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## Conceptualizing sustainable consumption: toward an integrative framework

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Consumption and sustainability are complex issues—they cannot be reduced to the choice of consumer goods or to “green consumption.” Doing so would neglect the multifaceted embeddedness of consumer acts and the multidimensionality of sustainability. To understand patterns of consumption and move them toward sustainability means dealing with this double complexity. A coherent reference framework is therefore needed, to enable locating and correlating research questions, theories, and findings. Such a framework should provide a basis for interdisciplinary understanding, mutual acknowledgment, and collaborative knowledge creation. Therefore, it needs to be the result of an integrative approach; otherwise it would not allow a wide variety of disciplines to work with it. This article presents such a framework, developed in the course of an interdisciplinary process in a research program. In this process, the researchers of the focal topic asked four questions: 1) How can consumption be conceptualized? 2) How can consumption and sustainability be related? 3) How can sustainable consumption be assessed? and 4) How can changes to individual consumption be motivated? The article condenses the researchers’ overall answers to these questions into four complementary core statements capturing the key elements of the reference framework and concludes by sketching the framework’s benefits for future research.

KEYWORDS: social behavior, consumer groups, quality of life, interdisciplinary research

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### Introduction

Consumption is not only regarded as a key driver of environmental change (The Royal Society, 2012; WWF, 2012) it is also a central domain of social inequalities (de Zoysa, 2011; UNDP, 2011). In response to these challenges, consumption has become important in the emerging field of sustainability science (Kates et al. 2001; Brown, 2012). In a declaration from 2005, more than 100 scholars acknowledged “an implementation gap” (Tukker et al. 2006) and suggested that research should “put more emphasis on the contextual and causal influences of consumer behavior,” develop a better understanding of how behavior affects the environment, and relate it to ideas of a good life. Furthermore, the declaration called upon research to be focused more rigorously on narrowing the implementation gap through studies and experiments that could “reveal how to empower self-interested people to pursue more sustainable livelihoods.” In other words, studies are needed on how and why consumers behave as they do, how

consumption acts could be changed toward sustainability, why people very often resist change, how consumption’s impacts can be assessed, and how concepts of the good life can be linked with consumption. This is a broad range of questions that science has been called upon to answer. It goes without saying that no research project can cover all these facets at the same time and in an appropriate manner and that no single discipline can deal with all of them. Accordingly, research on sustainable consumption is a highly interdisciplinary endeavor, and recent years have seen a growing interest in taking stock of the diverse body of work in the field.

In our opinion, the ongoing scientific debates still lack initiatives to provide a comprehensive conceptualization of sustainable consumption (as an object of research) that can bring together the different facets just mentioned. To facilitate collaborative knowledge production, such a conceptualization should aim at delivering a coherent reference framework serving, first, to locate and, second, not simply to enumerate, but rather correlate research questions,

theories, and findings from different scientific disciplines with the aim of developing comprehensive answers about what sustainable consumption is and how it can be achieved.

To facilitate interdisciplinary research—and also transdisciplinary debates among science, policy, and practice—such a conceptualization should itself be the result of interdisciplinary research, so as to allow different disciplines to connect to and, subsequently, relate their findings. In other words, what is needed is integration, understood as a process that seeks to systematically frame the problem by incorporating diverse disciplinary perspectives (Defila & Di Giulio, 2010). To this end, an interdisciplinary approach to problem framing has 1) to make visible disciplinary perspectives and 2) to link them. Both can best be achieved by means of answering seemingly simple but fundamental questions. With regard to sustainable consumption, we explored the following questions: How can the variety of elements making up the phenomenon of sustainable consumption according to different disciplinary approaches be related to each other? How can the different types of disciplinary analysis be brought together in such a way that justice can be done to each of them? What are the conducting and inhibiting factors of transformation toward sustainable consumption according to different disciplinary approaches and how can they be related to each other?

We have embarked on such an endeavor, and this article presents some key elements of the reference framework we developed to conceptualize sustainable consumption comprehensively. During our interdisciplinary work, this conceptualization proved useful, helping to locate research questions as well as concepts, theories, and findings within a scientific but not specifically disciplinary framework, and providing a scientific but not specifically disciplinary terminology that researchers from diverse disciplines were able to refer to.

The framework's development took place during a research program, termed a "focal topic," entitled "From Knowledge to Action: New Paths Towards Sustainable Consumption," that ran from 2008 to 2013 and was funded by the German Federal Ministry of Education and Research (BMBF) as part of the German Social-Ecological Research Program (SÖF).<sup>1</sup> The focal topic consists of ten project groups with a total of 28 subprojects and an accompanying research project (for more detailed information on the focal

topic, see Defila et al. 2012). More than fifteen scientific disciplines (mostly from the social sciences and the humanities) and about 80 partners from practice were involved in the research. The ten project groups covered a wide range of topics and concentrated on, for example, the reasons people do or do not insulate their houses; the design of school projects on sustainable consumption; the effects of life events on consumption behavior; the benefits of smart meters; and the possibilities of saving energy at the workplace. On a more general level, the projects dealt with deliberate decisions as well as everyday routines; the social meaning of consumer behavior as well as concrete interventions; and the design and impact of policy instruments as well as the more fundamental question of how to raise awareness about, and strengthen competency in, sustainable consumer behavior. The accompanying research project had the task of helping to identify and to develop overarching findings and thus enhance both the scientific and practical impact of the program. It designed, initiated, and coordinated the process of collaborative problem framing and integration of theories and findings leading, among other things, to the conceptualization of sustainable consumption presented in this article.

The aim of the process of integration within the focal topic was to identify joint questions and common ground despite and beyond the diverse research topics, theoretical approaches, terminology, and research methods of the project groups. A multi-method approach guided the design of this process, which encompassed several incremental loops. An average of 50 researchers from all project groups of the focal topic met six times in two-day synthesis workshops methodologically based on structured integration-oriented dialogue techniques. During the synthesis process, different procedures were chosen: The researchers either discussed questions or elaborated definitions and classifications in the sense of collaborative problem framing in the plenum until they reached consensus and a shared body of knowledge. Alternatively, one person or a small working group assumed the task of elaborating the next step of integration and preparing a basis for (real or virtual) discussion (comprising phone conferences, Skype calls, e-learning tools, and e-mail). These two kinds of procedures were intertwined.<sup>2</sup> In a final step, five overlapping groups of researchers (consisting of between four and thirteen members) formulated theses and wrote drafts of papers that all interested researchers in turn discussed and thus validated.

<sup>1</sup> SÖF and the focal topic belong to the field of sustainability science as they pursue the goal of investigating societal problems using an inter- and transdisciplinary approach to generate knowledge that contributes to shaping sustainable development (Lang et al. 2012). For more information, see <http://www.sozial-oekologische-forschung.org/en/947.php>.

<sup>2</sup> These procedures of synthesis development correspond to the method-types "Group" and "Project Management" according to the typology introduced by Rossini & Porter (1978) and further developed by Krott (1996).

