view of modernization, one often influenced by Malthusian ideas about increasing food production to satisfy the needs of an ever-growing population (Thompson et al. 2007). Productivism results in a cheap food policy and is driven by an ideological framework which assumes that lowering prices, rather than striving for equality of income, is the correct way to resolve problems of malnourishment (Waltner-Toews & Lang, 2000).

In the real world, these tenets are on a collision course with planetary boundaries and sustainable well-being. Both the expansion and the intensification of agriculture—the main solutions for increasing output—endanger ecosystem vitality (Helms, 2004; Foley et al. 2011). International trade is by no means innocent either: it introduces such problems as the spread of diseases, unhealthy cultural patterns, and inappropriate dietary habits. In addition, the agriculture promoted by global trade is fertilizer- and pesticide-intensive, inefficient from an energy standpoint and focuses on cash crops rather than local food security (Waltner-Toews & Lang, 2000). As agricultural production becomes more concentrated, there is also the problem of oligopsony (i.e., a market in which a small number of buyers exert power over a great number of sellers, thereby enabling the buyers to maximize profit and minimize risk) (Thompson et. al 2007). The current food system is thus monopolistic and deeply unequal. Moreover, it may indeed deliver inexpensive food, but only by harming environmental health (Waltner-Toews & Lang, 2000).

The Repercussions of Human Exemptionalism and Productivism in Food Policy

In this section, we discuss the kinds of footprints left as a result of the prevailing food policy. The discussion is by no means exhaustive, but rather an outline of the range of the problems we face at the moment.

Ecological consequences

As humans have become the planet’s ruling species, a few once quite rare plants (e.g., barley, maize, rice, wheat) have become dominant. Monoculture crops, such as soybeans, are mostly used for animal feed instead of feeding humans (Smil, 2013). Vast areas of monocropped cereals require tight control to maintain their stability. The control of crops, fertility, and pests via agrochemicals reduces biodiversity and breaks down the base of the world’s food production. Nutrients in the soil make water eutrophic and pollute groundwater. Concentrations increase over time. They disrupt living organisms in the soil, lakes, rivers, and wetlands (Korsaeth, 2008; Saad, 2008). Pesticide exposure poses a serious threat to pollinators, with declines in the number of wild and managed insect pollinators reported globally. In the European Union, a recent study detected 57 approved pesticides in poisoned honeybee samples (Kilianek et al. 2016). This is a grave problem, because bees contribute about 80 percent of insect pollination (Gill et al. 2012).

In the long run, the loss of soil fertility is a major concern in countries that have been over the past several decades using large volumes of chemical fertilizers to boost agricultural production. From 2002 until 2012, fertilizer consumption in the world has rocketed from 98.7 to 120 kilograms per hectare of arable land. In New Zealand, for example, the consumption was nearly 1580 kilograms per hectare in 2012 (World Bank, 2012). However, after a certain threshold, fertilizers do not produce additional yields. Instead, the micronutrients in the soil become increasingly depleted, leading to diminished yields (Rogers et al. 2008).

Besides diminishing soil fertility and biodiversity, current agricultural practices accelerate climate change. Agriculture is responsible for 30–35% of global greenhouse-gas (GHG) emissions (Foley et al. 2011) while meat and dairy production account for 80% of all food-based GHG emissions. As an
illustrative example, producing a hamburger with 225 grams of beef releases the same volume of GHGs into the atmosphere as driving a typical passenger vehicle for 60 kilometers (Steinfeld, 2006). Cattle ranching is directly responsible for more than 50% of deforestation in the Amazon region (Dauvergne, 2008). As a whole, the livestock sector is one of the most significant contributors to the gravest of environmental conundrums on every scale from local to global (Steinfeld, 2006).

The enormity of meat-related environmental hazards means that meat is dramatically underpriced if its hidden environmental costs are taken into account (Sachs, 2008). As Smil notes (2013), “intensive production of feedstuffs is the main reason why meat is an expensive food in virtual energy terms, with indirect energy costs due to intensive cultivation of feedstuffs being far more important than direct costs of feeding, housing and killing animals and processing, distributing, and cooking meat.”

Socio-economic consequences

One of the stated values of the dominant economic system is efficiency of production. However, feeding animals with crops is a remarkably inefficient way to nourish people. Thirty-six per cent of the calories produced by the world’s crops are being used for animal feed, and only 12% of those calories ultimately contribute to the human diet as meat. Feeding nine billion people with the present diet and agricultural technology would mean that the current cropland area would have to be almost doubled (Kastner et al. 2012). In a study conducted in California, the agricultural inputs required to produce the food for a non-vegetarian diet included 2.9 times more water, 2.5 times more primary energy, 13 times more fertilizer and 1.4 times more pesticides than to produce the food for a vegetarian diet (Marlow et al. 2009). This waste of resources is not only an environmental but also an economic problem.

Another major indicator of the inefficiency of the food system is waste. Shockingly, roughly 30–40% of food in the world is lost to waste, which induces some 7% of global GHG emissions (Parry et al. 2015). Only about 30% of cattle live weight ends up as boneless cuts, and no more than 40% of hogs’ live weight becomes boneless meat (Smil, 2013).

Health and well-being outcomes

Many of the illnesses plaguing the world’s population today are associated with meat-based diets. Eating an overly large amount of meat is thus a form of malnutrition in the sense of not getting the right sort of food. Red and processed meat intakes contribute to increases in total mortality, cancer mortality, and cardiovascular disease mortality (Sinha et al. 2009; Pan et al. 2012) as well as the risk of contracting type 2 diabetes (Pan et al. 2011). According to the World Health Organization (WHO), processed meat ranks alongside smoking as a major cause of cancer (Bouvard et al. 2015).

All forms of malnutrition inflict huge costs on national economies and diminish human well-being. Malnutrition can be either undernutrition or overnutrition. The number of overweight people globally reached 1.4 billion in 2008, including 500 million people who are counted as obese (Searchinger, 2013). Diseases linked with obesity such as type 2 diabetes as well as colon, breast, endometrial, and gallbladder cancers, are a more significant cause of premature deaths than undernutrition (Lim et al. 2012).

The extensive use of pesticides is a risk for human health, too. Evidence concerning the neurotoxicity for humans of even low-level exposure to pesticides shows problems with psychomotor speed and visuospatial ability as well as working and visual memory (Bouchard et al. 2010; Ross et al. 2013). Increasingly common chemicals used in agriculture can induce a multiple antibiotic-resistance phenotype in potential pathogens (Kurenbach et al. 2015).

The current food also seriously affects animal health. By far the most unethical practices of food production relate to the exploitation of animals in modern, intensive, mass-scale meat production. These include the insensitive treatment of animals, their stressful transportation and callous slaughtering, as well as the rapid weight gains obtained through confined feeding and a heavy use of antibiotics. (Smil, 2013).

The Ecosocial Paradigm in Food Policy

The principles of relationality

Paradigms can be regarded as the driving sources underpinning systems (Meadows, 1999). As long as the ideas that guide our actions and policies remain untouched, social change is not possible. At the moment, the global food system faces a triple challenge of a rapidly changing demand for food from a larger and more affluent population, a constraint on food access for the most impoverished people, and a dilemma of maintaining the sustainability of ecosystems. Responding to this challenge necessitates changes in the way food is produced, processed, distributed, and accessed to a degree that is as radical
as what took place during the industrial and agricultural revolutions of the eighteenth and nineteenth centuries and the Green Revolution in the twentieth century (Godfray et al. 2010). Clearly, these upheavals will require dramatic alterations in the mindset and values of policy makers, traders, producers, and consumers, as well as a redefinition of progress. Consensus is growing among critics of present food production and consumption patterns that food policy urgently has to adopt a new paradigm (Lang et al. 2009; EC–SCAR, 2011; Rees, 2014; Ehrlich & Harte, 2015).

The alternative to human exemptionalism is a relational and ecosocial paradigm built on recognizing the interdependence of society and nature. This approach consequently respects ecosystems and planetary boundaries and acknowledges the equal value and rights of all species. In its framework, progress means securing a more sustainable type of well-being. The paradigm thus calls into question the Western notion of progress (Lang et al. 2009). As the nexus of socio-ecological processes is seen in all its complexity, technology will be valued as a good servant rather than as the master.