The overarching question of the integration process was: How can the topic “sustainable consumption” be conceptualized so that different disciplines (and also practitioners from different fields) can link themselves to it? During the working process, this larger question was subdivided into four constituent questions: 1) How can consumption be conceptualized? 2) How can consumption and sustainability be related? 3) How can sustainable consumption be assessed? and 4) How can changes of individual consumption be motivated? Although these questions were answered separately and by partially different groups of researchers, the answers were always related to each other, as explained above.

Here we condense the overarching results of this integrative process into four core statements, unfolding the key elements of the collaboratively developed reference framework.<sup>3</sup> Note that the framework presented here should not be attributed solely to the four authors of this article, but rather to all of the participants in the integrative process (see Defila et al. 2012). Section 2 presents these four core statements and illustrates them via examples from the project groups. Section 3 draws conclusions with regard to possible benefits of this integrative framework for future research in sustainable consumption.

### **Core Statements on the Conceptualization of Sustainable Consumption for an Interdisciplinary Research Community**

The initial core statement seeks to answer the first and most basic of the questions: “How can consumption be conceptualized?”

#### **Core Statement 1: Consumption is a Complex Issue**

*Individual consumption is a complex bundle of behavioral routines encompassing far more than the purchase of products and services. Neglecting the multiple social, cultural, and structural contexts consumption is embedded in risks a reduced understanding of consumption acts and, consequently, the development of insufficient strategies and measures to change them.*

The starting point of the discussion that led to this statement was the fact that all of the project groups of the focal topic conceptualized consumer behavior very differently, drawing on a variety of theoretical approaches dealing with individual con-

sumption behavior and the design of different types of interventions to change it. The discussion we had about the scope of the various conceptualizations and theoretical approaches resulted in an integrative description of the different context factors that influence individual behavior and in a differentiation of consumption acts. It also allowed us to formulate a shared definition of consumption, including the process stages of selection, acquisition, use, and disposal of goods (products and services) (see also Core Statement 3).

To identify promising ways to make consumption more sustainable, we need to understand and describe consumption acts as comprehensively as possible. Otherwise, there is the risk of developing well-intended strategies that will not succeed because they overlook essential inhibiting or inducing factors. In our perception, the complexity of consumption acts and their close interrelatedness with context factors often is not considered adequately in the development of strategies and measures that aim to change consumption toward sustainability. This section entails a brief description of the multiple contexts individual behavior is embedded in and the different types of consumption acts. In a second step, it also briefly addresses the degree to which theoretical approaches enable this complexity to be grasped (for a more elaborated version and a list of the analyzed body of literature, see Kaufmann-Hayoz et al. 2012a).

#### ***Individual Consumer Behavior is Embedded in Multiple Contexts***

*(Everyday) social interaction as part of social embeddedness:* Most consumer acts are performed through interaction and cooperation with others. For consumer acts within a household, this means that actions such as the preparation of meals (e.g., the quantity of meat consumption) or the planning of holidays become subjects of negotiation. Outside the household, other situations arise, such as discussions with colleagues about adequate room temperature in the office. The routinization of many everyday activities is intertwined with the social environment. A stable environment contributes to establishing habits; if the former changes, routines are interrupted and alternative short- or long-term solutions are needed (Wood et al. 2005).

*Affiliation to social groups and milieus as part of social embeddedness:* Most consumer acts have a symbolic function and are important for self-identity (Levy, 1959). Specific consumer acts such as choosing a mobile phone, car, or routine places to eat out are typical for certain lifestyle groups or social milieus, allowing people to express their affiliation and to identify it in others. While symbolic consumer acts

<sup>3</sup> Neither all findings nor the whole body of literature analyzed can be presented here. Detailed findings and the list of references are in the synthesis publication (Defila et al. 2012).

consciously demonstrate a certain affiliation, the term “habitus” designates the rather unconscious reproduction of social affiliation, which originates mainly from processes of socialization (Bourdieu, 1984). Examples of such influences are class- or milieu-specific preferences for certain food or ways of furnishing one’s home.

*Institutional embeddedness:* Consumer acts are institutionally embedded in various areas of daily life, but also change with regard to different life stages. These situated dimensions include, for example, clothing guidelines and regulated break times at work. As one of the project groups in the focal topic, “Life Events,” demonstrated, institutional influences can also be found in private life. Parents, for example, become part of a system of family policy upon the birth of their first child. Institutional offers target them with certain norms (both formal rules, such as medical examinations and vaccinations, as well as informal guidelines on upbringing), which commonly entail specific consumer acts (see Figure 1 and Schäfer & Jaeger-Erben, 2012).

*Cultural embeddedness:* Consumer acts are influenced by culturally anchored values and, at the same time, represent and reproduce these values. For example, definitions of cleanliness, comfort, luxury, or healthy food are culturally specific. These definitions are communicated and acquired through processes of socialization and (re)produced through dialogue, but also have an effect on what standards are implemented, for example, in terms of the acceptable sanitary standards and temperature of buildings (Shove, 2003; Chappels & Shove, 2005).

*Sociotechnical and sociospatial embeddedness:* The degree to which consumer acts are prestructured can particularly be observed with regard to their incorporation in sociotechnical and sociospatial contexts. The characteristics of certain technologies and everyday products, as well as spatial arrangements, such as infrastructure, but also the atmosphere of squares and streets, have a strong influence on how we carry out consumption acts and the degrees of freedom we have in consuming.<sup>4</sup> Even actions performed individually, such as using one’s own bathtub, are socially embedded, since “the social” is also “imprinted” in technology and space. Technical and spatial arrangements may favor the automation of actions. If technology determines how an action is performed (e.g., using a certain amount of water for toilet flushing) or a room design prescribes specific ways of use (e.g., a room which is designed for

cooking only), such action does not need to be consciously controlled and managed. At the same time, routines can also be interrupted through changes or disruptions of such arrangements, allowing for some reflection on them (e.g., ice on roads preventing car use).

To illustrate the embeddedness of individual (and household) behavior in different contexts, we turn to the project group “Change,” which developed and tested different communication measures to motivate university staff to save energy (for more information about the project, see Matthies & Thomas, 2012). An individual’s openness toward saving energy at his/her workplace proves to be influenced by social, cultural, institutional, and sociotechnical contexts as well as by characteristics of the individual. Regarding the institutional context, it makes a difference whether or not an entity presents itself as an energy-efficient or environmentally aware organization. Regarding the options for energy saving, the sociotechnical context—the material dimension—plays a crucial role. Is it, for example, possible to regulate room temperature individually or is regulation centralized? How good is the building’s insulation: Are there cold walls or leaking windows? How much daylight enters the building? Such characteristics of the building and the energy infrastructure can be regarded as prestructuring possibilities for individual action. Last, but not least, it is essential to consider influential cultural and social aspects. If, for example, the institution cultivates a norm of “being readily available,” it is more likely that personal computers will not be turned off during longer meetings. Or, if offices are shared, colleagues may participate in decisions about appropriate room temperature and ventilation, assuming that the building allows for this capability (e.g., heating not centralized, windows that can open).

This brief list of contextual aspects seeks to clarify that individuals are not completely free in deciding for or against energy-efficient behavior at their work place (or at home), and the same goes for their mobility behavior and all other fields of consumption. This type of analysis of contextual factors is helpful for understanding consumption acts in their complexity and inhibiting the development of unidimensional interventions.

### ***Characterization of Different Types of Consumption Acts***

The degree of prestructuring determines whether the individual has much freedom in deciding for or against a certain consumption act or whether he/she is practically “forced” to a certain decision (e.g., by cleanliness standards or restricted mobility infrastructure). Consumption acts can also be differ-

<sup>4</sup> The mutual structuring of social and material aspects in the development of social practices and the consumption patterns involved is especially taken up by structuration and practice theory (e.g., Giddens, 1984; Schatzki, 2001; Reckwitz, 2002).



**Figure 1** Network of elements of practices around daily time and way planning (project “Life Events”). Blue: Spatial and infrastructural contexts; pink: sociocultural norms; yellow: individual attitudes and preferences. The lines show interrelatedness between the different elements.

entiated regarding the degree of reflection with which they are carried out. Reflected consumer acts are those that a person consciously decides on after considering the options available. In contrast, nonreflected consumer acts are performed with little attention, and there is no (renewed) conscious decision and check. Often, such nonreflected acts have the character of routines, that is, they are performed out of habit due to frequent repetition. Finally, acts of consumption can be distinguished as being essential or nonessential with regard to their symbolic or emotional significance for the individual. Consumer acts that are indispensable to an individual’s idea of a good life are essential, whereas those that are substitutable in terms of their significance (i.e., the functional benefit can be fulfilled by another product or service) are nonessential.

***Theoretical Approaches Dealing With the Complexity of Consumption Behavior***

Now that we have stressed the complexity of consumption acts, the question arises how well different action theories are able to deal with this. The scholarly literature offers a broad range of theoretical approaches dealing with different aspects of complexity (see Kaufmann-Hayoz et al. 2012a).

After screening the scope of the approaches available, the researchers within the focal topic concluded that certain deficiencies exist with regard to theories dealing with nonreflected consumer acts, the symbolic significance of consumer goods and acts, the dynamic nature of change processes, and the mediation between individual and structural factors and processes. Referring to the last aspect, it seems rather

striking that most of the theories focus on either personal or structural conditions and that few theoretical approaches have adequately considered the close interrelationship between individual characteristics (e.g., attitudes, preferences, competencies) and the material dimension of everyday consumption (e.g., the characteristics of the given spatial and sociotechnical structures).

However, a tendency to overcome this dichotomy of perspectives is recently observable (see Brand 2010; Kaufmann-Hayoz et al. 2012a). Relatively new “practice theoretical approaches” aim to provide a framework for the integrative analysis of social and material aspects of “social practices” (Schatzki, 1996; Reckwitz, 2002), which can be described as “logically” organized bundles of activities (doings and sayings) and supporting materials (artefacts, technical or other media) that have a spatial and temporal structure (Schäfer & Jaeger-Erben, 2012). Researchers have applied this approach to different questions of sustainable consumption during the past few years (e.g., Shove & Warde, 2002; Shove, 2003; Spaargaren, 2004). Within the focal topic being reported here, the reconstruction of everyday consumption as a linkage between different consumption practices with individual needs and priorities in the conduct of everyday life was a part of the project “Life Events,” which aimed to better understand how everyday consumption patterns change during life-course transitions like the birth of a first child (Schäfer & Jaeger-Erben, 2012).

Figure 1 shows how mobility and shopping practices are combined in individual everyday time and way planning. It illustrates this using the example of parents who combine individual needs and priori-

ties with social norms of childcare in their everyday lives. In project-team interviews with parents, it often turned out that they felt pressured to provide organic food for their babies, since the media and social networks called it the healthiest option (pesticide-free, natural). In the example above, shopping in an organic store is combined with taking a car, since the retail establishment is located outside normal everyday routes and public transportation is seen as too expensive and impractical. Furthermore, taking the car allows for combining shopping with other activities as well as further priorities and strategic decisions relevant to everyday life. The example shows how different consumption habits that have ambivalent effects from a sustainability point of view can be closely linked in the framework of individual strategies for performing ordinary activities. It also demonstrates the interaction of individual consumption habits with systems of provision, like shopping facilities or public transport, and the importance of factors such as social norms and social interaction (for a detailed report on methods and findings of the study see Schäfer & Jaeger-Erben, 2012).

Based on these analyses, the reconstruction of social practices can be regarded as an “entanglement” of a single consumer act within a spatial and temporal context (Kaufmann-Hayoz et al. 2012a). The theory of social practices allows integration of the individual and structural dimensions of consumption by examining the interrelationships between consumers and, for example, available systems of provision as one structural element, helping to explain why changing routines is a very challenging task. Although social practice theory has—just like all other theoretical approaches—a certain focus and bias (see, e.g., Brand, 2010), it seems a promising approach capable of overcoming the theoretical deficits outlined above.

To conceive acts of consumption as being embedded in different contexts—as shown above—and to distinguish them according to their degrees of freedom and consciousness and their meaning for the individual is important with regard to how we can change them. But it is also crucial with respect to how we relate consumption to sustainability. Hence, the second question is “How can consumption and sustainability be related?”

### **Core Statement 2: Concepts of Need and of a Good Life Help to Define the Relationship Between Consumption and Sustainability**

*Applying concepts of a good life and of objective needs to the field of consumption forms a sound basis for deducing responsibilities, rights, and criteria of sustainability in consumption.*

The second core statement relating consumption and sustainability on a conceptual level is based on Di Giulio et al. (2012) as well as the discussions conducted on this issue within the focal topic.

The first starting point for this statement is the idea that the concept of need is fundamental to individual consumption, in the sense that there is a “what for?” behind every act of consumption (e.g., to be part of a certain peer group, to stay healthy and clean, to recreate and learn something, to have a comfortable home). These needs have to be taken into account to adequately understand and grasp acts of consumption (see Core Statement 1). On a conceptual level, this means that to acquire, possess, or use goods is not an end in itself, whereas needs are ends in themselves, and acts of consumption are only means to these ends. The second starting point is the central role the concept of need plays regarding the idea of sustainability, according to which the development of society must be oriented toward the satisfaction of the needs of all human beings and the guarantee of a good life for all—both in the present and future.<sup>5</sup> This common conceptual denominator adds up to the suggestion that, to define sustainability in consumption, we should not focus on consumer goods, but rather on the needs to which these goods are linked (see also Core Statement 3).

It is incontestable that, from the point of view of sustainability, global society will run into severe problems if all the wishes people feel were actually to be satisfied. This line of thought leads to the conclusion that, to be useful, the concept of need has to be able to distinguish legitimate needs from illegitimate needs. A further consequence is that the concept of need has to be deduced from the idea of sustainability and then applied to consumption—and not vice versa.