What would adopting these relational principles mean in the food domain? First of all, the metaphor of a web should be taken seriously (Waltner-Toews & Lang, 2000). One might say that until now food policy has been guided by the metaphor of a production line. The problems that food policy has to face are, however, classic systems problems: they are complex, unpredictable, nonlinear, and have multiple causes (Thompson et al. 2007). Food policy also has to be understood as consisting of a network of social relations, actors, and institutions (Lang et al. 2009).

On the policy level, relationality entails a systemic and integrated approach. Coherence among food, energy, environment, social, and health policies across all levels of governance is a prerequisite for a transition to a sustainable food system (EC–SCAR, 2011). Governmental activities must make it a priority to develop integrative, cross-sectoral, and population-wide food policies on such issues as availability and access to food, social benefits, and animal well-being. On a global scale, the implementation of such an integrative paradigm is even more urgent (Reisch et al. 2013).

Relationality involves a new paradigm for food studies, too, one that will result in a holistic mode of inquiry. This “science of integration” is characterized by interdisciplinarity, synthesis, and cross-sectoral and cross-scale research and analysis (Thompson et al. 2007; EC–SCAR, 2011).

**Ecosocial food policy and well-being**

As many experts have emphasized, the new vision in food policy should be based on a definition that explains its core purpose, which, in turn, ought to be premised on core social needs as well as core principles that could make the realization of these needs possible (EC–SCAR, 2011). Moreover, a sustainable food policy requires a new conceptual framework and clear criteria by which policies can be judged (Lang et al. 2009). We argue that EFP, founded on the concept of well-being, could provide this framework.

One caveat must be mentioned here; it has to be made clear what well-being actually means. It is essential that well-being be understood far more comprehensively, relationally, and sustainably than is the case in current mainstream discussions. In today’s discourse, “well-being” and “gross domestic product,” or “standard of living,” are often used synonymously, which means that an economic interpretation of well-being holds sway. Well-being is, in other words, pursued by making a questionable detour by way of income gains. However, well-being can be regarded as much more: it is a holistic and multidimensional experience related to realizing needs, both tangible and intangible (or material and non-material) (e.g., Gough, 2014). More specifically, well-being is the actualization of the needs of having, doing, loving and being, all of which form its interrelated dimensions. The dimension of having refers to actualizing needs through material resources provided by ecosystems. Doing refers to the need to engage in meaningful activities. Loving places an emphasis on connective and compassionate relations to other people, other species, and nature. Being refers to self-actualization and psychological and spiritual well-being. Moreover, in the context of the relational and ecosocial paradigm, it is paramount to ground the conceptualization of well-being in an understanding of the importance of the human-nature relationship and the biophysical limits of human actions (Allardt, 1993; Helne & Hirvilammi, 2015; see also Hellström et al. 2015; Salonen & Konkka, 2015). Sustainable well-being thus covers human, animal, and planetary well-being.

With these specifications, we advance four reasons for giving the concept of well-being a pivotal role in EFP. First, well-being is the ultimate goal of all human actions. Experts have accordingly recognized that food and agricultural systems should serve the well-being of all, and that well-being should be one of the principles upon which the food system is based (EC–SCAR, 2011).
Second, as human well-being is dependent on ecosystem services (MEA, 2005), it is impossible to achieve well-being sustainably without securing the continued health of essential life-support systems. Hence, well-being unavoidably calls for an integrative approach.

Third, the connection between well-being and needs is crucial. On the dimension of having, we all share the basic need for nourishment. The needs-based conceptualization of well-being applies to all human beings, going well beyond the mere economic rationale (see Max-Neef et al. 1991; Helne & Hirvilammi, 2016). The concept of needs is useful, too, in drawing attention to the vulnerability of all living things, a fact that should have a place at the very heart of food policies.

Fourth, the enormous challenge of building a new kind of food policy requires that its basic concept is appealing and inspiring for all stakeholders. We believe that the notion of well-being is capable of fulfilling this condition, because it is something that all people value and wish to achieve in their life.

**Examples of Ecosocial Food Policy**

To sum up the argument thus far, by changing the foundational paradigm it will be possible to formulate the principles, concepts, and goals of any given policy, giving them a common ground for sustainable practices (see Hirvilammi & Helne, 2014). In this section, some examples of such practices in food policy are briefly presented. These examples are not meant to be comprehensive, and it is crucial to bear in mind that several different strategies are necessary to meet achieve sustainability in food policy. These strategies no longer aim merely to maximize productivity, but to optimize it across a complex landscape of environmental, health, and social outcomes (Godfray et al. 2010). Acknowledging interdependence, diversity, and vulnerability is a key principle of future food policy (see Kaiser, 2011). Diversity refers to the plurality of actors, means, and methods in food production as well as the need to take local variation into account. Vulnerability means building a food policy that recognizes the frailty of all life forms.