The debate within the focal topic on how to find a suitable conception of need resulted in exploration of another concept linked with the idea of sustainability: a good life. Just like the concept of need, the concept of a good life is used in its philosophical sense and not as it is generally deployed in the empirical social sciences. In philosophy, the term denotes what a fulfilled human life should consist of. It thus does not denote a specific historical concept or our individual conception of quality of life. Philosophical theories of a good life are always ahistorical

<sup>5</sup> The definition of sustainability used within the focal topic is that given by the United Nations, setting the fulfilment of human needs as the overarching goal of societal development on the national and the international levels. Within this anthropocentric approach, the world of nature is one of the different dimensions to be considered, with the “planetary boundaries” as natural limitations on development. The obligation to pursue sustainability is politically set and extends to individuals as well as to nations and the international community. This definition was the starting point for our ethical reasoning within the focal topic.

and supra-individual. So-called “objective theories” of a good life aim to define universally valid elements that a good life should consist of, which are independent from both subjectively felt wishes and individual (culturally embedded) situations. Researchers in the sustainability discourse working with theories of a good life prefer anthropological approaches as promoted, e.g., by Max-Neef, 1991 or Nussbaum, 1992 (see, e.g., Rauschmayer et al. 2011 or Costanza et al. 2007). The protagonists of such approaches argue that certain characteristics and capabilities are universal to human life (e.g., to engage socially, to recreate, to enjoy bodily integrity, to be secure) and postulate that a good life consists of the possibility of developing these characteristics and capabilities, according to one’s physical and psychological situation and individual preferences.<sup>6</sup> Anthropological approaches set the ethical obligation to provide all human beings with the possibility of developing the characteristics and capabilities postulated, regardless of whether people decide to make use of them. Hence, the goal of sustainability can be rephrased: to provide all humans with the external (social, cultural, economic, environmental) conditions necessary to live a good life.

With these ideas in mind, we explored how the notion of need can be related to concepts of a good life in such a way that they complement each other. Meeting this requirement can be achieved if need is understood as a time-bound entity, that is, if need is coupled with existing human individuals (see Soper, 2006). A need is something a human being experiences—it is a person wanting something—and without this person the wanting does not exist. Thus, on a conceptual level, the (historical) concept of need complements (ahistorical) concepts of a good life. In the context of sustainability, this allows connection of the superordinate goal of sustainable development to the present reality of human beings. Once an agreement is reached on the elements of a good life, the criteria needed to identify legitimate needs are provided: those connected to these elements.

Further elaborating these considerations and terms, the researchers working within the focal topic developed a conceptual system with regard to sustainability and consumption, defining these terms as well as responsibilities and rights related to them. The central concepts of the system follow.<sup>7</sup>

<sup>6</sup> Empirical evidence that such theoretically stated universals in philosophy exist is provided, for example, by psychological and other empirical research (e.g., Veenhoven, 2000). Also, the economists responsible for development of the Human Development Index (HDI) assume the existence of universals.

<sup>7</sup> For the arguments in detail and explanation of the whole system, see Di Giulio et al. (2012).

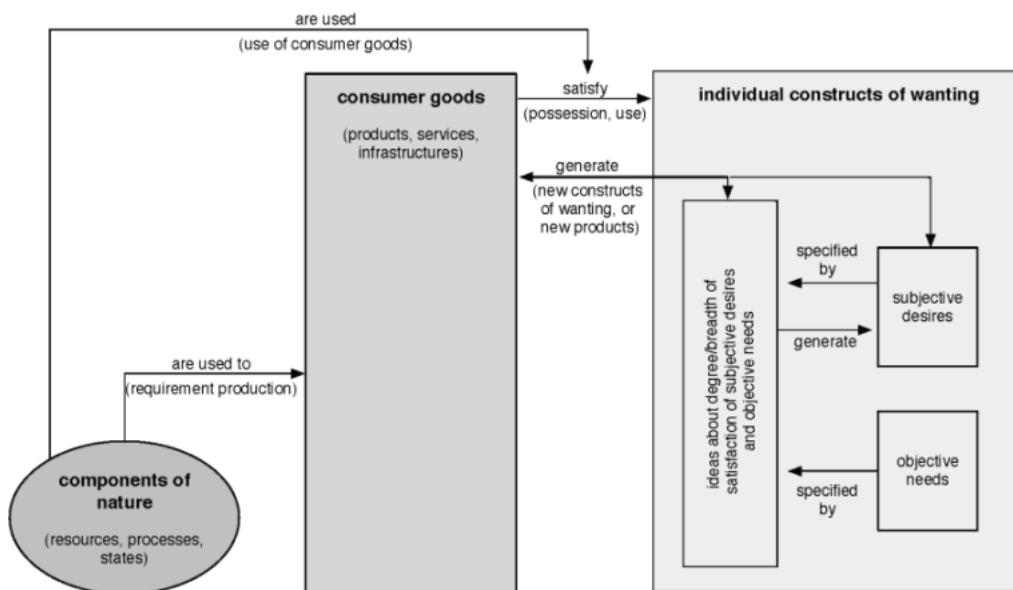
*Objective needs:* Objective needs are individual constructs of wanting, but only those referring to universally valid elements of a good life. Objective needs (e.g., the need for recreation) are ends in themselves. They are legitimate needs and cannot be ethically questioned. All humans, both in the present and future, have a right to be provided with the possibility of satisfying these needs. This ethical obligation extends to all societal actors, from the level of the individual up to the level of states.

*Subjective desires:* Subjective desires, for example a wish to see Niagara Falls, are also individual constructs of wanting. But they cannot claim the status of being objective needs because they are not related to universal elements of a good life. Subjective desires can, therefore, be ethically questioned; they are only legitimate as far as their satisfaction does not prevent others from satisfying their objective needs. Society has no ethical obligation to guarantee satisfaction of subjective desires.

*Consumer goods:* Consumer goods are the products and services/infrastructures we possess and use as a means to satisfy needs and desires (satisfiers). The supply of consumer goods can be ethically questioned if, in some way, it hinders humans from satisfying their objective needs. There is an obligation, though, to provide consumer goods as far as they are indispensable for the satisfaction of objective needs.

*Ideas about the degree and breadth of satisfaction of objective needs and subjective desires:* As a rule, different consumer goods are available to satisfy one and the same desire or need, and these goods can be made use of on different scales (e.g., recreation is possible at home and on the Maldives; one can visit the Maldives once in a lifetime or once a year). Ideas about the degree and breadth of satisfaction of needs and desires substantiate the point at which an individual considers a need or a desire to be satisfied. They express individual conceptions of a fulfilled and meaningful life while, at the same time, also being strongly influenced by the sociocultural environment (see Core Statement 1). As such, they can be ethically questioned.

*Components of nature:* Components of nature are used to satisfy needs and desires, as nearly all consumer goods rely on, and/or affect, components of nature. Their use in this way is not an end in itself, but a means to an end; they are instrumental and “transmitted” in the form of consumer goods (such as heating systems providing warmth or parks providing



**Figure 2** The interrelations between the different elements of the conceptual system presented in the paper (for the whole conceptual system, see Di Giulio et al. 2012).

opportunities for recreation).<sup>8</sup> The extent to which components of nature are used can be ethically questioned, meaning that they should be used only insofar as this does not prevent others from satisfying their objective needs. Additionally, the extent to which components of nature are and can be used is, of course, dependent on “planetary boundaries” (Rockström et al. 2009).

Figure 2 shows, inter alia, that consumer goods not only satisfy constructs of wanting, but also generate novel subjective desires and new ideas about the degree and breadth of satisfaction of objective needs and subjective desires, whereas they have no influence on the existence of objective needs. The same holds for (new) ideas about the degree and breadth of satisfaction of needs and desires, mostly conveyed in social interaction: such ideas specify needs and desires and they can induce new subjective desires, but they cannot create new objective needs.

Considerations by the researchers of the project group “Heat Energy” can be used to illustrate the conceptual system by applying it to heat consumption. The need for an indoor temperature which prevents inhabitants from freezing is an objective need, based especially on bodily integrity as a universal element of a good life. Individual conceptions of adequate indoor conditions such as temperature differ and can increase demand for heating energy. Subjective desires (e.g., the desire to wear light clothing at home) can also increase the extent of individual

heating needed. The resulting energy requirement is the sum of needs and desires. Distinguishing needs from desires makes it possible to question what kind of energy use is legitimate. The researchers of this project group (see e.g., Koch & Zech, 2012) point out that instead of looking only at formal aspects such as the surface area of an apartment, using the conceptual system developed through the synthesis process allows consideration of both the size and composition of a household when determining what can be considered a legitimate demand for heat. Furthermore, they see a potential impact on sustainability strategies: To limit the resources used, a sufficiency strategy could be applied with regard to subjective desires. But, although desires can be ethically questioned, there is no need to consider them illegitimate per se, as the resources used can be limited through other strategies as well. An efficiency strategy and a consistency strategy could, for example through a well-insulated building envelope, help to minimize the amount of resources used to satisfy the need for a pleasant indoor temperature. Hence, up to a certain point, desires (e.g., for a larger living space) can be compensated and therefore realized.

Major benefits of the conceptual system the researchers within the focal topic agreed upon are:

1. Sustainable consumption can be discussed without labeling consumption as “negative” per se—transmitting the message that sustainable consumption means everyone should be coercively resigned to reduce his or her quality of life—and without demanding a general (and unrealistic)

<sup>8</sup> The concept of “ecosystem services” is a useful approach for linking components of nature to objective needs (MEA, 2005).



renunciation of consumption. Consumption can be linked positively to the idea of a good life and the goal of sustainability.

2. The concept of consumer sovereignty has to be questioned on ethical grounds, as state intervention in individual consumer behavior can be ethically justified as long as the satisfaction of the objective needs of present or future human beings is not guaranteed or as soon as it is endangered.
3. Sufficiency strategies can be limited to those elements of the conceptual system that are open to ethical questioning. But sufficiency strategies may have to be extended if the quality and/or quantity of existing natural resources fail to provide the external conditions for a good life for people now and in the future.

Objective needs, subjective desires, and ideas about the degree and breadth of their satisfaction build a “field of tension” with which society has to deal when defining sustainability in consumption. The same holds true for the societal values of individual freedom, on one hand, and the collective good of society, on the other. If we proceed from the conceptual system we are outlining here, one of the first steps needed is to define objective needs. To do this, we can build on theories and empirical findings, but in the end this must be done in the course of societal negotiations. The conceptual system is only a first step on the way toward defining how the sustainability of consumer behavior can be assessed more precisely and setting concrete criteria and quantifiable indicators (extending to both natural and societal resources). But, although a list of broadly accepted objective needs does not yet exist, our conceptual system can serve as a basis for answering the third question: “How can sustainable consumption be assessed?”

### **Core Statement 3: Sustainability in Consumption is a Matter of Intentions and Impacts**

*Sustainable consumption is not just a question of choosing the right product but of causing the right impact through one’s overall consumer behavior. However, continuous consideration and evaluation of the effects of daily consumption patterns is an unreasonable burden for individuals to bear. Sustainability of consumer behavior should be assessed by two ethical approaches complementing each other, implying different consequences for sustainable consumption strategies and alleviating the burden on individuals: an impact-oriented and an intent-oriented approach.*

More than twenty years after the idea of sustainable consumption received broad publicity in the context of the Rio summit, there is still no consensus about how to define it (Murphy & Cohen, 2001; Jackson, 2006). The project groups of the focal topic also referred to different definitions of sustainable consumption in their research. In the synthesis process, this led to the question of whether it is possible to formulate a shared interdisciplinary definition. The Oslo definition of sustainable consumption—probably the most frequently cited and widely established one—served as a starting point in that debate. This section presents the results of this discussion and proposes an alternative approach for how sustainability in consumption can be conceptually determined.<sup>9</sup>

The participants of the international roundtable held in Oslo in 1995 defined sustainable production and consumption as the “use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations” (Norwegian Ministry of the Environment, 1995).<sup>10</sup> Despite its prominence, this formulation has been the object of controversy in academic circles (see e.g., Reisch, 1998; OECD, 1999). The researchers of the focal topic appreciated the Oslo definition as an important starting point for the debate. However, they argued that this definition alone is not sufficient; rather, its elements need to be critically reconsidered and further specified to provide an adequate basis for research on how sustainable consumption can be evaluated. In particular, the researchers of the focal topic identified three main shortcomings, as described below.

The first major weakness of the Oslo definition is that it includes only an implicit definition of consumption, one that the researchers of the focal topic contended was too narrow. It only mentions the *use* of goods and services. They argued for a broader and more refined view on individual acts of consumption that goes beyond mere use. It is clearly necessary to distinguish between production cycles and different stages of consumption. However, individual acts of consumption are not only embedded in production-consumption systems (see Core Statement 1), but exist in hybrid forms, such as “prosumers,” individuals who both consume goods and produce them by

<sup>9</sup> For a more differentiated argument, see Fischer et al. (2012).

<sup>10</sup> The Norwegian government hosted a series of events to facilitate the debate about sustainable consumption in the follow-up process of the Rio conference in 1992. The Ministerial roundtable conference on sustainable production and consumption was held in Oslo from February 6–10, 1995.