In recent decades, both farmers and researchers around the world have responded to the extractive industrial model and the productivist paradigm with an agroecological approach that addresses many aspects of the crisis of modern agriculture: ecological, economic, social, and cultural (see, e.g., De Schutter, 2011). The approach draws attention to the interconnectedness of multiple components and the complex dynamics of socioecological processes. In practice, this approach can manifest itself in diverse farming systems, such as agroforestry, aquaculture, and the integration of livestock into farming systems (Thompson et al. 2007). Also organic farming can be based on an agroecological approach. Below, we discuss the benefits of this method in its ideal form.

Organic farming is based on nutrient intake mainly through the soil ecosystem. Chemical pesticides, artificial fertilizers, hormones, antibiotics, and genetic engineering are usually prohibited in organic farming, with renewable raw materials and recycling favored. Organic farming can be a competitive alternative to industrial agriculture. For instance, one research program involving a meta-dataset with 115 separate and constitute studies containing more than 1,000 observations shows that organic yields are 19.2% lower than those from conventional crops, which is a smaller yield gap than previous estimates. Moreover, the yield differences dropped to 9 ± 4% and 8 ± 5% when diversification techniques (multi-cropping and crop rotations, respectively) were used. More importantly, no significant differences were found in yields for leguminous versus non-leguminous crops, perennials versus annuals or developed versus developing countries (Ponisio et al. 2015).

According to the biggest meta-analysis so far, organic products are deemed to be good for health. In meta-analyses based on 343 peer-reviewed publications, concentrations of a range of antioxidants were found to be substantially higher in organic crops. Studies have shown a link between antioxidants and a reduced risk of contracting certain chronic diseases and cancers (Barański et al. 2014). Organic farming also heeds the biological and ethological needs of animals more satisfactorily than does factory farming. The regulation for treating diseases with antibiotics is also stricter. For example, the European requirements for organic production, set by Council Regulation (2007), exceed the minimum requirements of animal-protection legislation. Moreover, increased animal well-being reduces veterinary costs, lowers the mortality of animals, and improves the quality of products (Pond et al., 2012).

Local food production often occurs among small-scale farmers. There is a strong case for supporting this practice since smallholders possess many of the practical solutions that can lead to more sustainable agriculture (UNEP, 2013). For example, in Bangladesh yields increased by an average of 80% when farmers placed weed-eating ducks in rice paddies. In Kenyan cornfields, local farmers learned to plant...
desmodium to repel insects. These kinds of practices can be cost-effective and locally available. They also tend to increase a sense of community, because farmers pass on their knowledge to each other (Khan et al. 2005, 2011). Local production is also more transparent than industrial farming, as the producer can easily be located. This transparency may enhance animal well-being, while localized food production minimizes the need for stressful transportation of livestock. A local economy is, moreover, significant for regional autonomy. Economic models show that a small economic boom may be created if money circulates several times in its place of origin (Max-Neef, 2010). Also world hunger may be alleviated by small-scale agriculture (Worldwatch Institute, 2011). One has to bear in mind, however, that not all local production is done on an ethically or ecologically sound basis.

Reducing food waste can be achieved in many ways. Halving the global per capita volume of discarded food at retail and consumer levels by 2030 is one core goal of the United Nation’s 2030 Agenda for Sustainable Development. Reducing post-harvest losses is especially important to facilitating food and nutritional security in sub-Saharan Africa (Affognon et al. 2014), where approximately 25% of food waste could be eliminated with better refrigeration equipment. Moving on to Europe, in the UK applying the “best before” instead of “use by” formulation, improving storage guidance, and designing better packaging have been successful strategies (Parry et al. 2015). According to a new law, supermarkets in France must compost or donate unsold and nearly expired food to charity. Italy has also passed a law to encourage all supermarkets to give unsold food to the needy. There is moreover a new trend in which “waste” food approaching its “best before” date is used by restaurants who wish to fight climate change and wastefulness.