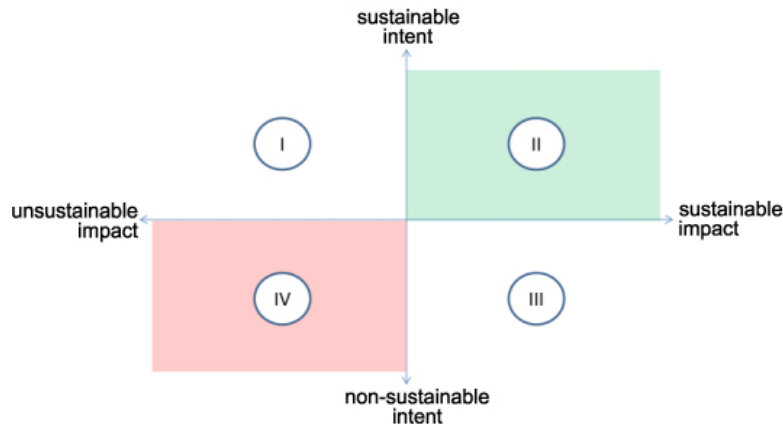
further refining goods for subsequent resale (see Blättel-Mink et al. 2012). Hence, the researchers of the focal topic considered “prosuming,” a term created by Alvin Toffler (1980), as a stage in the consumption process. The second major criticism refers to the Oslo definition’s use of the concept of needs. As outlined in Core Statement 2, consumption phenomena should be considered as functionally related to individual human constructs of wanting, which means that consumer goods are understood to be satisfiers of both objective needs and subjective desires. According to this criticism, the Oslo definition remains deliberately vague with regard to such distinctions. The third shortcoming is that the Oslo definition confounds different levels and fails to connect its elements. On the one hand, it is (vaguely) related to essential ideas of sustainable development (e.g., increasing quality of life) while, on the other, it proposes unrelated and rather specific measures from the ecological sphere (e.g., reducing toxic materials) and, at the same time, omits such specifications for the social and economic spheres.

In response to these limitations, researchers from different project groups within the focal topic worked on an alternative conceptualization of sustainable consumption. This process was based on findings regarding the complexity of individual consumer behavior (see Core Statement 1) and the relationship between sustainability and consumption (see Core Statement 2). On that basis, the sustainability of consumption acts is defined by the degree to which individual acts of selecting, acquiring, using, and disposing of, or prosuming goods contribute to creating or sustaining external conditions that allow all human beings to meet their objective needs today and in the future. These external conditions comprise ecological, social, cultural, and economic resources and processes. Accordingly, the focal topic researchers discussed how to approach the assessment of sustainability of individual acts of consumption. Undoubtedly, there is demand for specific sets of criteria or indicators that can be directly applied to specific acts of consumption to determine the sustainability of such acts. The aim of the synthesis process, however, was not to provide such criteria or indicators. Rather, it focused on clarifying what exactly should be assessed and how this should happen. The basic assumption within the focal topic was that, in the context of sustainability, the objects of evaluation should not be the acts of consumption per se, but rather their effects. Drawing on established classifications in the literature (Stern, 2000; Weber, 2008), two basic approaches to assess effects can be distinguished: the assessment of *real* effects and the assessment of *intended* effects. This means that individual acts of

consumption can be evaluated with an *impact-oriented* and/or an *intent-oriented* approach.

In the context of an anthropocentric understanding of sustainable development, as proposed by the United Nations and underpinning this article (see Core Statement 2), the impact-oriented approach focuses on the consequences of individual acts of consumption with respect to possibilities for other human beings to satisfy their objective needs now and in the future. Here, the impacts caused by individual acts of consumption on specific external conditions of a good life are the object of evaluation. Compared to a predefined value, for example aggregated carbon-dioxide (CO<sub>2</sub>) emissions over a life cycle, the acquisition, use, and disposal of certain goods can be qualified as being more sustainable than that of others. Impacts can thus be qualified as being sustainable (contributing to creating and/or sustaining the external conditions of a good life for humans now and in the future) or unsustainable (not contributing to or even endangering these external conditions). The intent-oriented approach in turn focuses on the intentions of individuals while enacting their consumer choices. Obviously, these choices may be made with the explicit intention to contribute to the goal of sustainability or without such an intention (either through lacking awareness or out of rejection). Intentions can thus be qualified as sustainable or non sustainable. Both these approaches make sense. The impact is important because the actual effect is what counts at the end of the day. The intention is important because no one should be blamed for the effects of his/her acts without taking into account his/her intentions. An assessment based on the impact alone would neglect not only the intentions but also that the effects of individual acts of consumption are often not well known. To distinguish between impacts and intentions therefore allows for a more refined assessment of sustainability in consumer acts.

Two project groups of the focal topic illustrate these two approaches. The project “Prosumer” shows an impact-oriented approach. The researchers analyzed how online trading of used goods on eBay contributes to resource efficiency. For that purpose, consumer acts were qualified as more or less sustainable based on measuring their environmental impacts. To generate these data, the project estimated the environmental effects of different consumer or prosumer acts in the context of online trading (e.g., use of resources and extent of emissions). The investigators identified positive effects of online trading for second-hand high-quality and durable goods that do not require energy or water in their use phase. Furthermore, it was possible to identify positive environmental effects regarding the online trading of two distinct groups of users, one with and one without



**Figure 3** The sustainability of consumption acts from intent- and impact-oriented perspectives.

explicit intentions of contributing to sustainability: environmentalists and prosumers (Erdmann, 2011; Blättel-Mink et al. 2012). An intent-oriented approach can be illustrated by referring to the “BINK” project group which analyzed students’ intentions and competencies to reflect and apply the idea of sustainability as a guiding criterion for individual consumer acts.<sup>11</sup> Together with school practitioners, a concept of consumer competency was developed that comprised individual cognitive and noncognitive (e.g., motivational, volitional) dispositions that students need to be able to consume sustainably. Students then engaged in practical interventions to make their schools more sustainable. In a questionnaire survey, students of the experimental group reported more sustainably-oriented consumption intentions than students of the control group (Barth et al. 2012a; 2012b). The study’s findings suggest that it is possible to promote intentions to contribute toward sustainability in one’s own consumption acts.

Figure 3 shows how the assessment of individual consumption can be differentiated by using both approaches. For example, car driving is a consumer act with negative impacts on the environment but it can be enacted even though one is basically favorable to sustainability in terms of individual intentions (e.g., arising from long commuting distances and/or lack of public transport; see Quadrant I) or due to non sustainable intentions (e.g., a passion for driving fuel-intensive cars as a leisure activity, see Quadrant IV). Another example is the use of public transportation as a consumer act with positive environmental impacts that can be enacted either with the explicit intention of contributing to environmental quality and, thus, to sustainability (see Quadrant II) or without thinking about sustainability at all (e.g., due to inability to afford a car, see Quadrant III).

<sup>11</sup> BINK is a German acronym for “educational institutions and sustainable consumption.”

To distinguish between intent and impact in the evaluation of consumer acts as sustainable and then to combine them in the act of assessment provides a more differentiated approach than a single focus on either of the two. It enables accounting for the fact that one can exist independently of the other: Consumer acts can result in a desired (sustainable) impact regardless of intention to contribute to sustainability. At the same time, we know that actions intended to be sustainable do not necessarily result in sustainable impacts.

Following this distinction, individual acts of consumption are ideally ethically good in the sense of sustainability when they are directed toward the objectives of sustainable development (intention-oriented) *and* actually contribute toward their accomplishment (impact-oriented), meaning that they are *both* intention-oriented *and* impact-oriented. At the same time, however, it does not seem appropriate to expect individuals to both constantly reflect on and fully foresee the causal impacts of their actions, including all temporal, spatial, and side effects as well as always considering and examining their intentions when performing acts of consumption (see Core Statement 1). Nevertheless, the researchers of the focal topic stressed that it is necessary to convey this twofold perspective on consumption acts and that both approaches are needed to define sustainable consumption: The focus on *intentions* (and the development of competencies) is vital so that individuals can become empowered to act sustainably even if they do not know all the possible impacts of their actions. The focus on the *impacts* of consumer acts is necessary to make sustainable consumption a societal goal that can actually be politically monitored, steered toward, and verifiably achieved.

Hence, the relationship between the two approaches of assessing sustainability in consumption is rather more complementary than competitive in char-

acter. It is a task for different actors (e.g., governments, businesses, educational organizations) to carefully decide when it is necessary to promote intentions and when it is necessary to enforce or prevent certain impacts of consumption by applying, for example, regulatory instruments. The twofold approach to assessing sustainability in consumption thereby informs elaboration of the fourth question: “How can changes of individual consumption be motivated?”

#### **Core Statement 4: Intervention Strategies for Sustainable Consumption Are More Effective if Combined**

*Changing consumer behavior toward sustainability is possible, but does not work simply by introducing economic incentives or delivering information on how to consume in a more sustainable way. It is a complex challenge that can only be faced by applying a mix of instruments carefully adapted to the type of consumption act (reflected/non-reflected) addressed and the specific contexts (institutional, cultural, and sociotechnical embeddedness).*

Finding effective instruments for behavioral change is probably one of the most important issues that the scientific community investigating sustainable consumption addresses. Formulating consolidated answers and delivering useful knowledge for evidence-based policy making requires the integration of findings from different disciplines (e.g., economics, political science, psychology, and sociology). Integrated findings are needed regarding fundamental questions of how to influence or change consumer behavior as well as about the effectiveness of single instruments or instrument mixes.

To meet objectives such as reduced use of natural resources and energy as well as deceleration of climate change or loss of biodiversity, technological solutions are manifestly insufficient. Changes in everyday consumer acts (see Core Statement 3) also require, for example, changes in people’s ideas about the degree to which subjective desires need to be satisfied (see Core Statement 2). For this to happen, strategies are required that can address both consumption intentions and the impacts of consumption acts (see Core Statement 3). Changes in individual or household-consumption behavior occasionally “just happen.” In most cases, however, they have to be initiated, accompanied, supported, and evaluated—in short they have to be steered by companies, state policies, or other institutional actors or organizations such as political parties or nongovernmental organizations (NGOs). Accordingly, all project groups within the focal topic investigated how to motivate changes of individual consumption acts.

Aspirations of steering individual behavior are often confronted with the question of legitimacy. Referring to the differentiation between subjective desires and objective needs mentioned above (see Core Statement 2), the researchers of the focal topic concluded that:

Societal steering is legitimate when and to the extent that it is proven to be necessary to create the external conditions for satisfying objective needs for present or future generations. Moreover, steering is legitimate to prevent undesired effects of individual consumer behavior....A steering yet limiting intervention into individual consumer behavior would be legitimate if, without such steering, the guarantee of the external conditions for satisfying objective needs for present or future generations would be compromised (Kaufmann-Hayoz et al. 2012b).<sup>12</sup>

Legitimacy of steering consumer behavior toward sustainability here not only refers to political interventions in the conventional sense, but also to other types of instruments outlined below.

In the course of the synthesis process, the researchers of the focal topic discussed the effectiveness of the following four types of instruments for steering consumer behavior toward sustainability (see Kaufmann-Hayoz et al. 2012b)—regulatory, economic, communicative, and cooperative. The discussion considered the differentiations with regard to sustainable consumption outlined above and relied on empirically supported insights from the projects on how individual change of consumption behavior can be initiated and an understanding of which factors codetermine the success or failure of interventions. The following subsections briefly present the mechanisms of these instruments and outline their effectiveness in terms of changing people’s behavior toward sustainable consumption.

#### **Regulatory Instruments**

Regulatory instruments entail state-driven interventions such as the Energy Conservation Regulations (EnEV) or the Renewable Energy Act (EEWärmeG) in Germany. Such interventions in general function according to top-down legal ordinances that prohibit certain behavior (e.g., dumping toxic waste in the landscape) or foster others (e.g., applying photovoltaic panels to the roof of one’s house). Regulatory instruments, representing and influencing part of consumers’ institutional environment and of-

<sup>12</sup> As mentioned above (Core Statement 2), the definition of objective needs is subject to societal discourse.

ten defining crucial external conditions to meet objective needs, are individually and collectively binding, but this does not guarantee their effectiveness. External regulatory incentives might not touch intrinsic motivations, that is, they do not necessarily initiate individual sustainable intentions; their effectiveness may therefore be restricted to the single act they address. Another barrier is the lack of regulatory control once a new regulation has been implemented as, for example, with the German enactment of beverage-can deposits. After its introduction in 2003, the accumulation of exceptions has weakened the impact of this legislation, but, and more important, adherence to the law itself, after an initial phase, has not been controlled properly. This is confirmed by focal topic projects where regulatory interventions (as, for example, introducing feedback systems in the context of electricity consumption; see Sunderer et al. 2012) proved to be most effective in the phase of initiating change toward sustainable impacts. However, regulatory instruments quite often have to be accompanied by other ones, like economic or communicative instruments.

### ***Economic Instruments***

Economic instruments use pricing signals to change individual or household behavior toward sustainability. Application of such tools with respect to sustainable consumption includes, for example, the implementation of progressive electricity tariffs or the use of financial incentives to encourage reductions in the volume of household trash. Economic interventions can be quite effective in facilitating more sustainable behavior in terms of impact. The “Transpose” (Transfer of Electricity Saving Policies) project was aimed at identifying key potentials for electricity savings and effective steering instruments by comparing different measures (see Brohmann et al. 2012a). A crucial finding is that investment measures (mainly replacing household appliances like freezers and washing machines) could save about 60% of the electricity consumption in German private households; the saving potential by changing patterns of usage amounts to an estimated 20% (see Brohmann et al. 2012a). A program that motivates the replacement of inefficient household appliances could have significant impacts, as the results of the “Transpose” project show.

Again, economic instruments may support impact that can be qualified as sustainable (see Core Statement 3) but not necessarily sustainable intentions. As economic interventions in general do not address intentions, they can cause rebound effects as unintended side effects when the money saved is spent for other modes of unsustainable consumption. To prevent such effects, supplementary regulatory

policies (e.g., applying progressive electricity tariffs) or information policies (e.g., motivating consumers to buy a refrigerator that matches individual needs rather than buying a bigger appliance just because of a cheaper price or for status reasons) are needed.

### ***Communicative Instruments***

Communication is commonly deployed as an intent-oriented instrument (see Core Statement 3). Communication measures aim to change people’s intentions and to promote actions coherent with them. Factors influencing intentions include different bodies of knowledge, attitudes, values, social and subjective norms, and perceptions of (social and physical) reality as well as of opportunities and individual capabilities for acting. They also address subjective desires and ideas about the degree and breadth of satisfaction of objective needs and subjective desires (see Core Statement 2). The research results in this field suggest further differentiation is possible based on motivational, supportive, and diffusion-focused instruments. Prominent examples of motivational and supportive instruments are educational programs striving for sustainability (Barth et al. 2012a) or consulting programs helping consumers to save energy in their everyday life through the provision of feedback information (see, e.g., Sunderer et al. 2012). Diffusion-focused instruments in turn “target the diffusion of social norms, motives, attitudes or new social practices within social systems (population groups, organisations)” (Kaufmann-Hayoz et al. 2012b), for example by establishing networks and platforms or by designing participative processes within communities.