Reducing the consumption of meat is among the most promising solutions for feeding more people (Helms, 2004; Godfray et al. 2010), making it possible to shift the allocation of crops from animal feed and biofuels toward more direct means of feeding humans. Growing food exclusively for direct human consumption could, in principle, increase available food calories by as much as 70%, which might even feed an additional four billion people (Cassidy et al. 2013.) It is quite unnecessary to make a detour via meat to feed people in a healthy way. Researchers have demonstrated the dual health and environmental benefits as a result of reducing the fraction of animal-sourced foods in human diets (Springmann et al. 2016).

Vegetarians, in contrast to meat eaters, benefit from reduced cholesterol intake and slightly lower blood pressure (Saxena, 2011). A decrease in meat consumption may also improve weight management (Vergnaud et al. 2010). At the moment, meat substitutes such as mycoprotein-based Quorn are becoming increasingly popular. One remarkable new innovation is cultured meat, which may in the future even make livestock farming obsolete (Ford, 2011). High hopes have also been placed on a brand new invention: pulled oats—a plant-based product that looks like pulled pork and tastes a bit like chicken (Gold & Green Foods, 2016).

A shift to vegetarianism, or veganism, is essential from the standpoint of reducing the GHG emissions associated with contemporary food production. In Finland, it has been estimated that a vegan diet would reduce agricultural emissions by 48% and overall food system emissions by 34% compared to the average Finnish diet (Risku-Norja et al. 2009). A Scottish report concluded that a local and organic vegetarian diet could reduce local food-related ecological footprints by 40% (Frey & Barrett, 2006). On the whole, the extensive adoption of plant-based diets offers an integrated solution for simultaneously optimizing food supply and improving health, well-being, and environmental outcomes. Implementing such policies could provide rational and ethical paths to ensuring a sustainable future for humanity and for other living creatures as well (Sabaté & Soret, 2014; see also Salonen & Helne, 2012).

**Conclusion: Prospects for Change**

At the moment, the prospects for a sustainable future and sustainable well-being may look bleak. Besides the dysfunctional nature of the prevailing food policies described in this article, we are burdened by lock-in effects. The planet is saddled with a growth-oriented economic system that focuses on short-term gains at the expense of long-term interests. Planning and pursuing a sustainable course under the constraints imposed by biophysical circumstances requires a convergence of goals throughout society. Well-being can only be achieved if societies recognize that goals other than well-being are of secondary significance. This is not the case today. Should we then say that there is no hope for a better future?

A more optimistic appraisal is not completely unjustified. Paradigms are social constructions, products of the human mind—and this makes them
replaceable. Revolutions do happen. Weak as they may yet be, winds of change do seem to be blowing: a number of policy makers, researchers, producers, and consumers are demanding integrated solutions that address all aspects of sustainability, and new models for food policies are emerging accordingly. Despite the prevalence of the current productivist paradigm, there are alternative approaches to mainstream food policy. These include the perspective of ecological public health (Lang et al. 2009), the complex model (Waltner-Toews & Lang, 2000), the sufficiency paradigm (EC–SCAR, 2011), and the holistic or natural approach (see Thompson et al. 2007). Food policy may thus be entering a new, crucial phase (Lang et al. 2009).

In the Anthropocene, a sustainable future is in human hands. The bad news is that until now, the interconnectedness of human actions and ecosystem functioning has had dire consequences. The good news is that positive developments are interrelated in any system. Consequently, enhancing equality, continuing the efforts to reduce fertility, and improving the health of ecosystems can all be linked together in a positive feedback loop (Ehrlich & Harte, 2015). There is a chance that the present vicious circle may be transformed into a virtuous circle. However, all actors in the field of food policy must make bold and sometimes hard decisions if food is to be a matter of life—not death.

Decisions about policy frameworks and practices are political at their core, requiring basic shifts in the way the food system is governed (Thompson et al. 2007). National governments and international organizations should, accordingly, initiate global strategies that integrate ecological sustainability and human and animal well-being. They should, in other words, nurture strategies for promoting ecosocial food policies. It is also vital that that the measure of success of food policies no longer be economic growth, but of life, without which well-being is not possible.

In the final analysis, the future of a sustainable ecosocial food policy is not an issue of optimism or pessimism but of taking action. We hope that the shared goal of well-being could ignite the spark to do so.

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