The disadvantage of communicative instruments is their lack of impact orientation. Since the causal link between, for example, providing information or taking part in community decision making and actual behavioral change is weak (see Kollmuss & Ageyman, 2002), the effects of information strategies in many cases can hardly be measured in terms of impact.

### ***Cooperative Instruments***

The fourth mode of intervention is cooperation, often seen as an alternative to regulatory instruments. Well-known examples related to sustainability are voluntary commitments of economic branches, but also New Public Management strategies of energy provision (see Bulkeley & Kern, 2006) and, very recently, user involvement in corporate innovation processes. In general, cooperative instruments try to fill the effectiveness gap of regulation by initiating voluntary, yet binding, strategies for economic or other civil society actors. They very often function according to mutual control. As a hybrid strategy,

accompanying regulatory instruments are seen as a necessary frame of a so-called “regulated self-regulation” (Hey et al. 2005). They are therefore suited to foster not only sustainable intentions but also sustainable impacts. A typical problem of cooperative interventions, though, is that the incoherence of societal and economic interests can jeopardize their success.

Cooperative instruments may be effective but require a great deal of accompanying effort. In the project “User Integration,” a science-driven cooperative effort between companies and consumers or users of services was adopted, meaning that users became part of the steering effort. In collaboration with field partners of companies and public service providers, the project group ran twelve workshops dealing with product innovation in the fields of nutrition, housing, and mobility. Six workshops were tailored to progressive and advanced users (“lead users”) and the other six were tailored to average users (“nonlead users”) following a complex procedure of user identification. One of the research questions was whether the integration of highly motivated and interested (lead) users in solving problems through innovative ideas could prompt sustainable solutions. In the end, the researchers found that it is not the intention to consume in a more sustainable way but rather creativity that distinguishes lead users from nonlead users. Another finding was that companies were not really interested in implementing the suggested solutions, that is, innovative ideas (see Schrader & Belz, 2012).

### ***What Kinds of Instruments Are Best Suited?***

As indicated above, applying and evaluating different types of interventions, the researchers confirmed previous findings that only very seldom is one type of intervention adequate and that a mix of instruments is more promising if they are combined in a coherent way. The researchers of the “Transpose” project concluded that there is no best mode of intervention, but rather that “a bunch of interventions” is necessary (Brohmann et al. 2012b).<sup>13</sup> Regarding the factors that codetermine adequate modes or mixtures of interventions, different types of conditioning factors, such as those described in Core Statement 1, have to be taken into account. If, for example, a consumption field is closely linked to symbolic meanings (e.g., private cars as objects of status), structural and/or economic instruments have to be accompanied by measures that address this symbolic component.

<sup>13</sup> For similar findings and a discussion on how to combine instruments see Kaufmann-Hayoz & Gutscher (2001), Lucas et al. (2008), Geller et al. (2006), SDC/NCC (2006), and IES et al. (2008).

Given the complexity of consumption behavior and the factors influencing it, the selection of adequate instruments is not an easy task. An instrument, for example, that proves successful in one country may fail in another due to different policies or different culturally embedded beliefs, e.g., in the effectiveness of political steering instruments. To design effective “bunches of interventions,” the contextual factors of specific consumption acts and their dynamics need to be analyzed carefully using an interdisciplinary approach.

### **Conclusion**

This section summarizes what has been gained for future research from our synthesis process with regard to facilitating collaborative research aimed at understanding consumption and sustainability and at promoting more sustainable patterns of consumption. The starting point for developing the integrative framework in the focal topic was the recognition that the different approaches and disciplines dealing with sustainable consumption should not compete against, but rather complement, each other in dealing with the complexity of consumption acts adequately and discovering how consumption patterns can be changed in the direction of sustainability. We were—and remain—convinced that approximating “the whole picture” of consumption acts and of the different aspects of sustainability is quite a challenging task that cannot be undertaken in a single research project dealing with sustainable consumption or by a mono- or multidisciplinary approach alone. To appreciate and value the contributions of different disciplinary approaches, however, it is necessary to develop a shared framing of the problem as well as a joint and precise understanding of the different elements that comprise the research topic “sustainable consumption.” This process has been realized in our focal topic.

Our pluralistic approach in developing a common terminology and overarching findings has led to results contrary to what is usually sought in research: complexity has not been reduced but rather acknowledged so that it can be dealt with. Eventually, the research community within the focal topic developed what it considered to be an adequately coherent reference framework, allowing different disciplines to relate to and name the benefits and limitations of their research approaches, thus facilitating interdisciplinary exchange and research.

The reference framework developed in this integrative process can help other scholars to locate their research projects in a broader “landscape” of approaches and to identify their respective strengths and “blind spots” in a differentiated manner. It can also

help them to reflect on how they conceptualize sustainable consumption, what kind of consumption behavior and influential factors they focus on, what effects the interventions they are investigating or proposing can have in terms of intentions or impacts, and what kind of recommendations can possibly be drawn from their projects.

The reference framework comprises differentiations based on a coherent terminology to which a broad spectrum of disciplines can relate. We propose that research projects (whether disciplinary or interdisciplinary) should refer to this terminology in describing (and thereby locating) their research questions, developing their theoretical approach, and evaluating their findings. To understand in what sense research projects complement each other, and to integrate the approaches of different disciplines when investigating sustainable consumption and recommending how to achieve it, it is not enough to just use the terms “consumption” or “sustainable consumption.” Rather, one has to be very precise in a number of respects. The proposed framework provides such clarifications:

- *Categories characterizing consumption:* Types of consumption acts, with regard to degrees of freedom, degrees of reflection, and symbolic and emotional significance; stages of consumption acts, including selection, acquisition, use, disposal of goods, and prosuming; contextual factors (belonging to the social, institutional, cultural, or sociospatial context); constructs of wanting, such as objective needs, subjective desires, and ideas about the degree and breadth of their satisfaction.
- *Defining sustainability in consumption:* Objective needs assumed to be legitimate and external conditions that have to be created or sustained to satisfy them; operationalization of these objective needs and/or external conditions in terms of criteria to assess intentions and/or impacts.
- *Relating interventions to “consumption” and “sustainability in consumption” in terms of what kinds of consumption categories can be addressed via a single instrument or mix of instruments:* Types of consumption acts; stages of consumption acts; contextual factors; constructs of wanting; objects of change whether intentions, impacts, or both.

Of course, work on the reference framework presented here is not complete. Quite to the contrary, it needs to be further advanced, that is, examined, developed, and complemented, through contributions from other scientists. We hope that the proposed framework will stimulate further debate and self-

reflection among members of the sustainable consumption research community and subsequently support more integrative and coherent interdisciplinary research on sustainable consumption.

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